2021

# Neurodiversity and Workplace Social Capital Effects on Employee Attitudes and Intentions

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This is to certify that the doctoral dissertation by

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Walden University
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Abstract

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MBA, University of Phoenix, 2016

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## Abstract

Neurodivergent employees have higher turnover rates than their neurotypical peers, and much remains unknown about how to improve their workplace experience. The purpose of this quantitative study was to examine the relationships between neurodiversity and workplace social capital on job satisfaction and turnover intent. Social cognitive career theory (SCCT) informed the study design. Working adults ($N$ = 1,243) in the United States recruited using convenience sampling and MTurk participated through an anonymous online survey. Data analysis was conducted using three-way ANOVA and mediation. Significant three-way interactions were found between gender, job classification, and likelihood of having attention deficit hyperactivity disorder (ADHD) on three separate dependent variables: workplace social capital, job satisfaction, and turnover intent. The relationships between neurodiversity symptomology and both job satisfaction and turnover intent were significantly mediated by workplace social capital. These findings add to the body of knowledge in understanding differences between individual workplace experiences relative to worker neurodiversity which can inform HR practice and workplace training and retention initiatives. This study may support social change by encouraging greater consideration of adult ADHD, neurodiversity and workplace social capital within diversity and inclusion (D&I) research and workplace initiatives.

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# Dedication

This dissertation is dedicated to my children, Emilia Scotson and Natalie Scotson, neurodiverse individuals everywhere, and others who struggle with feeling alone, a little different. As this study was conducted during the COVID-19 pandemic, I dedicate it in particular to diverse individuals who have experienced greater challenges in their lives due to the pandemic. Whether you're struggling at work or school, in trying to get help from the government or other organizations, or in balancing your work and personal life, I feel your pain.

Helping my children with their challenges dealing with neurodiversity led to my own identification as part of the neurodiverse community. This ultimately led to my choice of this topic as the area of study for my dissertation topic. I hope this research can help fuel the fires of social change and help move the gears another inch forward on getting more people the right type of help through a better understanding of the interactions between neurodiversity, social capital, and outcomes. You are not alone. Together, we can lift each other up.

# Acknowledgements

Completing this doctorate is the hardest thing I have ever done. Returning to school after spending 20 years working in corporate America is hard for anyone. I faced additional challenges as a socioeconomically disadvantaged, neurodiverse, first-generation Asian woman and primary caregiver and mother of two amazing neurodiverse children. I offer my thanks and gratitude to my all family, friends and colleagues for your support and encouragement. In particular, I want to acknowledge and honor my husband, Cristi Citea and mother, Phuong Badgett, for being my most ardent cheerleaders and greatest supporters. I also want to give special thanks to my friends Yashica Cornelius and Jennifer Grant for their positive encouragement and emotional support. I additionally want to thank Walden University and all the faculty and staff I have interacted with over my time at Walden for the experiences I have had; in particular, my chair, Dr. Herndon and second committee member, Dr. Conrad.

Your support, encouragement, advice, and mentorship were integral to my success. You all have given me a greater lived experience of the essential role social capital plays in helping individuals be successful in life. Our interactions have added depth to my perspective on social capital both within and external to educational systems. The doctoral experience has confirmed and strengthened my belief that technological innovation is needed to better support human thriving. I recognize and thank you for how our interactions have influenced the shape, scope, and focus of my social change interest and will continue to fuel my desire to help others for years to come.

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# Chapter 1: Introduction to the Study

Ten percent of the population is neurodivergent in some way (Faragher, 2018). Some might argue that is a conservative estimate as identification and diagnosis of neurodiverse people has risen significantly over the past decade (e.g., Loiacono & Ren, 2018). There are also differences in which conditions are included within the definition of being neurodivergent. Brusie (2017) defines neurodivergent individuals as those living with symptoms of one or more conditions included within the umbrella term *neurodiversity*. This definition includes those with symptoms or clinical diagnosis and includes three well-known conditions: autism spectrum disorder (ASD), attention-deficit/hyperactivity disorder (ADHD), and dyslexia (Brusie, 2017). The Society for Human Resource Management has taken notice of the growing "inclusion revolution" (Sanchez, 2018, title) and actively supports training organizations and human resource professionals considering how to train supervisors, managers, and employees to create workplaces where neurodiverse workers can thrive without discrimination.

Although having a neurodiverse workforce is touted as a competitive advantage (Austin & Pisano, 2017), it requires significant human resource reform and leadership retraining to successfully access a neurodiverse talent base. Within the overall sphere of diversity and inclusion initiatives, public awareness towards solving this problem has grown as advocates for neurodiversity have made strides in reform and litigation to improve the lives of those with neurological disorders (Lollini, 2018). Researchers have highlighted the need for additional social support infrastructure to address the challenges

those with neurodevelopmental disorders face to improve outcomes (Mackenzie & Watts, 2011).

Today, workplace reform to better integrate neurodiverse workers is still a rare practice. Austin and Pisano (2017) found initial longitudinal evidence in companies with multiyear programs of managers reporting multiple benefits to organizations beyond the originally hypothesized reputational enhancement for the companies; these benefits include productivity gains and quality improvement, as well as higher levels of innovation and employee engagement. Yet, a qualitative study of neurodiverse employees and workplace challenges highlighted problems with accessing workplace social capital, such as in being able to effectively communicate or work through problems with their managers (Jolley, 2018). A Fortune 500 company recently demonstrated that providing enhanced workplace social supports improved hiring, performance, and retention of autistic employees (Annabi et al., 2019). To date, corporate inclusion programs have focused on autistic people but in the future these programs could be extended to support other neurodiverse employees such as employees with ADHD (Austin & Pisano, 2017).

Adult ADHD is considered one of the most common neurodevelopmental disorders (National Institutes of Health, 2017). It is estimated that, internationally, 5% of adults may experience symptomology of ADHD, which is associated with poor workplace outcomes (Polyzoi et al., 2018). Multiple studies of adults with ADHD symptoms have identified higher turnover, lower wages, and lower overall employment levels compared to peers without ADHD (e.g., Antshel, 2018). Annabi et al.'s (2019)

example of the Fortune 500 company suggests that similar workplace social supports could improve outcomes for workers with other neurodiversity conditions such as ADHD. However, based on my review of the literature, no researcher has studied workplace social capital in the context of neurodiversity to better understand or quantify the relationships between neurodiversity, workplace social capital, and workplace outcomes.

In this chapter, I will provide an overview of the study. Sections of this chapter include the background, problem, purpose of this study, research questions (RQs) and hypotheses, and theoretical foundation. I will also outline the nature of the study; define key terms; and discuss the assumptions, scope and delimitations, limitations, and significance of the study.

## Background

ADHD in adults is correlated with occupational impairment (Fredriksen et al., 2014). Although ADHD symptomology impacts a significant number of adult workers and is negatively associated with employee performance, only a small percentage of adults receive diagnosis or treatment (De Graaf et al., 2008). De Graaf et al. (2008) also found that that, regardless of clinical diagnosis, the prevalence of ADHD symptoms at a level likely to meet clinical diagnostic criteria was negatively associated with work performance. Many cases of adult ADHD are overlooked or misdiagnosed because of the lack of awareness of ADHD as an adult disability (Johnson et al., 2020). Further complicating the issue of adult ADHD is the fact that the diagnosis of adult ADHD does

not always result in the identification of a workplace disability (Patton, 2009). It is therefore essential to use a self-report tool instead of relying on clinical diagnosis when studying neurodiversity among workers (Murphy & Barkley, 1996). To assist researchers and clinicians in the overall study of adult ADHD prevalence, Kessler et al. (2007) developed and validated an adult self-scored ADHD screener, the Adult ADHD Self-Report Scale (ASRS). The screener includes a short, six-item Likert-type scale instrument that has high reliability and substantial diagnostic accuracy compared to clinical diagnoses in multiple tests, with AUC values as high as 0.90 where respondents can score between 0-24. While researchers such as DeGraff et al. (2008) have clearly demonstrated the impact of neurodiversity on workplace performance, little is known regarding how to provide effective, evidence-based support for neurodiverse workers.

Researchers have identified a gap in the research on occupational supports and evidence-based interventions for employees with disabilities in the workplace, some explicitly mentioning cognitive disabilities, learning disabilities, or ADHD (e.g., Thompson et al., 2017). Gordon and Fabiano (2019) confirmed this gap, highlighting a need for additional studies of effective supports and interventions specific to occupational settings for individuals with ADHD. Microsoft recently found success in using workplace social supports to improve outcomes for employees with autism spectrum disorder (Annabi et al., 2019); this suggests that it may be worthwhile to investigate whether workplace social capital can have a positive impact on workplace outcomes on workers with other neurodiversity conditions, such as ADHD.

Others have studied individual elements of workplace social capital, such as the relationship between neurodiverse employees and their managers (Jolley, 2018), in an attempt to address this gap. Because neurodiverse workers have higher unemployment than their neurotypical peers, Kuriyan et al. (2013) suggested a need to examine factors that might predict or reduce turnover. Phillips et al. (2018) recommended exploring social capital and workplace outcomes. Perzynski et al. (2018) found that social capital was associated with employee burnout and satisfaction and suggested that improving workplace social capital might reduce burnout. Mastoras et al. (2018) identified social support as having positive associations with self-concept. They concluded that social support might provide an avenue for future interventions to improve resiliency and positive outcomes for employees. Sumner and Brown (2015) highlight the dearth of research conducted on the experiences of marginalized groups such as neurodiverse employees in terms of major variables of interest in the workplace, such as job satisfaction.

Fabiano et al.'s (2018) finding that adults with ADHD were rated lower by managers even when little statistical difference in job performance ratings exists supports Mastoras et al. (2018)'s suggestion. The difference in manager ratings irrespective of job performance suggests that a problem in the relationship between employee and manager may exist. The employee/manager relationship is often considered a component of workplace social capital. Rosario-Hernandez et al. (2020) recently demonstrated that structural equation modeling, mediation, and moderation could help clarify what areas of

workplace behaviors ADHD affects; their study confirmed that work engagement mediates the relationship between ADHD and workplace behaviors. Although not studying social capital themselves, Rosario-Hernandez et al. (2020) further suggested that one might consider ADHD a condition resulting from limited access to resources within the workplace, including interpersonal and social relations, which are part of workplace social capital.

This background highlights the need for occupational supports that can predict or reduce turnover for those with disabilities like ADHD. It also highlights a need to research whether there are significant relationships between social capital and workplace outcomes, as Phillips et al. (2018) suggested. In addition, the discussion illustrates a gap in understanding the connection between neurodiversity and job outcomes. More remains to be learned about the effect of workplace social capital on the relationship between neurodiversity symptomology, job satisfaction, and turnover intent. Doing so would partially address the need Kuriyan et al. (2013) brought up in answering whether workplace social capital has potential as a factor that could help predict or reduce turnover. Additionally, if there is a significant relationship between the variables and between-group differences when comparing neurodiverse and neurotypical employees, it would be useful to research whether workplace social capital mediates job satisfaction or turnover intent differently between these groups. Studying this phenomenon may suggest a direction for the knowledge gap Gordon and Fabiano (2019) referenced in understanding where occupational supports might effectively be developed.

## Problem Statement

There is a need to understand the comparative differences of neurodiverse and neurotypical employees (Sumner & Brown, 2015). Gordon and Fabiano (2019) and other researchers have highlighted the need to better understand the factors causing occupational impairment of neurodiverse adults in order to improve workplace outcomes. Neurodiversity, as measured by the presence of ADHD symptomology in employees, is associated with lower job satisfaction and higher turnover compared to coworkers (Iyer & Masling, 2015). ADHD symptomology adversely impacts as much as 5% of the workforce overall, with significant differences reported in studies looking at the interactive effects of factors such as occupation and gender (e.g., Polyzoi et al., 2018).

In seeking to reduce turnover intent or increase job satisfaction, there is an emerging body of research that has shown some positive correlations between workplace outcomes and workplace social capital (i.e., one's workplace network and the resources developed and accessed through this network; e.g., Pham et al., 2019). Phillips et al. (2018) suggested that further exploration between workplace social capital (WSC) and workplace outcomes and the identification of a disability like ADHD is needed. To date, no researcher has studied WSC, employee attitudes, and intentions in context of employee presentation of neurodiversity symptomology (NDS), based on my review of the literature. Hence, with this study I sought to partially address the gap presented by Polyzoi et al. (2018) by examining between-group differences based on NDS, job classification, and gender, on WSC, job satisfaction, and turnover intent. Additionally, in

conducting this study, I responded to Phillips et al.'s (2018) suggestion that researchers explore the extent to which WSC mediates the relationship between the level of symptom severity of NDS (SS_NDS) and predictors of employee leave-taking behavior as measured by job satisfaction (JS) and turnover intent (TI).

## Purpose of the Study

I addressed the gap in the research by evaluating the impact of neurodiversity symptomology on workplace social capital, employee attitudes, and intentions in two ways. First, I investigated the interactive effects neurodiversity symptomology categorical grouping (CG_NDS), job classification (JC) and gender on three employee subjective sentiments: workplace social capital (WSC), job satisfaction (JS), and turnover intent (TI) based on Polyzoi et al.'s (2018) findings. Second, to further address the gap in understanding the role of WSC as discussed by Phillips et al. (2018), I studied the extent to which WSC mediates the relationship between severity of neurodiversity (SS_NDS) and two predictors of turnover: job satisfaction (JS) and turnover intent (TI).

## Research Questions and Hypotheses

I developed two RQs. The questions and their corresponding hypotheses informed the study design, choice of data, formatting of data collected, and data analysis. Figures 1 and 2 illustrate RQs 1 and 2, respectively.

RQ1: To what extent do interactions between categorical neurodiversity grouping based on ADHD symptomology (CG_NDS), gender, and job classification (JC) explain

employee workplace social capital (WSC), job satisfaction (JS), and turnover intent (TI) scores?

$H_0 1_1$: There is a statistically significant three-way interaction between CG_NDS, JC, and gender on WSC.

$H_1 1_1$: There is no statistically significant three-way interaction between CG_NDS, JC, and gender on WSC.

$H_0 1_2$: There is a statistically significant three-way interaction between CG_NDS, JC, and gender on JS.

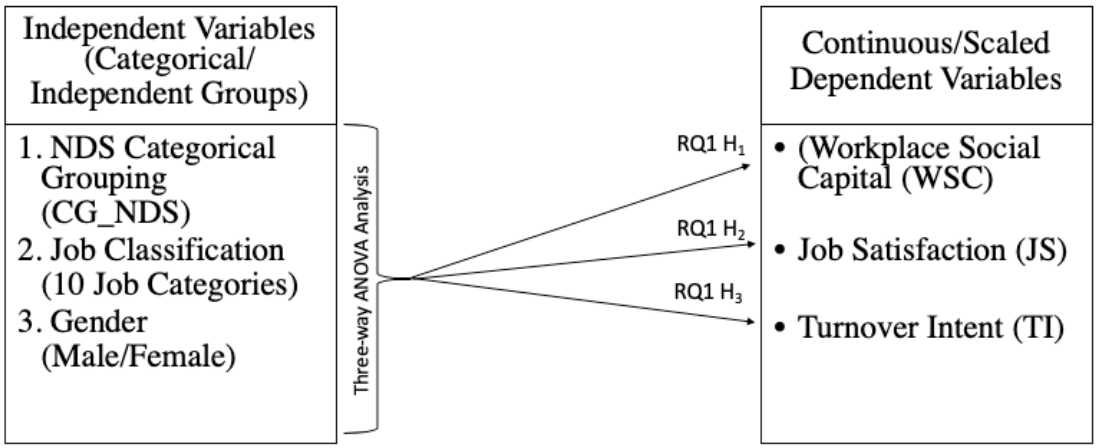
$H_1 1_2$: There is no statistically significant three-way interaction between CG_NDS, JC, and gender on JS.

$H_0 1_3$: There is a statistically significant three-way interaction between CG_NDS, JC, and gender on TI.

$H_1 1_3$: There is no statistically significant three-way interaction between CG_NDS, JC, and gender on TI.

**Figure 1**

*Visual Representation of Research Question 1*




RQ2: To what extent does workplace social capital (WSC) mediate the relationships between neurodiversity symptom severity, as measured by ADHD symptomology (SS_NDS), and employee leave-taking sentiment, as measured by job satisfaction (JS) and turnover intent (TI)?

$H_02_1$: WSC does significantly mediate the relationship between SS_NDS and TI.

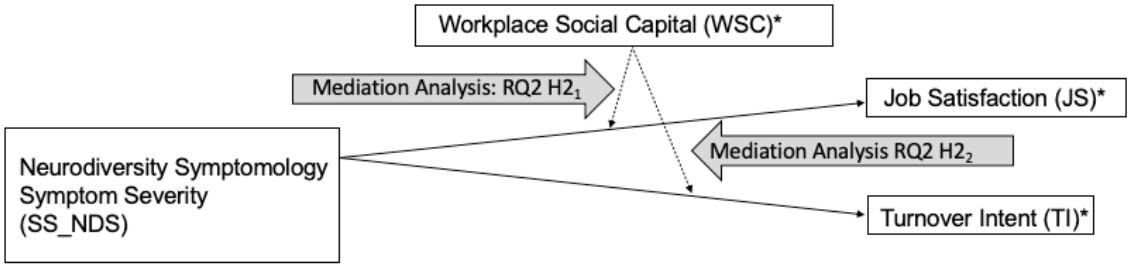
$H_12_1$: WSC does not significantly mediates the relationships between SS_NDS and TI.

$H_02_2$: WSC does significantly mediate the relationship between SS_NDS and JS.

$H_12_2$: WSC does not significantly mediates the relationships between SS_NDS and JS.

**Figure 2**

*Visual Representation of Research Question 2*




*Each variable listed is a continuous variable with scores that range from low to high.

## Theoretical Framework

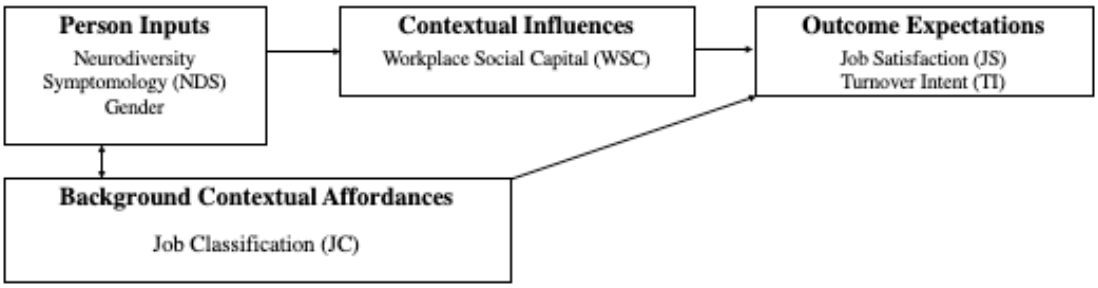
The theoretical foundation for this study was social cognitive career theory (SCCT) and the conceptual framework provided by Brown and Lent's (2013) career self-management model (SCCT-CSM). SCCT suggests that career outcomes are dependent upon person inputs and contextual influences (Brown & Lent, 2013). Lent and Brown (2013) proposed the career self-management model as an extension of their original social cognitive career theory to provide a framework to understand how individuals take action based on perceptions about their career.

In this study, SCCT theory and the SCCT-CSM conceptual model provided a framework for understanding the relationships between the variables. SCCT was used in prior research to identify that social support predicted outcomes related to disability (Dutta et al., 2015). Prior researchers successfully used SCCT-CSM to determine key predictors in career planning processes, such as in college athletes' career planning

(Wendling & Sagas, 2020). Thompson et al. (2017) suggested that SCCT-CSM might provide a good model for evaluating differences between those with and without a disability such as ADHD. However, to date, no study has applied SCCT-CSM to identifying key predictors or underlying theoretical mechanisms that influence career planning processes for those with ADHD. Figure 3 illustrates how the variables used in this study align with the conceptual framework provided by SCCT-CSM theory.

**Figure 3**

*SCCT-CSM Model*




## Nature of the Study

The nature of the study was conducted was quantitative, nonexperimental research. The study used causal-comparative design to better understand the impact of neurodiversity on workers through the SCCT-CSM theoretical framework. Based on the SCCT-CSM framework and theorized relationships between the variables, between-group analysis was performed. The analysis used three-way ANOVA to evaluate the impact of CG_NDS, gender, and JC on each of the following: WSC, JS, and TI. Additionally, the study used mediation analysis to explore further the extent that WSC

mediates the relationships between SS_NDS, and outcome expectations as measured by JS, and TI, which were the primary foci of this doctoral study.

WSC is a continuous variable that was measured using data from the COPSOQ workplace social capital scale (Burr et al., 2019a) and converted into a continuous variable. JS is a continuous variable that was measured using the COPSOQ job satisfaction scale (Burr et al., 2019b), with the data converted into a continuous variable. TI is a continuous variable with data gathered using the Michigan Organizational Assessment Questionnaire (MOAQ) Intent to Turnover 3-item scale (Cammann, et al., 1983) and converted into a continuous variable. NDS was measured using the six-item short version of the ASRS (Kessler et al., 2005a); this instrument was chosen based on the availability of self-screening instrumentation validated for its accuracy in relating to the diagnosis of ADHD (e.g., Schuetz, 2008).

Because two different analysis methods were be used for this study, the data collected from this instrument was transformed into two variables: CG_NDS and SS_NDS. CG_NDS represents ASRS data transformed to represent NDS as a variable where respondents are categorically grouped based on the likelihood that the individual score is predictive of meeting clinical criteria for adult ADHD (Schuetz, 2008). SS_NDS represents ASRS data transformed to provide a continuous variable of NDS system severity as a continuous variable with scores that range from low to high across a possible answer range of 0-24. Gender and job classification were also captured as categorical variables, as previously shown in Figure 1. These variables were appropriate

choices for the three-way ANOVA and mediation analyses, as previously shown in Figures 1 and 2. Performing these quantitative analyses partially addressed the gap in research on the understanding of the relationships between NDS, gender, job classification, workplace social capital, job satisfaction, and turnover intent among working adults in the United States.

## Definitions

The following definitions are used in this study:

*Attention deficit and hyperactivity disorder (ADHD)*: A disorder that is defined by the American Psychiatric Association (1994) as a persistent pattern of inattention, hyperactivity, or some combination of the two that is more frequent and severe than is typically observed in individuals at a comparable level of development.

*Executive functioning disorder (EFD)*: A deficiency in one's ability to organize behavior, manage time, and prioritize tasks, especially as it relates to future goal attainment (Schreuer & Dorot, 2017). EFD is often related to the attention deficit portion of the diagnosis of ADHD (Jarrett, 2016).

*Full-time*: Someone who works 35 hours or more each week, as defined by the U.S. Bureau of Labor Statistics (2020).

*Job satisfaction*: A measurement of how individuals feel towards their job, or how much they like their job (Spector, 2016).

*Neurodivergent/Neurodiverse*: Individuals who live with autism, are on the spectrum, or have other developmental differences encapsulated within the neurodiversity movement (Brusie, 2017).

*Neurodiversity*: A broad spectrum of cognitive, linguistic, and learning functions, as well as early-onset neurobiological conditions, that often lead to impairment of an individual's capacity for any of the following: social understanding, social interaction, learning, or pragmatic and semantic communication (Lollini, 2018). Neurodiversity includes individuals with autism, ADHD, Tourette's syndrome, and learning disabilities, such as dyslexia (Mackenzie & Watts, 2011).

*Neurotypical*: Individuals who do not have a neurodiversity condition and are considered typical in their development, intellectual, and cognitive abilities (Brusie, 2017).

*Part-time:* Those who are working 34 or fewer hours per week or those who specify they are working part-time, but do not disclose the number of hours they are working, as defined by the U.S. Bureau of Labor Statistics (2020).

*Social capital*: “An asset embedded in relationships” is how Leana and Van Buren (1999, p. 538) summarize the definition of social capital. Within this context, Leana and Ven Buren assert that the asset of social capital refers to relationships between individuals, in communities, across networks, or within societies. As a group construct measuring relationships, when social capital is measured, what is being measured is the

either (a) an individual's perception of social capital within the group, or (b) the perception of social capital by group members.

*Turnover intent*: An assessment of the individual's desire to continue to be an organizational member (Seashore et al., 1983).

*Workplace social capital*: A concept that includes individual perceptions about the working environment as measured by vertical trust, horizontal trust, and organizational justice (Berthelsen et al., 2019). Workplace social capital is synonymous and used interchangeably in many papers with the term *social capital* when discussing social capital within the sphere of work. For this study, the term *workplace social capital* is used when discussing participants' perception of social capital within their workplace.

## Assumptions

I made the following assumptions regarding this study:

- It was assumed the participants who completed the survey would do so honestly and accurately, even in cases where participation was incentivized.
- IRB guidance indicated adults who are working full time and whose ADHD symptom score indicate they may have ADHD are not a vulnerable high-risk population that would require more substantial IRB oversight. The reason for this is because they are functioning well enough to be able to work. While the informed consent states only adults who are working should participate, it was assumed adults who answer choose to continue thoroughly read and understood the informed consent letter.

- It was assumed that the participants would be representative of the United States working adult population. In the data analysis, demographics were compared to prior research studies on the adult ADHD population to identify and discuss any significant inconsistencies.
- It was assumed the survey instruments chosen for use were adequate for capturing each variable of interest.
- It was assumed that no variables not included in this study have enough of a latent impact to confound the results of this study. While prior research has identified many variables that correlate to those included in this study, an inherent limitation on any study is the need to limit the number and complexity of variables to a manageable size.

## Scope and Delimitations

The scope of this study was limited to the analysis of employee neurodiversity, self-rated workplace social capital, job satisfaction, turnover intent, and the relationships between these variables. This study was limited to adults working in the United States. An in-depth analysis inclusive of all neurodiversity conditions was outside the scope of this study which was limited to studying neurodiversity through self-rated ADHD symptomology. No data about diagnoses for ADHD or any other medical condition was be requested from participants. The scope of this study did include gender and job classification as demographic variables.

This study has the most potential for generalizability to working adults in the United States. However, it may also have some generalizability to other countries where employees view workplace social capital, turnover, and job satisfaction similarly to the population included in this study. This study focused on evaluating NDS, WSC, JS, and TI through SCCT-CSM as this framework suggested pathways for evaluating relational effects. Other theories could have been applied to this study and might in future studies provide for interesting discussions, such as expectancy theory of work motivation (Spector, 1985) and Herzberg's two-factor need theory (Pinder, 2008).

## Limitations

One limitation of this study was in setting the scope within the SCCT-CSM model. This model provides for dynamic studies of the interplay between many factors. As other researchers have done when using SCCT-CSM (e.g., Wendling & Sagas, 2020), for this study, I limited my variables to those identified by prior research as being most relevant to the research topic. Many other demographic and psychological variables exist that may have some relevance to this study, including self-efficacy, personality, race, education level, ADHD sub-category (inattentive vs. hyperactive), and socioeconomic status. This study also looked at neurodiversity only as identified through ADHD symptomology. The study does not ask about clinical diagnosis of ADHD or any other neurodiversity condition. It also does not incorporate or compare these variables relative to other types of neurological disabilities, such as autism or dyslexia. These could be considered for inclusion in future studies.

COPSOQ is a multidimensional instrument that provides researchers with flexibility in selecting some or all of its domains for study. While other domains exist that may express a latent interactive effect on WSC, seeking to include all of them would decrease the likelihood I would have been able to obtain a significant number of valid responses. I made an effort to balance the length of the survey with the need to collecting enough data for credible analysis. Thus, to minimize the likelihood of receiving incomplete survey responses, a smaller subset of the COPOQ representing just those questions included in the domain of workplace social capital were included in this study.

The COVID-19 pandemic lockdowns began while I was finalizing my data collection methods and preparing to submit my proposal to IRB. Originally, I had intended to include collecting participant responses in person, such as at conferences or other venues. I anticipated that the COVID-19 pandemic would limit my ability to successfully utilize the snowball method to collect the desired number of responses as a significant number of individuals in my network might no longer qualify as employees if they have been laid off. To address this limitation, I requested IRB approval to collect participants through the incentivized participation channels of MTurk and SurveyMonkey. MTurk pays individuals a small amount to participate. It was anticipated that COVID-19 might have some impact on the study responses and, as a latent variable, might limit the generalizability of my study findings. However, due to the emerging nature of the pandemic at the time, there was no existing reliable instrument to measure or weight the impact of the pandemic available.

## Significance

With this study, I sought to quantify relationships between (a) neurodiversity symptomology, (b) gender, (c) job classification, (d) workplace social capital, (e) job satisfaction, and (f) turnover intent, in ways not performed in prior research. The study contributes to closing a gap in the research by providing increased quantitative understanding regarding the role workplace social capital plays in supporting a neurodiverse workforce. This study provides insights into neurodiversity symptomology impact on job satisfaction and turnover intent and whether workplace social capital can provide moderating benefits that improve employee outcomes. It also contributes to the literature by providing insight into how neurodiversity symptomology might have a more significant impact on employees of different gender and job classifications. As a study was conducted during the COVID -19 pandemic, this study also contributes to the literature by providing insights into the impact of neurodiversity symptomology on workers during a pandemic such as the COVID-19 pandemic.

This understanding may impact vocational counseling by providing new insights that can support coaching neurodiverse employees. The findings of this study regarding differences between neurodiverse and neurotypical employees regarding workplace social capital, job satisfaction, and turnover intent may be of particular value in the wake of the pandemic in seeking to prevent greater adverse impact as workplaces adapt. The findings of this study regarding the capacity of workplace social capital to mediate the relationships between neurodiversity symptomology and either job satisfaction or

turnover intent may also inspire future policy and practice in using WSC to improve outcomes for those with ADHD symptomology. A better understanding of how neurodiversity as expressed through symptomology (not diagnosis) of ADHD is related to differences between employees may help employers support the rights of neurodiverse employees and reduce the risk of lawsuits related to workplace discrimination (U.S. Equal Employment Opportunity Commission, 2016). On a larger scale, greater understanding of mechanisms relating to occupational success for adults with symptoms of a neurodiverse condition, such as ADHD, can begin to alleviate the problem of socioeconomic disparities that neurodiverse adults currently experience. This study of ADHD symptomology may have some crossover applications to support other neurodiverse individuals such as those with autism or dyslexia and may inspire future studies of neurodiverse workers.

## Summary

This chapter provided an overview of the topic of this dissertation study. In this chapter I introduced the topic of study, working adults in the United States, and their perceptions of workplace social capital relative to job satisfaction and turnover intent, as influenced by NDS. The background leading up to the need for this study was discussed, as well as the problem this study addresses and the purpose of the study. The research questions and hypotheses were summarized, as well as the theoretical foundation of this study. This chapter also provided an outline of the type of study that was conducted. Finally, definitions of key terms, assumptions made in designing the study, scope and

delimitations of the study, limitations of the study, and the significance of the study were discussed. The next chapter will provide a more in-depth discussion of the existing research leading up to this study, theoretical foundation, discussion of the known interactions between variables, and methods used in previous, related research.

# Chapter 2: Literature Review

The neurodiversity symptom set that this study focused on was ADHD symptomology among working adults. Researchers have found that ADHD symptomology is associated with higher turnover compared to coworkers without ADHD symptomology (Iyer & Masling, 2015). Adult ADHD has been associated with a variety of workplace impairments and poor workplace performance (Wiklund et al., 2017).

In reviewing the literature, I did not find evidence or recommendations of workplace support programs designed to support the development and retention of employees with ADHD. As noted in Chapter 1, some programs exist for autistic people; the *Autism at Work Playbook* (Annabi et al., 2019) demonstrated that creating programs specific to the needs of the neurodiversity community can positively impact the individual and the employer. Anker et al. (2019) suggested that interventions which provide positive resources to support those with ADHD may be as important as those with a focus on symptom reduction. However, little research has addressed this proposed research vein. Kuriyan et al. (2013) recommended that one way to begin addressing this gap would be to examine ADHD and factors relating to employee termination and turnover prevention. Although numerous researchers have found reduced turnover intent and increased job satisfaction in relation to workplace social capital (e.g., Pham et al., 2019; Phillips et al., 2018), little is known about social capital and workplace outcomes specific to neurodiverse employees with disabilities like ADHD.

By 2009, researchers studying ADHD had identified it as one of the most common disorders affecting adults in America and worldwide (e.g., De Graaf et al., 2008). Nevertheless, contention exists in defining the extent of the problem. De Graaf et al. (2008) reported that approximately 3.5% of all adult workers were likely to meet diagnostic criteria for adult ADHD internationally. More recently, Polyzoi et al. (2018) reported their belief that adult ADHD is regularly underdiagnosed, and that 5% is a more accurate worldwide estimate. Kessler et al. (2006) estimated that in the United States, 4.4% of adults would meet the diagnostic criteria for adult ADHD. Regardless of the specific percentage, Zhu et al. (2018) found lower levels of ADHD diagnosis among those with insurance paid for by an employer (4.02%) than those who were on Medicaid (10.57%). Due to low levels of employees with clinical diagnoses of ADHD, Murphy and Barkley (1996) recommended use of a self-report tool instead of relying on clinical diagnosis when studying ADHD symptomology among workers.

Impairments related to ADHD result in individuals being perceived more negatively by themselves and others (Levanon-Erez et al., 2017). An individual's perception of self-performance and beliefs about how others perceive them factors into perceived employability and concerns about job stability (Virga et al., 2017). Meanwhile, positive social capital is negatively correlated with turnover intentions and positively correlated with job satisfaction (Huang & Liu, 2017). Since SCCT and the SCCT-SCM have been used in prior studies to understand job satisfaction and turnover intent, Thompson et al. (2017) suggested further research studies are needed

to increase our understanding of these differences between groups, particularly in relation to disabilities. Despite Thompson et al.'s suggestion, no researchers to date have used SCCT-SCM to understand the effect of neurodiversity and workplace social capital on job satisfaction and turnover intent, based on my review of the literature. This chapter includes a description of the literature search strategy, an overview of the theoretical foundation, and a review of the literature relating to the theoretical foundations and key concepts for this study.

## Literature Search Strategy

The literature review conducted to inform the background to this study included searching multiple scientific databases such as ScienceDirect, SAGE Journals, PsycARTICLES, PsycBooks, PsycExtra, PsycINFO, Google Scholar. I also used Walden's Thoreau and EBSCOhost, which are multidatabase search tools. Neurodiversity was too broad of an area to study because it is comprised of multiple conditions with varying methods of diagnosis. Thus, ADHD was focused on as the area of study based on the high prevalence of working individuals with symptoms. Similarly, because searching for "social capital" without using the term in brackets includes every article with either the term *social* or the word *capital*, I focused on articles found when social capital was used as a specific keyword string.

In reviewing the literature, I found that the bulk of academic writing relating to neurodiversity and employees was not peer reviewed. An EBSCO Thoreau search of the Walden University Library found only 104 publications between 2010 and 2020

containing both the terms *neurodiversity* and *employee*; limiting the search constraints to peer-reviewed publications brought the article count to only 16 articles. Revising the search to "employee OR workplace" brought the results up to 48. A separate search for adult ADHD (and other spelling variants) and employee or workplace still found just 122 articles. To put this number in context, a search for the term *job satisfaction* along with "employee OR workplace" with the same search parameters found 54,056 results. Searching for ADHD, job satisfaction, and employee or workplace found only eight results. These results suggested a lack of prior research on neurodiversity and, specifically, ADHD within employee and workplace contexts. To identify whether this void related to a gap that prior researchers have suggested be addressed, I directed my search toward ADHD, SCCT, and workplace social capital.

Although many articles contained the keywords *neurodiversity, ADHD*, *social cognitive career theory*, or *workplace social capital* individually, no articles were found containing either *social cognitive career theory* or *workplace social capital* in conjunction with *neurodiversity* or *ADHD*. This lack suggested there might be a research gap related to studying ADHD within the theoretical framework of SCCT. To continue with the literature review and further clarify this potential gap, I reviewed additional journals with published articles on either ADHD or SCCT to look for other research that might be relevant. These included the *Journal of Vocational Behavior, Journal of Career Assessment*, *Counseling Psychologist*, and the *Journal of Attention Disorders*, as well as other journals relating to child and student psychiatry or psychology and journals for

developmental disabilities, learning disabilities, affective disorders, and neuropsychology.

As my initial literature review found no research on ADHD referencing SCCT, I modified the search criteria to include workplace support constructs within the SCCT theoretical framework; this identified a limited number of additional articles using keywords such as *workplace support* and *career success* in conjunction with *ADHD*. Next, additional filters were added to look at specific behaviors with relationships to social capital career outcomes, including *job satisfaction* (19 results) and *turnover* (97 results) among those with ADHD.

In summary, I found that while job satisfaction and turnover intent relative to ADHD has been studied extensively, although the authors of these have not directly studied the interactions between these variables and workplace social capital. Additionally, little has been published in scientific literature specific to ADHD when using the SCCT framework to study employee outcomes such as turnover intent and job satisfaction. This literature review also highlighted certain foundational pieces for use as references by thought leaders in the social cognitive studies. These include Bandura's original work on social cognitive theory (Bandura, 1986, 1991) and Bourdieu's theoretical foundational work on social capital (Bourdieu, 1977, 1986), among others.

## Theoretical Foundation

Social capital theory and social cognitive career theory (SCCT) formed the theoretical foundation for this study (Lent & Brown, 2013). Bourdieu (1986) is credited

with first defining social capital as one of three distinct types of capital embedded in the structure of society and which can be used in determining the functionality and likelihood of success within a societal structure. Lin (1999) proposed an expanded theoretical model for social capital theory; this model includes causal paths and blocks of elements, including types of elements such as group assets (trust, norms), individual structural and positional variations that can contribute to inequality, and how these tied to accessibility to resources, use of resources, and the returns and effects that occur within the person's life.

The work of Bourdieu (1986) and Lin (1999) represent two facets of social capital with Bourdieu representing social capital at the societal-group level, and Lin representing the relational level (Lin, 1999). Many organizations and policymakers are interested in using workplace social capital scales as they relate to larger societal measures such as overall happiness or wellbeing; in this context, the mean employee group scoring of one organization could be compared to another, to judge and compare how well organizations provide employee social capital (Burr et al., 2019a). This use case led to social capital instruments being developed primarily to function as a mean, organizational score, rather than as a tool for comparing the individual utility of workplace social capital.

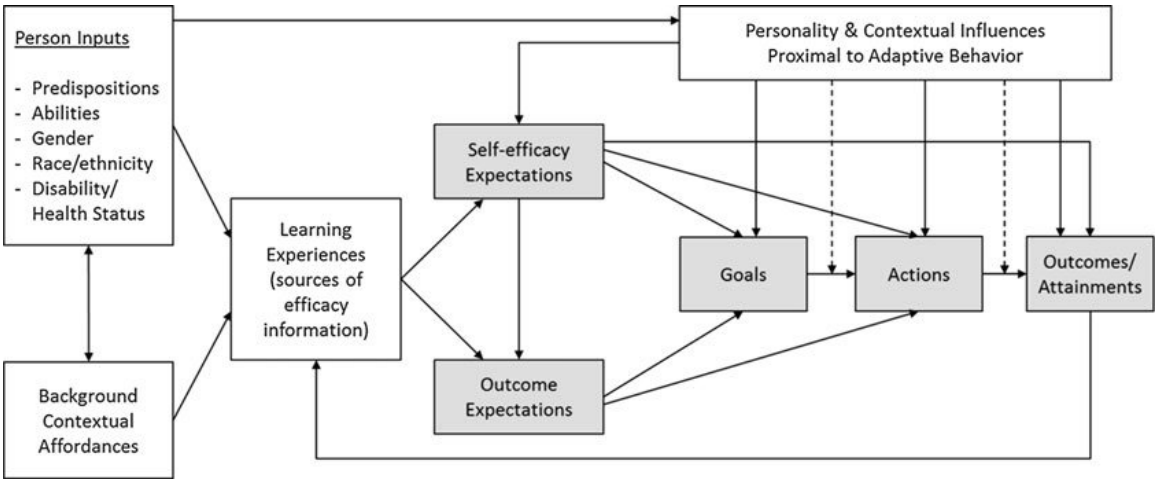
Social capital was further developed by Lent et al. (1994) to explain the relationships between individual personal inputs, social capital, and career outcomes and formalized as Social Cognitive Career Theory (SCCT). SCCT (Lent & Brown, 2013) provides a framework for understanding the relationship between social resources,

individual cognitive experiences, self-perceptions, and outcomes. Among college students with disabilities, Dutta et al. (2015) found the SCCT framework was useful in quantifying the importance of different model elements in predicting science, technology, engineering, and math (STEM) career interests and goal persistence among college students with disabilities; in their research, they also identified a strong, direct causal effect relationship between the contextual influence of social support and outcome expectations.

Research on the applications of social capital theory and SCCT within workplace contexts has demonstrated social capital influences various workplace outcomes including commitment, job performance, citizenship behaviors (Ellinger et al., 2013) and workplace aggression, employee engagement, and organizational effectiveness (Johnson et al., 2018). Brown and Lent (2013) developed the Social Cognitive Career Theory conceptual framework of the Career Self-Management Model (SCCT-CSM), as shown in Figure 4, to explain the effect of an individual's cognitive self-evaluation of the environment on career decisions and workplace outcome expectations.

**Figure 4**

*Social Cognitive Career Theory and the Process of Career Self-Management*




*Note.* Adapted from "Social cognitive model of career self-management: Toward a unifying view of adaptive career behavior across the life span," by R. W. Lent & S. D. Brown, 2013, *Journal of Counseling Psychology, 60*(4), p. 557. Copyright 2013 by the American Psychological Association.

As depicted in Figure 4, SCCT-CSM hypothesizes directional relationships between multiple variables and outlines multiple causal paths. Lent and Brown (2013) suggested social cognitive career theory (SCCT) not only could be used as a model for understanding workplace outcomes but could also be utilized in understanding how individuals self-manage their careers (SCCT-CSM). Thompson et al. (2017) evaluated this revised SCCT-CSM model and suggested future researchers evaluate the potential for SCCT-CSM in researching differences between groups, such as those with or without disabilities either in finding or maintaining employment.

Social capital, especially within the context of the working environment, is an essential contextual influence to consider within the SCCT-CSM model. As will be further discussed, social capital has been identified as having a statistically significant impact on employee outcomes within the workplace. For example, Pham et al. (2019) applying the SCCT model to understanding the impact of a workplace mentoring program on nurses in Taiwan identified social capital increase through the mentor-mentee relationship was related to a reduction in turnover intent and improved career interest, outcome expectations, and self-efficacy.

Social capital research within the workplace is a subject that has continued to evolve. Social capital is considered a multidimensional variable inclusive of multiple components based on the different facets of these relationships. Some confusion exists in the study and reporting of social capital and whether one is referring to *social capital* or *workplace social capital*, and what the differentiator between these is. Some workplace social capital papers use workplace social capital to discuss findings related to individual perceptions of social capital within the workplace (e.g., Rugulies et al., 2016). Others use the same term to study group perceptions of social capital within the workplace (Berthelsen et al., 2019). There also was a lack of homogeneity in how social capital within the workplace was measured.

Overall, while it was not possible to distinguish between whether a researcher was discussing individual or organizational social capital within the workplace context based on whether the term *social capital* or *workplace social capital* was used, some threads

were identified for distinction based on the factors used for measurement. For example, social capital between individuals within the workplace was most commonly measured through components such as bridging, bonding, and linking. In contrast, the individual's perceptions of organizational social capital within the workplace were commonly measured by psychosocial variables such as vertical trust, horizontal trust, and organizational justice.

When studying employee perception of organizational social capital, workplace social capital is broken into two primary categories: horizontal social capital and vertical social capital (Burr et al., 2019b; Oksanen, 2009). Oksanen defined vertical social capital as referring to the quality of a respectful and trusting relationship between an employee and a supervisor, while horizontal social capital refers to the quality of the trust and reciprocity between peers or co-workers. Some researchers, including those who developed the most recent version of the Copenhagen Psychosocial Questionnaire, also believe organizational justice should be considered as a dimension of social capital (Burr et al., 2019b).

The rationale for choosing SCCT as the theoretical framework for this study was the significant body of research previously invested in developing conceptual frameworks and career models such as SCCT-SCM. SCCT-SCM provides a well-researched and previously validated framework to explain the relationships between personality traits, social capital, and workplace outcomes. With this model already developed and validated, this study could focus solely upon applying the existing theoretical framework

of SCCT-SCM to a better understanding of the effects of neurodiversity and workplace social capital on turnover intent and job satisfaction within the relational pathways suggested by SCCT-SCM. This rationale was further supported by Thompson et al. (2017) who suggested SCCT-CSM might provide a good model for evaluating between-group differences such as those with or without disabilities.

## Literature Review Related to Key Variables and/or Concepts

### Neurodiversity from Childhood to Adulthood

*Neurodivergent* is an inclusive term covering individuals with autism, ADHD, dyslexia, Asperger's, bipolar, OCD, and more. It is estimated that approximately 10% of the population is neurodivergent in some way (Faragher, 2018). The number of students with a disability has increased 151% over the past 20 years; this is believed to be in part attributable to the increased survival of premature infants who are 2-3 times more likely to have a disability as well as increased early recognition of disabilities (Eagleton, 2019). The disabilities included under the umbrella of neurodiversity often start in childhood but persist into adulthood.

In the United States, it is estimated that 2.21% of adults in the United States have autism (CDC, 2020) and 4.4% may meet the diagnostic criteria for ADHD (Kessler et al., 2006). Asherson et al. (2016) suggested one of the reasons ADHD may be diagnosed in adults is that these adults, in their youth, received support systems in their home and school environments that assisted them enough so that their symptoms remained undetected until they were adults. Kessler et al. (2005b) found that 36.3% of youth

ADHD persisted into adulthood. In tracking the persistence of ADHD into adulthood, Fredriksen et al. (2014) suggested that workplace interventions consider the impact of ADHD inattention on occupational impairment to prevent long-term work disability, mainly as they found more than twice the unemployment among women than men due to disability.

**Neurodiversity and the Workplace**

The term *neurodiversity* is beginning to enter the collective HR consciousness as an umbrella term inclusive of individuals with a neurodevelopmental, cognitive, social understanding, communication, or learning disorder (e.g., Lollini, 2018). A poll performed by the Chartered Institute of Personnel and Development (CIPD) found that neurodiversity was not addressed in the HR policies of 72% of the employers who responded (Webber, 2018); they further raise concerns that employer screening out neurodivergent people not only adversely impacts those individuals, but also impacts the employer's ability to harness the beneficial talents of a neurodiverse workforce.

**ADHD Work-Life Impact**

Biederman and Faraone (2006) estimated the annual cost of lost workplace productivity among workers with an ADHD diagnosis to U.S. businesses at between $67 billion and $116 billion; they further identified only 33.9% of subjects with ADHD had full-time employment compared to 59% of control subjects. Biederman and Faraone cautioned that this may underestimate the actual cost due to the study reliance on clinical diagnosis. Halleland et al. (2019) found that adult ADHD and impaired executive

function is related to worker occupational status. In discussing the problems adults with ADHD have with unemployment, Asherson (2016) recommended that additional support is needed to improve outcomes for adults with ADHD rather than prescribing medication and expecting it to solve the problem.

De Graaf et al. (2008) found that that, regardless of clinical diagnosis, the prevalence of ADHD symptoms at a level likely to meet clinical diagnostic criteria was negatively associated with work performance. ADHD symptoms affecting workplace outcomes have been researched in many studies (e.g., Franke et al., 2018). Adults with ADHD symptomology struggle with impairments that can limit workplace performance, self-perception, and relationships. In studying youth with ADHD transitioning into adulthood, Levanon-Erez et al. (2017) noted among those with ADHD symptomology who do not self-identify as having ADHD, problems with executive functioning are perceived both by the individual and those around them as evidence of negative personality traits such as laziness, lack of focus, or not caring. Levanon-Erez et al. (2017) noted the experience of struggling with executive functioning and others' negative perception of behavior led the youth to have negative self-perceptions; the researchers further suggested these negative self-perceptions could be contributing to the high unemployment rate and high workplace turnover rates seen among adults with ADHD.

Virga et al. (2017) found positive core self-evaluations (inclusive of self-esteem, locus of control, neuroticism, and general self-efficacy) and perceived employability were both negatively correlated with turnover intentions. From the study conducted on

youth by Levanon-Erez et al. (2017), there is some basis to hypothesize ADHD can impact the workplace social capital of the individual through how it affects their relationship with their supervisors and peers leading to higher turnover intent. Virga et al. further found positive workplace social capital job resources such as having supportive supervisors or colleagues also had negative correlations to turnover intentions.

Though these studies by Levanon-Erez et al. (2017) and Virga et al. (2017) did not explicitly study adults with ADHD, they highlighted the importance of workplace support structures and self-perception on career outcomes such as turnover. Workplace support structures include programs such as mentoring (Ragins, 2007), networking groups, and communication systems (Hofmeyer & Marck, 2008). Antshel (2018) also suggested some of the challenges which adults with ADHD encounter in career or entrepreneurial pursuits are related to person-role fit and social factors including job type, work that is intellectually stimulating, social skills and social acceptance.

**ADHD and Workplace Social Capital**

In a qualitative study, Schrevel et al. (2016) identified that adults with ADHD perceived themselves to lack understanding of their social environment and experienced high self-expectations combined with poor self-image. Their communication and social skills affected multiple facets of career progression, beginning with problems with interview performance (Fabiano et al., 2018) and continuing through the workplace lifespan to turnover due to many causes, including a tendency to workaholism, stress, and

burnout (Andreassen et al., 2016). When discussing their experiences in the workplace, Adults with ADHD expressed having a sense of powerlessness and feeling a lack of understanding (Schrevel et al., 2016). These findings by Fabiano et al., Andreassen et al., and Schrevel et al. suggest that adults with ADHD may have low perceptions of workplace social capital may be a mediating factor in why this group experiences higher turnover and lower job satisfaction than their peers, a viewpoint that SCCT-may help explore.

Antshel (2018) postulated that the environment is a contextual influence on outcomes for adults with ADHD because ADHD symptomology is highly dependent on person-role fit and job type. Lasky et al. (2016), in a qualitative study of young adults with ADHD, identified person-environment fit was a consistent theme, where those with ADHD worked best in highly stimulating environments, working on hands-on tasks, and either physically or mentally demanding. Social capital includes workplace resources, such as those Virga et al. (2017) studied, as well as external personal or environmental support. For example, social support, coaching, and mentoring at home from family or friends was identified in a qualitative study as being an important part of coping strategies for adults with ADHD, in addition to the receipt of support from colleagues within workplace settings (Bjerrum et al., 2017). Having a disability was found to lead to significant differences in starting pay when study participants were grouped by social capital factors (Phillips et al., 2018), though the researchers did not study ADHD independently and did not follow-up on

how these social capital factors might have affected after-hire outcomes such as job satisfaction or turnover.

Vorhies et al. (2012) suggested further research is needed in understanding which symptoms impact the capacity of youth transitioning into employment in building workplace social capital, in order to develop appropriate vocational service support systems; this is supported by Lerner et al. (2018) and Vibert (2018), who suggested further research seek to identify areas to target interventions and which models of delivering occupational assistance can produce the best outcomes for people with ADHD. Prior researchers have identified relationships between social capital and career, and academic outcomes (Aslam et al., 2013; Huang & Liu, 2017; Requena, 2003; Seibert et al., 2001) suggested elements of social capital improved outcomes for employees.

**ADHD, Job Satisfaction, and Turnover Intent**

For many years, researchers have reported that adults with ADHD have lower job satisfaction than adults without ADHD (e.g., Fried et al., 2012). Job satisfaction is also a predictor of intention to stay and turnover (Aloisio et al., 2018). Significant relationships have been found between turnover intent, and the three identified forms of organizational commitment: normative commitment (NC), affective commitment (AC), and continuance commitment (CC), with the strongest relationship being between normative commitment and turnover intentions (Bonds, 2017). The relationships between job satisfaction and turnover align with prior understanding of how self-perception and one's place in the

organization are tied to workplace outcomes within the SCCT model (Ellinger et al., 2013).

**Social Capital, Job Satisfaction, and Turnover Intent**

Social capital is strongly correlated to both job satisfaction and turnover intent in the workplace. Aloisio et al. (2018) found that social capital predicted job satisfaction. Further, social capital has documented an impact on employees at all levels of the organization. In documenting turnover among executive team members, Messersmith et al. (2014) pointed to the loss of social capital as one of the factors for why higher executive turnover is correlated with lower organizational performance. In a study on workplace mentorship among nurses in Taiwan, the rapport developed between mentors and mentees was negatively related to professional turnover intention in both the mentors and the mentees (Pham et al., 2019). Pham et al. also found rapport was positively related to career interest and outcome expectations in the mentors, and self-efficacy, outcome expectations, and career interest in mentees. Aloisio et al. (2018) suggested improving social capital could hold potential for improving job satisfaction and reducing staff turnover, which has been at least partially demonstrated by Pham et al.'s (2019) study. Aloisio et al. further suggested future research is needed to identify what pathways lead to improved job satisfaction and what contextual factors could be modified to lead to job satisfaction improvements.

**Summary of Methods Used in Reviewed Studies**

In the literature reviewed, studies were conducted using a variety of methods, including quantitative, mixed methods, and qualitative. Qualitative research used thematic exploration (e.g., Levanon-Erez et al., 2017) and the use of narratives to understand how individuals internalize their ADHD diagnosis and its effect on their lives (e.g., Berger, 2015). Quantitative analysis included t-tests for between-groups analysis (e.g., Levanon-Erez et al., 2017), multiple regression analyses (e.g., Nagata et al., 2019), moderation (e.g., Wiklund et al., 2017) and mediation (e.g., Verheul et al., 2015). When evaluating SCCT, several quantitative studies included using structural equation modeling to look at social capital within the SCCT framework (Pham et al., 2019; Wendling & Sagas, 2020); this method allowed researchers to incorporate the evaluation of both direct and indirect effects, in addition to moderation or mediation.

Social capital has been studied as both a moderator and a mediator within workplace contexts. Verbruggen et al. (2015) found social capital acted as a moderator in retaining employees, especially when their roles were challenging. Sheer and Rice (2017) investigated social capital as a mediator between mobile messaging use and employee outcomes. Jensen et al. (2019) used mediation analysis to evaluate associations between organizational change, workplace social capital, and turnover. While the studies found on workplace social capital did not study ADHD as a predictor variable, they do suggest that workplace social capital functions in a mediator role between predictive variables and employee outcomes such as turnover.

Several ADHD studies reviewed investigated the impact of ADHD symptomology on outcomes using a moderation or mediation model. Nikolas et al. (2015) used a moderation model to explain how parental involvement, a social capital factor, moderated causal etiologic factors related to the development of ADHD in youth. In a longitudinal study, Coetzer (2016) found time management skills partially mediated the relationship between ADHD and role stress and suggested that further research is needed to examine how ADHD influences outcome variables in the workplace related to variables related to individual and team performance. Araten-Bergman (2015) used a mediated-moderation model to quantify the relationships between ADHD symptomatology, subjective wellbeing, independent, and mediating variables, including social support; he found that social support mediated the adverse effects of ADHD symptoms on wellbeing. These studies suggest that workplace social capital and increased social support could mediate adverse workplace outcomes such as low job satisfaction and high turnover among adults with high levels of ADHD symptomology.

## Summary and Conclusions

While prior research has found correlations between neurodiversity (as identified by ADHD symptomology), job satisfaction, and turnover, no research has evaluated how workplace social capital might affect the relationship between these variables. At the same time, the research demonstrates that neurodiverse employees are adversely impacted in their career outcomes compared to their neurotypical peers with social support mechanisms highlighted as a promising avenue for addressing this problem.

Halbesleben et al. (2013) suggest at the there is a need to address human resource manager and employer lack of understanding of the implications of ADHD on employees, in order to inform future employee assistance programs and provision of accommodations. For this reason, in the current study, I sought to explore this gap in the literature by using the SCCT framework to build upon prior research on neurodiversity symptomology, job satisfaction, and turnover while introducing workplace social capital as a new variable of study for potential interactions.

# Chapter 3: Research Method

The purpose of this quantitative study was to investigate the relationships between neurodiversity symptomology (NDS), gender, job classification (JC), workplace social capital (WSC), job satisfaction (JS), and turnover intent (TI) among U.S. employees. As summarized in the literature review, little is known about how to improve the retention of employees with a neurodiversity condition such as ADHD. This study could inform the design of future interventional studies to test whether WSC-based interventions can have a significant impact on reducing neurodiverse employee turnover based on those areas with significant interactions.

In this chapter, I will discuss the research design and methodology in two main sections following this introduction. In the first section, the research design and rationale for the study will be explained, including a discussion of the design choice, time and resource constraints, and how this study may help advance knowledge within the discipline of industrial/organizational psychology toward understanding the impact of ADHD symptomology on employee behaviors. The second section will include a description of the population, sampling strategy and procedures, recruitment and data collection procedures, instrumentation, data analysis plan, threats to validity, and ethical considerations factored into the study design.

## Research Design and Rationale

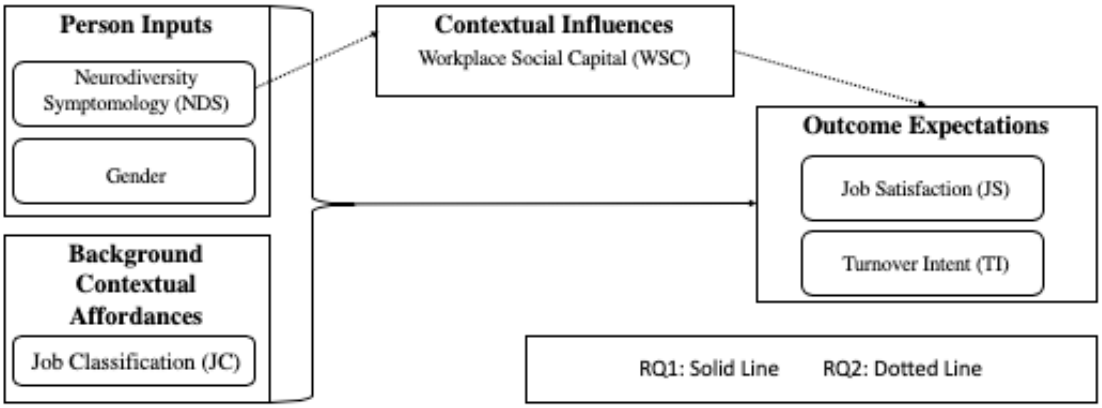
To answer the research questions discussed in Chapter 1 and shown in Figures 1 and 2, I used a quantitative causal-comparative design to determine whether there were

statistically significant relationships between the variables. A three-way ANOVA was used to answer research question 1. Mediation was used to answer research question 2. In this section, I will provide further details and a rationale for these choices. Due to time and resource limitations, I used an anonymous online survey.

The variables in this study are all aligned with constructs proposed within the theoretical model of SCCT-CSM, as shown in Figure 5.

**Figure 5**

*Study Variables and Research Question Positioning Within the SCCT-CSM Theoretical Framework*



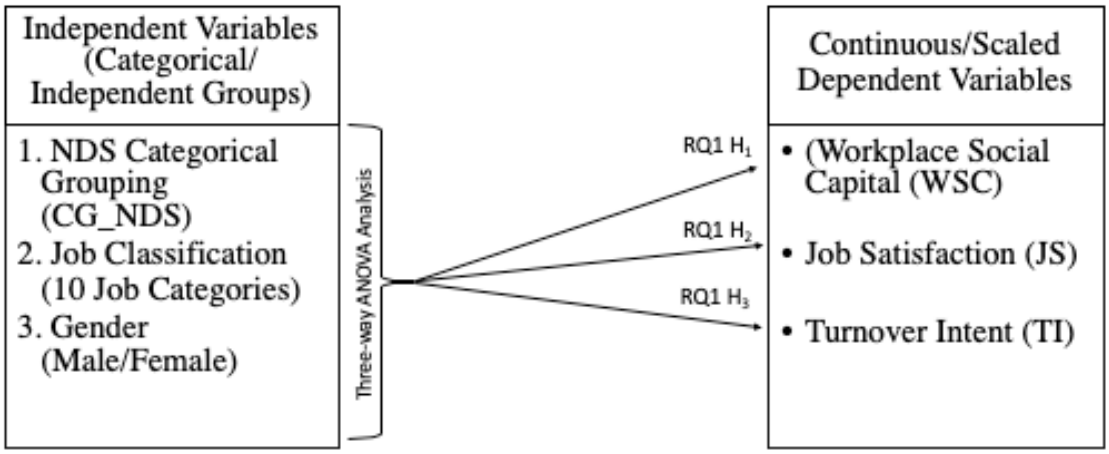

In discussing past ADHD studies, Williamson and Johnston (2015) found that gender plays some role in outcomes among adults with ADHD; these researchers noted that even where prior researchers collected data from both genders, many did not test for gender differences. Other workplace ADHD studies encountered during the literature review suggested ADHD associations to TI vary by type of job (e.g., Halbesleben et al., 2013).

Thus, this study included gender and job classification in addition to the primary variables of interest, NDS, WSC, JS, and TI.

To answer the first research question, To what extent do interactions between CG_NDS, gender, and JC explain employee WSC, JS, and TI scores?, I used a three-way ANOVA, as shown in Figure 6. A three-way ANOVA was appropriate because it provided a method of analyzing the interactive effect of three independent categorical variables on a continuous dependent variable.

**Figure 6**

*Use of Three-Way ANOVA to Answer Research Question 1*




One three-way ANOVA analysis was performed to address the first hypothesis to understand the effect of job classification, gender, and CG_NDS on WSC. A second three-way ANOVA analysis was performed to address the second hypothesis regarding how the same independent variables impact JS. Finally, the third hypothesis was also

analyzed through a third three-way ANOVA performed with the same independent variables on TI.

To answer the second research question, To what extent does WSC mediate the relationships between SS_NDS and leave-taking, as measured by JS, and TI?, I performed mediation analysis based on the theoretical framework provided by the SCCT-CSM model. The mediation model was appropriate based on prior use of mediation in social science theories explaining how people react in various situations (Hayes, 2018). Mediation has also been used in prior studies on social capital within workplace contexts as described previously in Chapter 2.

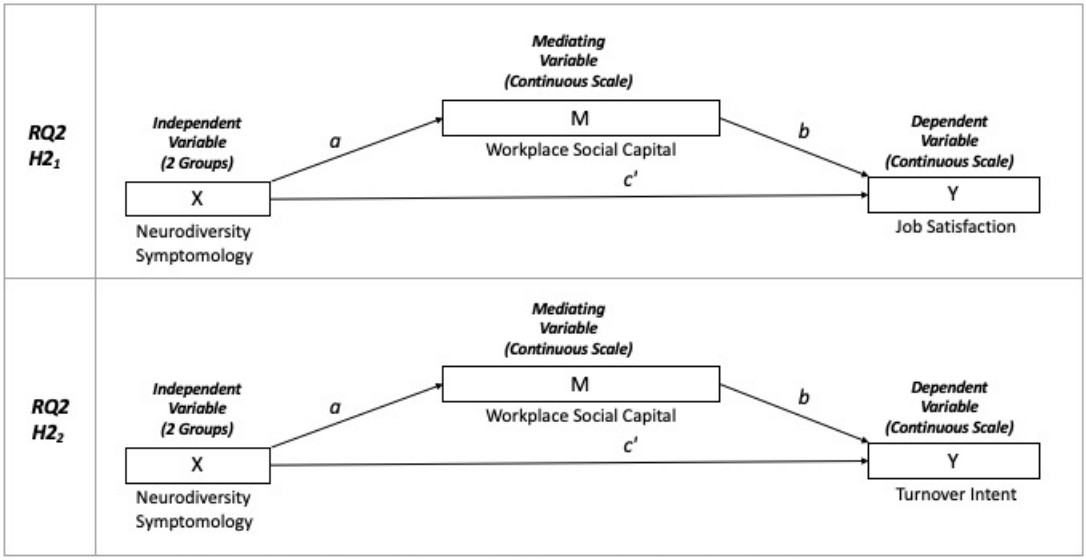
It could be argued that moderation might also be appropriate, based on Spector's (2016) definition of a moderator as a variable that changes the relationship between two other variables, where the relationship is different at one level of the moderator than another (p. 46); this could certainly be the case for the variables in this study. However, Frazier et al. (2004) specifically suggested social support is a mediator, rather than a moderator, and argued that *moderator* is a term better reserved for categorical variables such as gender, rather than a scaled variable such as WSC. Therefore, I hypothesized that the strength of workplace social capital mediates the relationship between NDS and employee leave-taking sentiment (job satisfaction and turnover).

Figure 7 illustrates how two mediation analyses were used to address each of the hypotheses proposed with the second research question. The first mediation analysis was performed to identify the extent that WSC mediates the relationship between SS_NDS

and JS (RQ2 $H2_1$). The second analysis was performed to identify the extent that WSC mediates the relationship between SS_NDS and TI (RQ2 $H2_2$).

**Figure 7**

*Mediation Model Used to Answer Research Question 2*




*Note.* Each variable listed is a continuous variable with scores that range from low to high.

## Methodology

### Population

The population studied was the 124 million full-time workers in the United States (Duffin, 2020). Recruitment of respondents was confined to the United States to limit potential confounding factors not being studied, such as differences between workplace cultures in other countries. I also restricted recruitment to those 18 years of age.

## Sampling and Sampling Procedures

An online survey was administered with the goal of collecting between 200 and 800 responses through purposeful sampling and paid collection (MTurk and SurveyMonkey). These numbers were based on the power analysis conducted and with the need to obtain enough responses that any outliers or partial responses could be dealt with, without falling below the minimum viable number of responses. The inclusion criteria for the study were being 18 years of age or older, working full-time in the United States, and not self-employed. Self-employed individuals were excluded due to the study not measuring other variables that would have a greater impact on self-employed individuals, such as type of self-employment structure (i.e., owner, gig worker, availability of WSC within their job type). Similarly, part-time workers were excluded to limit latent or confounding factors that might differ between full and part-time workers.

### *Power Analysis*

This study incorporated six variables: NDS, WSC, JS, TI, JC, and gender. Prior research on sample sizes, significant levels, and power levels informed this analysis. In reviewing other studies of ADHD in the workplace, small, medium, and large Cronbach's alpha values were found by Halbesleben et al. (2013) with samples of as small as 170 participants when looking at ADHD, workplace engagement, and organizational citizenship behavior. When Mastoras et al. (2018) studied social support and ADHD in children using multiple regression, their sample size was 55. A recent SCCT-CSM study used moderation analysis, finding of 1,020 who started their survey, only 684 completed

it (Wendling & Sagas, 2020). A study on turnover intent used a medium effect size of 0.15, a significance level of 0.05, and a power of 0.80 when there were ten independent variables (Choi & Kim, 2015). The power of .80 is what is considered a generally accepted value for significance in most social science for statistical tests (Hunt, 2012; Zint, n.d.). G*Power (Faul et al., 2007) was used to calculate the power analysis for each research question in my study in order to identify the appropriate sample size for this study.

Research question 1 uses three-way ANOVA. Tabachnick and Fidell (2019) suggest factorial ANOVA is useful when groups are formed along more than one dimension where differences among means might be attributable to more than one source. In order to calculate the power analysis for three-way ANOVA, the number of variable combinations must be calculated (Wuensch, n.d.). Participants could only belong to one of four CG_NDS categorical groupings based on likelihood that the individual's symptomology is indicative of having ADHD (highly likely, likely, not likely, very unlikely). Figure 8 shows the nested between-subject design used to identify that this study included 80 variable combinations (4 x10 x 2).

**Figure 8**

*One Quadrant of Three-Way ANOVA Factorial Between-Subjects Design for Research Question 1*

IV: CG_NDS (ADHD Symptomology Calculated Group)

| IV: Job Classification | NDS Group 1 of 4: Highly Likely (18-24) | IV: Gender: Male | IV: Gender: Female |
|---|---|---|---|
| | Managers | 1 | 11 |
| | Professionals | 2 | 12 |
| | Technicians and Associate Professionals | 3 | 13 |
| | Clerical Support Workers | 4 | 14 |
| | Services and Sales Workers | 5 | 15 |
| | Skilled Agricultural, Forestry and Fishery Workers | 6 | 16 |
| | Craft and Related Trades Workers | 7 | 17 |
| | Plant and Machine Operators and Assemblers | 8 | 18 |
| | Elementary Occupations | 9 | 19 |
| | Armed Forces Occupations | 10 | 20 |

Following Wuensch's (n.d.) process for calculating sample size for three-way ANOVA, it was determined a minimum sample size of 160 was needed for a medium-sized effect ($f$= .25) and 80% power. However, as Laerd Statistics pointed out (2017), small samples per group may present problems during data analysis, so a larger sample size was suggested. Based on this power analysis, a minimum sample of 200 completed surveys from participants was desired.

Answering research question 2 required mediation analyses. While prior research suggested a medium effect size could be expected, multiple calculations of the sample

size needed were performed with a Cohen's (1988) f2 medium effect size (0.15), a small effect size (0.02), and a power of 0.8, compared to .95. The method used was the apriori power analysis with *F* tests for multiple linear regression: Fixed model, *R2* increase, based on this being the model recommended by both Wuensch (n.d.) and UCLA's Statistical Consulting Group (n.d.). Neurodiversity symptom score is used as a summary score (SS_NDS) rather than as a categorically grouped variable. Each of these mediation analyses includes a trivariate regression with three predictors (SS_NDS, WSC, and the SS_NDS x WSC interaction) on the dependent variable (JS or TI). Table 1 illustrates the various sample sizes needed, based on different power or effect sizes needed for the mediation analyses required for RQ2.

**Table 1**

*Total Sample Size Required From G*Power for Linear Regression*

| | Power 0.8 | | Power 0.95 | |
|---|---|---|---|---|
| Effect size f2 | .02 (small) | .15 (medium) | .02 (small) | .15 (medium) |
| Total sample size | 395 | 55 | 652 | 89 |

*Note.* All sample sizes were calculated with an error probability of 0.05. Number of tested predictors = 2, total number of predictors = 9.

Based on the two G*Power analyses, for each research question design, the 200 participants desired to address RQ1 would have also been adequate to answer RQ2. However, a small sample size might have limited the number of interactive effects that could be identified at a significant level. Therefore, I sought to obtain 800 completed

surveys from participants to encompass the larger recommended sample sizes Table 1 suggests for RQ2.

## Procedures for Recruitment, Participation, and Data Collection

Survey participants were recruited using multiple means to ensure the desired target number of participants, representative of the population of the study, were included. The purposeful sampling methods used for this study included snowball methods and paid subject recruitment. Separate surveys with unique URLs for each survey were used for each participant pool. This allowed for providing custom informed consent statements relative to participants being paid or unpaid and also provided options for later data quality analysis and comparisons between participants recruited from each channel. Since this study used a simple single-point-in-time snapshot of the individual's state, there were no follow-up procedures. No personally identifiable information, such as name or email, was requested of the participants within the survey. Screening questions, as shown in Appendix A, were used to ensure that those who completed the survey met the research population criteria.

### *Purposeful and Snowball Sampling*

Purposeful sampling was conducted by reaching out to the network of connections with whom I am associated. This included LinkedIn, Facebook, and email requests for individual participation and sharing to my contacts' networks. Using snowball convenience sampling methods, participants were encouraged to share my survey with others.

### *Paid Participation*

This study utilized paid survey response collection via Amazon Mechanical Turk (MTurk). MTurk has been on the rise as a data collection method by other industrial/organizational psychology researchers, especially in combination with other data collection methods (Cheung et al., 2017). Berinsky et al. (2012) found that MTurk respondents were more representative than in-person convenience sampling, though still less representative than higher cost, national probability samples. Horton et al. (2011) also found that the use of MTurk allows researchers to gather data quickly and at less expense than traditional methods while allowing for considerable control regarding worker characteristics.

The cost per survey respondent via MTurk was estimated by Horton et al. at approximately $0.14 per hour. Wymbs and Dawson (2019) evaluated ADHD diagnosis and symptomology of MTurk workers for $0.25 each. They concluded that MTurk is a promising tool to recruit study participants for ADHD studies since the demographic statistics relating to ADHD diagnosis, and adult symptomology were consistent with what would be obtained via other offline methods. Online panel providers such as SurveyMonkey provide a similar service to assist researchers in collecting surveys and are also considered to be novel, valid methods for researchers to obtain data for research while addressing challenges with obtaining participants through more traditional methods (Lowry et al., 2016).

### *Data Collection Procedure*

Invitees viewed an email, blog post, or survey request asking them to participate in the study, along with links to learn more. Individuals received the general study invitation shown in Appendix B. Once each individual clicked the link to learn more, they were able to review the informed consent form. The informed consent form was the first page of the survey. Paid participants on MTurk saw an alternate consent form. The consent form included a description of the study, the estimated amount of time it would take to complete the survey, and other required components such as explanations regarding participant anonymity, how data privacy was managed, and contact information for the researcher. The MTurk consent form also discussed the compensation. When an individual clicked the text, "I accept, take me to the survey" at the bottom of the consent form after the question about whether they agree to participate, they were taken to the online survey questions. If they did not agree to participate after reading the consent form, the survey logic automatically prohibited them from participating in the survey. As an anonymous online survey, no follow-up procedures were conducted. Participants exited by leaving the survey.

## Instrumentation and Operationalization of Constructs

The online survey contained the following: informed consent form (one for unpaid participants and one for paid participants), five screening questions from Appendix A, two demographic questions from Appendix C, six ASRS questions from

Appendix D, three MOAQ questions from Appendix E, and 16 COPSOQ questions from Appendix F.

### *Screening Questions*

Screening questions regarding hours worked, and employment status, as shown in Appendix A, were used to limit study participants to those that meet the study criteria. Those that did not meet the criteria were removed from the continuation of the study. These were not used for data analysis.

### *Demographic Questions*

Prior literature has found significant between-group differences among those with ADHD in studies of gender and job classification (Halbesleben et al., 2013; Kleinhans, et al., 2015; Oksanen et al., 2013; Williamson & Johnston, 2015). The demographic questions included in Appendix C were used to answer the research questions. Gender was collected as an ordinal response (male, female), while job classification (JC) was categorical based on the ten ISCO-08 classification categories (International Labor Organization, 2016). These categories are shown in Table 2.

**Table 2**

*International Standard Classification of Occupations*

| | |
|---|---|
| 1 | Managers |
| 2 | Professionals |
| 3 | Technicians and associate professionals |
| 4 | Clerical support workers |
| 5 | Services and sales workers |
| 6 | Skilled agricultural, forestry and fishery workers |
| 7 | Craft and related trades workers |
| 8 | Plant and machine operators and assemblers |
| 9 | Elementary occupations |
| 0 | Armed forces occupations |

### *Adult ADHD self-report scale (ASRS)*

ADHD symptomology was measured by self-report of symptomology using the six-item Adult ADHD Self-Report Scale (ASRS) v1.1 screener. This six-item screener is the first six questions from the 18-item measure that was developed by the World Health Organization (Kessler et al., 2005a). The ASRS is an appropriate instrument for self-report of ADHD as it has been validated and utilized to update the DSM-5 criteria psychologists use for identifying adult ADHD internationally (Kessler et al., 2007; Ustun et al., 2017). Internal consistency reliability was between 0.63-.0.72 with test/re-test reliability, as reported by Pearson correlations between 0.58 and 0.77 with a convenience sample of 668 U.S. health plan subscribers (Kessler et al., 2007). The copyright is held by

the World Health Organization. However, it is provided for unrestricted use without approval required with acknowledgment of the copyright holder, as shown in Appendix D.

The six-item questions each use a five-item Likert-type scale, which creates an interval scaled range of 0-24. This 0-24 interval is what was used for the second research question mediation study where NDS symptom score, (SS_NDS) is referenced. Ustun et al. (2017) found that the six-item ASRS could be used to distinguish those with and without ADHD at a significant level (AUC, 0.94) compared to the DSM-5 Adult ADHD Clinical Diagnostic Scale. They stated that this scale could be used as a screener for studying the prevalence and correlates of disorder with no requirement that respondents be classified as having or not-having ADHD to use the scale for research purposes. In evaluating borderline cases for use in between-groups analyses, Kessler et al. (2007) also used the same 0-24 scale to create a four-stratum classification (0-9; 10-13; 14-17; 18-24) that had an AUC of 0.90. For the first research question, a categorical grouping neurodiversity symptomology grouping (CG_NDS) was needed, so Kessler et al.'s four-stratum classification was identified as an appropriate variable to use.

### *Michigan Organizational Assessment Questionnaire (MOAQ) Intention to Turnover Sub-Scale*

*Turnover intent* was measured using the Michigan Organizational Assessment Questionnaire (MOAQ) Intent to Turnover instrument (Cammann et al., 1983) as shown in Appendix E. This was an appropriate tool for this study because the three questions

were designed to be converted and measured as a continuous variable. The MOAQ, shown in Appendix E, is free to use for research purposes and has an internal consistency of scale of .83 (Kiefer et al., 2005). It has been used extensively by U.S. governmental departments (Kiefer et al., 2003). In studying call center employees, Zito et al. (2018) found the turnover subscale to have construct reliability of .78. Husain et al. (2016) had a very high Cronbach's alpha reliability of .97 for the turnover intent scale in a survey of teachers.

### *Copenhagen Psychosocial Questionnaire (COPSOQ)*

The Copenhagen psychosocial questionnaire (COPSOQ) was used to measure workplace social capital and job satisfaction. This survey instrument was appropriate for use in the current study because it contains subscales specifically developed to measure job satisfaction and workplace social capital (Burr et al., 2019a; Burr et al., 2019b; Llorens et al., 2019). The domain of workplace social capital includes 11 questions. The domain of job satisfaction contains five questions. Freiburg Research Centre for Occupational Sciences (2019) has licensed the COPSOQ questionnaire as free to use under the creative commons.

In addition to the published COPSOQ network guidelines (Llorens et al., 2019), I corresponded with one of the guideline authors, Dr. Oudyk, directly. He said the intention is that researchers can use any of the selected scales (such as the workplace social capital scale) without needing to use the entire instrument (J. Oudyk, personal communication, January 31, 2020). The COPSOQ International Network (2019) has validated the

instrument in many languages and organizations, with more than a hundred peer-reviewed publications. These include Burr et al. (2019a) publishing a validity report showing that the job satisfaction scale was highly reliable (α=0.80).

**Data Analysis Plan**

The primary software used for the analysis of the data was SPSS (IBM Corp, 2017). For the second research question where mediation analysis was required, PROCESS (Hayes, 2012) was also used. The data cleaning and screening plan followed the procedures suggested by Tabachnick and Fidell (2019). Cleaning and screening procedures included performing initial review of univariate descriptive statistics to evaluate whether variables were within expected ranges, coding for missing values, and evaluating outliers. Next, additional data formatting and screening was performed as part of answering each research question.

The first research question asked, "To what extent do interactions between CG_NDS, JC, and gender, explain employee WSC, JS, and TI scores?" Three individual three-way ANOVA analyses were conducted to determine the effects of CG_NDS level, gender, and job classification on each dependent variable (WSC, JS, and TI) (Laerd Statistics, 2017). This method of analysis has been used successfully by other researchers studying the interaction effects of gender and other variables on subjects with ADHD symptoms (e.g., Slobodin & Davidovitch, 2019). The instrument responses on the ASRS instrument were analyzed to create the categorical groupings necessary to create the CG_NDS variable based on established criteria (e.g., Schuetz, 2008). The General Linear

Model Univariate procedure was used in SPSS statistics, including performing Levene's test for equality of variables to test for the assumption of homogeneity of variances. Analysis of the profile plots and tests of between-subject effects tables was used to identify whether significant three-way interaction effects were present ($p$ <.05). The analysis was performed once for each dependent variable to answer the related hypotheses.

The second research question asked, "To what extent does WSC mediate the relationships between AS, JS, and TI?" To answer this question, I followed Tabachnick and Fidell (2019) and Hayes (2018) guidance on mediation analysis. Per Hayes (2018), while both factorial analyses of variance and regression can be used to perform mediation analysis, regression-based procedures provide greater flexibility in that Hayes' methods allow for the use of both categorical and continuous antecedent variables and covariates. Where the data demonstrated linearity, an analysis of conditional effects between the variables was performed. Next, Sobel testing and confidence interval analyses were used to probe for interactions and estimate the regression coefficients for the indirect and direct mediation effects using PROCESS (Hayes, 2018). Linear regression analysis determined the proportion of change in JS and TI explained by SS_NDS and WSC. Where the relationship between SS_NDS and either JS or TI through WSC led to a statistically significant change ($\Delta R^2$), then WSC was confirmed as acting as a mediator between the independent variable SS_NDS, and one or more of the dependent variables, JS, and TI. Where WSC acted as a significant mediator, and the first research question

identified significant interactive effects of CG_NDS, JC, and gender on employee scores on WSC, JS, or TI, secondary analysis was performed to account for the effects of JC and gender as covariates along with SS_NDS.

## Threats to Validity

One threat to external validity was whether the sample is representative of all workers in the United States. As described previously, regarding data collection methods, I employed multiple data collection methods. Since purposeful snowball sampling limits the researcher's ability to cultivate samples that are gender and race representative of a national audience, I paid Amazon Mechanical Turk (MTurk) to recruit additional survey participants for me. In using MTurk to recruit participants, I was able to pay for a smaller sample and perform preliminary evaluation of collected survey data. This allowed me to adjust my budget and request for paid responses based on the number of unpaid responses I was concurrently receiving. At the same time, I checked that there were no significantly skewed responses that would raise concerns. For example, I was able to monitor the percent of male versus female responses received and what percent of responses were being screened out of participation. Additionally, if enough responses were collected from both the paid and unpaid participant pools, I planned to perform demographics and between groups analysis between data collected from different sources to more specifically address validity concerns about data quality.

While the use of paid data collection methods can provide useful benefits in recruiting participants, it also introduces new threats to validity. As previously mentioned, these can include subject inattentiveness, demand characteristics, repeated participation (Cheung et al., 2017). I addressed these by utilizing the services of Cloud Research. This company provides software and consultancy to help researchers address these issues and successfully use MTurk to collect respondents. Cloud Research clientele includes than 1,200 universities, including top institutions such as MIT, Harvard, and Yale (Cloud Research, n.d.). The Cloud Research platform includes features to allow limiting the participant pool to MTurk workers who have passed additional screening and validation; this allows researchers the ability to choose between slower, but more trustworthy collection, and faster, but possibly less trustworthy data collection.

Another threat to external validity was whether enough specific variables were included to screen out other potential mediators. For example, while this study measured turnover intent, other studies have found significant relationships between turnover intent and other variables this study does not measure, such as organizational commitment. Prior researchers have identified turnover intent is significantly related to two of the three sub-scales within organizational commitment, turnover intent being highest when affective commitment is low and normative commitment is high (Oh, 2019).

Based on the analysis of the data collected in this study, further research needs are discussed later in Chapter 5 relating to future studies and inclusion of a more comprehensive number of variables. For example, including the entire COPSOQ III

survey to incorporate its organizational commitment variables for a more in-depth analysis of interactive effects than this study provides.

Rogelberg's (2004) discussion about the issue of disclosure referred to the Hawthorne studies as an example of how a researcher may inadvertently impact the study results. The Hawthorn studies example raises the concern that too much information about the topic to be studied will unconsciously influence participants' responses. I had concerns that if the survey was sent out for requests to participate in an "ADHD study," some participants may not have wanted to respond due to personal bias about ADHD, and others might have been unduly influenced and scored higher than they otherwise would have on the ADHD symptom questions. Similarly, if job satisfaction or turnover intent were specified by name in the recruiting, this might have biased the participants' thinking about these topics and changed the responses. Rogelberg recommended, in cases like this, that a researcher can mislead research participants by focusing on another element of the study as the primary topic of interest in order to mask the real subject. Thus, I used the term "neurodiversity" rather than the specific neurodiversity subtype of ADHD in the invitation and informed consent letter.

A threat to internal validity was the use of short, though validated, instruments for both job satisfaction and turnover intent. Both job satisfaction and turnover intent are viewed as being multidimensional constructs. There is potential for findings from this study to overstate the resultant impact on the global variable of job satisfaction or turnover intent, where the effect could more precisely be attributed to a specific factor.

Since the time and monetary constraints inherent with this study preclude using multi-factorial instruments, this is discussed later in Chapter 5 in the limitations and suggested as an area for further research.

Construct or statistical conclusion validity would be threatened if any of the assumptions of the statistical models used were violated. Multiple tests for assumptions were performed to reduce the likelihood of this potential. Prior studies such as that performed by Lambert and Paoline (2010) have demonstrated there are significant correlations between job satisfaction and turnover ($r = -.49$, $p <\_ .01$). Additionally, job satisfaction and turnover intent are correlated with many other variables (e.g., Lambert & Paoline, 2010). Where possible, such as with gender and job classification, these variables have been included as covariates in the study to control for the potential that that results would be confounded by their interactions.

Another threat to validity with this study is the number of survey questions and the potential for users not to complete the entire survey due to the length of the survey. To offset this challenge, I discussed the length of the COPSOQ survey with one of the authors (J. Oudyk, personal communication, January 6, 2020). I received confirmation it was permissible to use a smaller subset of questions more directly related to this study and that each of these sub-sets was previously validated in prior factorial analyses.

**Ethical Procedures**

The study was reviewed and approved by Walden's Institutional Review Board (IRB) to ensure ethical concerns were considered and addressed appropriately (reference number 09-15-20-0725719). One ethical concern was in the verbiage used to recruit participants. In order to reduce the potential for participant bias, the consent forms and invitation shown in Appendix B include the term *neurodiversity* rather than *ADHD*. This is to reduce bias around the term *ADHD* and also to reduce confusion about whether respondents must have been clinically diagnosed or currently treated for the condition. In this study, ADHD symptomology, not having a current or prior diagnosis of ADHD, was the variable being studied. This slight shift in how the study is discussed was expected to pose no risk to the participants. Per APA's Ethical Standard 8.07, deception is permissible if the alternative nondeceptive procedure is not feasible, the deception is not reasonably expected to cause pain or emotional distress, and any deception is disclosed, preferably at the end of the study. Wymbs and Dawson (2019) similarly did not disclose they were studying ADHD when collecting responses on Amazon Mechanical Turk. Also, the intended data collection methods such as Facebook do not share posts and help collect survey responses if I use a keyword like *ADHD* due to concerns about targeting at-risk populations, making the inclusion of this term not feasible.

Many studies incorporate a short debrief at the end of the study to allow participants to request their responses not be used. Since this study was anonymous, there would be no way to remove participants responses, so this option was not provided for

this study. Since the data obtained in this survey was provided anonymously and included no personally identifiable data, it posed low risk to the participants that would have been a cause for concern. The data is stored securely in online, password-protected, cloud storage. Upon completion of the dissertation, I intend to publish an academic paper based on the dissertation findings in addition to the publication of the dissertation through Walden University. I may share the data for collaborative or confirmatory research with other researchers in the future.

Survey participants recruited via MTurk received a small financial payment. Additionally, the technology platforms used for recruiting, such as Amazon Mechanical Turk and Cloud Research received compensation. However, the individual compensation received for this study were between $0.25 and $0.50 based on prior studies (e.g. Wymbs & Dawson, 2019). These amounts are considered to be reasonable based on the amount of time expected of the participant while being low enough to reduce risk of coercion. Wymbs and Dawson (2019) previously validated MTurk as a representative participant pool for studying adult ADHD in the United States.

## Summary

The purpose of this quantitative causal-comparative study was to gain a greater understanding of the relationships between U.S. employee perceptions of WSC, JS, and TI, relative to respondent NDS, gender, and job classification. This study utilized an online survey as the data collection instrument. Planned data analysis included performing three-way ANOVA and mediation analysis. This study design was intended

to add to the body of knowledge regarding the impact of WSC on employee sentiment and whether NDS plays any role in influencing these outcomes. In the next chapter, the results from the research conducted are reported. The final chapter includes a discussion of the interpretation of data as well as conclusions and recommendations.

# Chapter 4: Results

The purpose of this quantitative study was to analyze the effects of neurodiversity and workplace social capital on job satisfaction and turnover intent among U.S. full-time workers. In this chapter, I will discuss the results of the research conducted including the processes used to collect, treat, and analyze the data and report on the findings. The report of findings will include discussion of each research question, hypothesis, and explanation for whether each hypothesis was able to be accepted or rejected.

## Data Collection

### Data Collection Time Frame, Recruitment and Response Rates

I received approval to conduct the study from Walden University's IRB on September 15, 2020 (reference number 09-15-20-0725719). Data collection started on September 16, 2020, for both paid and unpaid participants. Paid participant responses were collected using the CloudResearch MTurk Toolkit (Litman et al., 2016). Unpaid participant responses were solicited via snowball collection methods approved by IRB including social media and email. Data collection closed on October 5, 2020, after the collection of 12 responses from unpaid respondents and 1,231 paid responses. Because of their low response rate, I excluded the unpaid respondents from analysis in this study. The breakdown of the paid responses and initial screening of the sample for study is included in Table 3.

**Table 3**

*Paid Survey Responses Summary*

| Responses | *n* | % |
|---|---|---|
| Total of all responses collected | 1,231 | 100% |
| Accepted informed consent | 1,228 | 99% |
| Adjusted total after screening | 1,097 | 89% |

*Note.* Screening questions confirmed that respondents fully understood the recruitment criteria listed on the informed consent and disqualified workers who stated they worked less than 35 hours per week, that they were primarily self-employed, under 18 years of age, or not working in the United States.

**Discrepancies in Data Collection From the Originally Approved Plan**

There are several noteworthy discrepancies in the data collection from the approved plan. First, I originally intended to compare data collected from unpaid versus paid members as part of validity testing. Unpaid survey response was slower than I expected. I determined that it would be more practical to focus on gathering and analyzing paid survey responses rather than extend the data collection time frame to wait for collection of a significant number of unpaid respondents.

Additionally, a preliminary analysis of the demographic data of survey respondents identified that most responses were from people in just five of the 10 ISCO-08 job classification categories (International Labor Organization, 2016). In reviewing

the categories with low response rates, I determined that these low response rates were due to MTurk lacking the ability to market effectively to workers in these classifications who are less exposed to technology, such as the category of Skilled Agricultural, Forestry and Fishery Workers. After identifying this, I changed my data collection goal from a total of 800 total responses to 800 completed responses within just these five top categories. The next section will provide further detail on the demographic characteristics of the paid sample responses collected which will be the focus of the data analysis.

**Demographic Characteristics**

The total responses collected was 1,231 paid responses and 12 unpaid respondents ($N$ = 1,243). After the initial removal of unpaid respondents and cleaning out incomplete responses, the sample was 56.7% female and 43.3% male ($n$ = 1,097). The youngest respondent was 20 years old, and the oldest was 79, with a median age of 38 and mean of 40.23 ($n$ = 1,097, $\sum$ 11.32). Table 4 presents a complete frequency and percentage breakdown of the job classification of participants by gender. In the survey, the question regarding job classification included allowing respondents to reply "I am currently not employed" to further screen out respondents as an additional validity measure. Based on the demographics shown in Table 4, respondents who stated that they were not currently employed were removed from the study.

As mentioned in Chapter 3, the study population was the 124 million full-time workers in the United States (Duffin, 2020). The total sample size is large enough to be considered representative at a 95% confidence interval with a margin of error of

approximately 5% for the total population and each gender, but not per job category. The percentage of women represented is higher than the 47% women accounted for of the total U.S. labor force in 2019 (Catalyst, 2020).

**Table 4**

*Demographic Characteristics of Sample*

| | Men | | Women | |
|---|---|---|---|---|
| | *n* | % | *n* | % |
| Totals responses by gender | 475 | 43.30% | 622 | 56.70% |
| By job classification, gender | | | | |
| 1 Managers | 111 | 23.37% | 118 | 18.97% |
| 2 Professionals | 139 | 29.26% | 178 | 28.62% |
| 3 Technicians and associate professionals | 89 | 18.74% | 72 | 11.58% |
| 4 Clerical support workers | 19 | 4.00% | 125 | 20.10% |
| 5 Services and sales workers | 72 | 15.16% | 85 | 13.67% |
| 6 Skilled agricultural, forestry and fishery workers | 6 | 1.26% | 5 | 0.80% |
| 7 Craft and related trades workers | 14 | 2.95% | 3 | 0.48% |
| 8 Plant and machine operators and assemblers | 12 | 2.53% | 7 | 1.13% |
| 9 Elementary occupations | 6 | 1.26% | 27 | 4.34% |
| 0 Armed forces occupations | 7 | 1.47% | 1 | 0.16% |
| N I am currently not employed | 0 | 0.00% | 1 | 0.16% |

No data was available on U.S. gender breakdown by the specific categories used in this study for comparison. However, since the U.S. Labor Bureau of Labor Statistics (2020) reports have shown for some time that the percentage of men compared to women

varies significantly among different job categories, I suspect this difference might have been accounted for if other collection methods were used that allowed more equal responses across all 10 job classes. For example, women currently make up only 19%, or 1.2 million, of active-duty members (Welna, 2020); thus, had a significant number of responses been available to represent armed forces occupations, the overall percentage of responses would have been more representative by gender. Challenges with generalizability related to this study will be discussed further in Chapter 5.

**Data Cleaning and Screening**

As shown previously in Table 3, the participants were screened to remove those who did not meet the study criteria. Additionally, the job category question answer option of not being employed provided a secondary screening opportunity to screen out ineligible respondents and increase the fidelity of the study dataset. Within SPSS, I used filtering variables to exclude respondents based on these criteria.

**Transformation And Descriptive Statistics of Study Variables**

I transformed the data by converting each scale from its individual questions into the single continuous scaled variable for each survey instrument (ASRS = SS_NDS, MOAQ intention to turnover = TI, COPSOQ workplace social capital = WSC, and job satisfaction = JS). Descriptive statistics, frequency tables, histogram and P-P plot analyses were used to assess for normality per Tabachnick and Fidell (2019). I used SPSS version 25.0 statistical software to perform these transformations for each scaled variable.

Participants scored an average of 8.67 (*SD* = 4.16) Neurodiversity Symptom Severity Score (SS_NDS) where total possible responses can range between 0-24. Participants scored an average of 584.67 (*SD* = 145.36) for workplace social capital (WSC) where total possible responses can range from 0 to 1,100. Participants scored an average of 327.98 (*SD* = 96.73) for job satisfaction (JS) where total possible responses can range from 0 to 500. Participants scored an average of 10.18 (*SD* = 4.45) for turnover intent (TI) where total possible responses can range from 3 to 21. Table 5 provides a full summary of the statistics for the full neurodiversity scale independent variable and each dependent variable.

**Table 5**

*Univariate Summary Statistics of Survey Questions*

| Scale/Variable | *n* | Min | Max | *M* | *SD* | Skewness | *K*urtosis |
|---|---|---|---|---|---|---|---|
| Neurodiversity scale (SS_NDS) | 1,091 | 0.00 | 24.00 | 8.67 | 4.16 | 0.29 ± 0.07 | 0.15 ± 0.15 |
| Workplace social capital (WSC) | 1,091 | 0.00 | 81.82 | 50.77 | 16.80 | -0.27 ± 0.07 | -0.31± 0.15 |
| Job satisfaction (JS) | 1,091 | 0.00 | 100.00 | 65.60 | 19.34 | -0.59 ± 0.07 | 0.05 ± 0.15 |
| Turnover intent (TI) | 1,091 | 3.00 | 21.00 | 10.19 | 4.45 | 0.36 ± 0.07 | -0.67 ± 0.15 |

*Note.* Min = minimum value found in the sample. Max = maximum value found in the sample. Although the WSC scale ranged from 0.00 to 100.00, no participant scored lower than the minimum or maximum values listed.

The neurodiversity scale and turnover intent scale demonstrated slightly positive skewness, while the workplace social capital and job satisfaction scales demonstrated slightly negative skewness. All four scales also demonstrated reasonably low levels of kurtosis.

## Results

In the following section, the results of the analyses will be discussed. This discussion will include the analysis for answering both the first and second research questions. The analysis incorporates use of both three-way ANOVA for the first research question, and mediation for the second research question.

### Research Question 1 Factorial Three-Way ANOVA Analysis and Results

To answer the first research question, To what extent do interactions between CG_NDS, gender, and JC explain employee WSC, JS, and TI scores?, I performed three separate analyses, one for each dependent variable. The following section will discuss the hypotheses, analysis, and results of each of these three tests.

The hypotheses to be tested were as follows:

$H_0 1_1$: There is a statistically significant three-way interaction between CG_NDS, JC, and gender on WSC.

$H_1 1_1$: There is no statistically significant three-way interaction between CG_NDS, JC, and gender on WSC.

$H_0 1_2$: There is a statistically significant three-way interaction between CG_NDS, JC, and gender on JS.

$H_1 1_2$: There is no statistically significant three-way interaction between CG_NDS, JC, and gender on JS.

$H_0 1_3$: There is a statistically significant three-way interaction between CG_NDS, JC, and gender on TI.

$H_1 1_3$: There is no statistically significant three-way interaction between CG_NDS, JC, and gender on TI.

To answer each research question, additional data transformation and assumption testing was required specific to the question's intended method of analysis. I recoded and transformed the neurodiversity scale responses total score into the CG_NDS variable. Following the original proposed research design, participants were further assigned to the CG_NDS variable within one of the four neurodiversity categorical groups based on the sum of their ASRS responses (Highly Unlikely = 0-9; Unlikely = 10-13; Likely = 14-17; Highly Likely =18-24).

Frequency analysis of CG_NDS found that of the sample ($n$ = 1,091), 58.7% were highly unlikely, 29.3% were unlikely, 9.3% were likely, and 2.7% were highly likely to have clinically significant ADHD symptomology. While these data are significantly skewed, this was the expected result based on known estimated levels of adults likely to have ADHD in the U.S. population. However, further exploration of the number of responses per cell using the original 4 x 2 x 10 three-way ANOVA design identified that there was too significant of a variability of respondents per cell for adequate analysis using the original 4 x 2 x 10 design.

To address this challenge, I recoded the CG_NDS variable using the Kessler et al. (2005a) alternate 2-category method rather than the original 4-category method into a new variable. The recoded variable grouped respondents based on whether their responses demonstrate symptomology that is either “consistent” or “inconsistent” with adult ADHD to the extent where an individual answering the questions as part of an online self-report might receive the suggestion that they share their responses with doctor to evaluate the individual for ADHD (CG_NDS). Figure 9 below demonstrates how answers to each question were calculated. For each question, if a participant answered in box shaded grey in Figure 9, the question was scored as 1, otherwise the question waw scored as 0. Four or more questions scored as 1 indicates symptoms consistent with adult ADHD. Per the methodology laid out by Kessler et al., individuals who scored a 1 on four or more of the six questions were coded as 1 as consistent ADHD symptomology while all others were coded as a 0.

The two-way scoring method (Kessler et al., 2005a) has been shown to have a high positive predictive value (0.94), low negative predictive value (0.24), sensitivity of 68.7%, specificity of 99.5%, and total classification accuracy of 97.9% and has demonstrated test-retest reliability among adults without ADHD diagnoses which is the primary focus of this study (Silverstein et al., 2018). Using The two-way scoring method rather than the originally proposed four categorical method (Kessler at al., 2007), of all participants analyzed ($n$ = 1,096), 15.1 percent had symptoms consistent with adult

ADHD that would suggest they discuss their symptoms with a health care professional about an evaluation, while 84.9 percent did not.

**Figure 9**

*Adult Self-Report Scale Screener Method of Scoring Responses*

| | Never | Rarely | Sometimes | Often | Very Often |
|---|---|---|---|---|---|
| 1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done? | 0 | 0 | 1 | 1 | 1 |
| 2. How often do you have difficulty getting things in order when you have to do a task that requires organization? | 0 | 0 | 1 | 1 | 1 |
| 3. How often do you have problems remembering appointments or obligations? | 0 | 0 | 1 | 1 | 1 |
| 4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started? | 0 | 0 | 0 | 1 | 1 |
| 5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time? | 0 | 0 | 0 | 1 | 1 |
| 6. How often do you feel overly active and compelled to do things, like you were driven by a motor? | 0 | 0 | 0 | 1 | 1 |

It is important to note some researchers use an alternative, simpler two-way scoring method also based on the work performed by Kessler et al. (2007) which categorizes respondents using the optimal cutoff of clinical significance (Unlikely: 0-13; Likely: 14-24). Wymbs and Dawson (2019) similarly used the ASRS tool as part of studying ADHD and MTurk workers but used the clinical cutoff method rather than the two-way scoring method shown in Figure 9. Their study compared ASRS responses and whether respondents had or had not been diagnosed (either as a child or an adult) with

ADHD. In their study, they found that 6.66% (354 of 5,318) of respondents who scored less than or equal to 13 on the ASRS had been diagnosed with ADHD, while 27.3% (330 of 1,208) of those who scored 14 or higher had been diagnosed with ADHD. Wymbs and Dawson's results highlight the need not to rely solely on the ASRS clinical cutoff value when seeking to study those with ADHD symptoms or diagnosis and support the use of the method used here. As discussed earlier in this chapter, five job classes were excluded due to having too few respondents for analysis. These classes were: skilled agricultural, forestry and fishery workers, craft and related trades workers, plant and machine operators and assemblers, elementary occupations, and armed forces occupations.

***RQ1 Hypothesis 1: Workplace Social Capital Results***

The data file was split and sorted by the three independent variables to review outliers, identifying several outliers greater than 1.5 box-lengths from the edge of the box but no outliers greater than three box-lengths from the edge of the box. This process was repeated multiple times until only two outliers remained. These were removed, resulting in a participant pool of 942.

Analysis of whether the data were normally distributed was conducted using Q-plots and Shapiro-Wilk's test as shown in Table 6. The Q-plots demonstrated overall normal distribution. Shapiro-Wilk's test ($p < .05$) found assumptions of normality were violated for six of the 20 cells. The data also violated the assumptions test for homogeneity as assessed by Levene's test for equality of variances, $p = .002$. This was not an unexpected result due to the significant differences in sample sizes but required

that more robust methods of ANOVA analysis be used. To reduce the likelihood of either type I or type II errors, ANOVA incorporating weighted least squares regression and bootstrapping was utilized in performing the analysis following Field (2018) and Tabachnick and Fidell's (2019) recommendations for robust ANOVA and data transformation.

**Table 6**

*Tests of Normality for Workplace Social Capital Three-Way ANOVA*

| Gender | Job classification | NDS symptomatic of ADHD | Shapiro -Wilk | df | *p* |
|---|---|---|---|---|---|
| Male | Managers | Symptoms not consistent | .972 | 97 | .037* |
| | | Symptoms consistent | .945 | 10 | .611 |
| | Professionals | Symptoms not consistent | .982 | 117 | .115 |
| | | Symptoms consistent | .932 | 13 | .363 |
| | Technicians and associate professionals | Symptoms not consistent | .964 | 64 | .058* |
| | | Symptoms consistent | .969 | 22 | .678 |
| | Clerical support workers | Symptoms not consistent | .963 | 13 | .802 |
| | | Symptoms consistent | .999 | 3 | .944 |
| | Services and sales workers | Symptoms not consistent | .976 | 55 | .347 |
| | | Symptoms consistent | .934 | 15 | .309 |
| Female | Managers | Symptoms not consistent | .950 | 93 | .001* |
| | | Symptoms consistent | .965 | 16 | .760 |
| | Professionals | Symptoms not consistent | .974 | 142 | .008* |
| | | Symptoms consistent | .979 | 24 | .870 |
| | Technicians and associate professionals | Symptoms not consistent | .976 | 57 | .314 |
| | | Symptoms consistent | .943 | 13 | .502 |
| | Clerical support workers | Symptoms not consistent | .964 | 94 | .011* |
| | | Symptoms consistent | .939 | 17 | .312 |
| | Services and sales workers | Symptoms not consistent | .946 | 69 | .005* |
| | | Symptoms consistent | .896 | 8 | .267 |

* Shapiro-Wilk's test for normality of distribution was violated ($p < .05$)

A three-way ANOVA analysis was performed to address the first hypothesis to understand the effect of job classification, gender, and CG_NDS on WSC. There was a statistically significant three-way interaction between the three independent variables on

workplace social capital, $F(4, 922) = 6.331$, $p < .001$. Table 7 provides the full results of the ANOVA analysis. Based on these findings, the $H_0 1_1$ hypothesis is accepted and the $H_1 1_1$ null hypothesis is rejected.

**Table 7**

*Three-Way ANOVA of Gender, Neurodiversity, Job Class on Workplace Social Capital*

| Source | Type III sum of squares | df | Mean square | F | *p* |
|---|---|---|---|---|---|
| Corrected model | 1,091.229[b] | 19 | 57.433 | 4.535 | .000 |
| Intercept | 5,0491.412 | 1 | 50,491.412 | 3,986.927 | .000 |
| Gender | 1.343 | 1 | 1.343 | .106 | .745 |
| CG_NDS | 110.597 | 4 | 27.649 | 2.183 | .069 |
| JC | 187.795 | 1 | 187.795 | 14.829 | .000 |
| Gender * CG_NDS | 317.537 | 4 | 79.384 | 6.268 | .000 |
| Gender * JC | 13.689 | 1 | 13.689 | 1.081 | .299 |
| CG_NDS * JC | 101.022 | 4 | 25.255 | 1.994 | .093 |
| Gender * CG_NDS * JC | 320.710 | 4 | 80.178 | 6.331 | .000 |
| Error | 11,676.433 | 922 | 12.664 | | |
| Total | 229,446.952 | 942 | | | |
| Corrected total | 12,767.662 | 941 | | | |

*a*. Weighted least squares regression

*b*. R squared = .085 (adjusted R squared = .067)

*c.* Computed using alpha = .05

Bootstrapped parameter estimates were used for post-hoc confirmation of the significance of the interactions as shown in Table 8.

**Table 8**

*Bootstrapped Parameter Estimates for Workplace Social Capital Three-Way ANOVA*

| Parameter | B | Bias | Std. error | $p$ [c] | 95% CI | |
|---|---|---|---|---|---|---|
| | | | | | Lower | Upper |
| Intercept | 50.316 | -.647[b] | 4.450[b] | .001[b] | 38.718[b] | 56.765[b] |
| [G=1.00](Male) | -4.965 | .563[b] | 4.973[b] | .279[b] | -12.742[b] | 7.220[b] |
| [JC=1.00] | 22.695 | -3.789[b] | 9.766[b] | .018[b] | -.606[b] | 35.651[b] |
| [JC=2.00] | 2.572 | -.165[b] | 6.093[b] | .660[b] | -8.460[b] | 15.370[b] |
| [JC=3.00] | 3.806 | -.551[b] | 6.965[b] | .573[b] | -10.594[b] | 16.134[b] |
| [JC=4.00] | -1.136 | .233[b] | 5.680[b] | .829[b] | -12.180[b] | 11.186[b] |
| [CG_NDS=1.00] | 14.647 | -.004[b] | 5.733[b] | .006[b] | 3.923[b] | 26.579[b] |
| [G =1.00] * [JC=1.00] | -21.850 | 3.829[b] | 10.175[b] | .037[b] | -34.883[b] | 1.858[b] |
| [G =1.00] * [JC=2.00] | 22.519 | -1.143[b] | 8.160[b] | .007[b] | 4.552[b] | 35.950[b] |
| [G =1.00] * [JC=3.00] | 10.586 | .313[b] | 8.304[b] | .174[b] | -5.016[b] | 27.154[b] |
| [G =1.00] * [JC=4.00] | 20.386 | -2.901[b] | 10.394[b] | .013[b] | -4.930[b] | 35.034[b] |
| [G =1.00] * [CG_NDS=1.00] | 4.050 | -.685[b] | 7.046[b] | .532[b] | -11.700[b] | 16.696[b] |
| [JC=1.00] * [CG_NDS=1.00] | -17.614 | 4.068[b] | 10.475[b] | .107[b] | -31.963[b] | 7.295[b] |
| [JC=2.00] * [CG_NDS=1.00] | -2.925 | .528[b] | 7.602[b] | .698[b] | -17.540[b] | 12.303[b] |
| [JC=3.00] * [CG_NDS=1.00] | -7.706 | .938[b] | 8.337[b] | .335[b] | -22.350[b] | 10.446[b] |
| [JC=4.00] * [CG_NDS=1.00] | 1.681 | -.257[b] | 7.739[b] | .814[b] | -14.441[b] | 16.727[b] |
| [G =1.00] * [JC=1.00] * [CG_NDS=1.00] | 19.428 | -3.461[b] | 11.605[b] | .104[b] | -7.506[b] | 37.189[b] |
| [G =1.00] * [JC=2.00] * [CG_NDS=1.00] | -23.971 | 1.306[b] | 10.578[b] | .018[b] | -43.205[b] | .573[b] |
| [G =1.00] * [JC=3.00] * [CG_NDS=1.00] | -5.426 | -.308[b] | 10.512[b] | .600[b] | -27.077[b] | 16.405[b] |
| [G =1.00] * [JC=4.00] * [CG_NDS=1.00] | -30.124 | 3.115[b] | 12.507[b] | .005[b] | -50.329[b] | -.052[b] |

a. Unless otherwise noted, bootstrap results are based on 1,000 bootstrap samples

b. Based on 934 samples

c. $p$ is two-tailed.

*Note*. Rows with no results were excluded from this table for brevity.

Further post-hoc analysis using two-way ANOVA while splitting the file by gender in SPSS was also conducted as shown in Table 9. A significant two-way interaction was identified between gender and job class for both men, $F(4, 399) = 3.827$, $p = .005$. and women $F(4, 523) = 10.263$, $p < .001$. A significant two-way interaction was also identified between gender and neurodiversity symptoms for women $F(4, 523) = 14.239$, $p < .001$, but not for men.

**Table 9**

*Post-Hoc Two-Way ANOVA Summary for Workplace Social Capital*

| Gender | Source | Type III sum of squares | df | Mean square | F | Sig. |
|---|---|---|---|---|---|---|
| Male | Corrected model | 390.202[b] | 9 | 43.356 | 3.774 | .000 |
| | Intercept | 20,552.683 | 1 | 20,552.683 | 1,788.944 | .000 |
| | JC | 175.855 | 4 | 43.964 | 3.827 | .005 |
| | CG_NDS | 41.161 | 1 | 41.161 | 3.583 | .059 |
| | JC * CG_NDS | 299.868 | 4 | 74.967 | 6.525 | .000 |
| | Error | 4,584.001 | 399 | 11.489 | | |
| | Total | 92,173.662 | 409 | | | |
| | Corrected total | 4,974.202 | 408 | | | |
| Female | Corrected model | 671.667[c] | 9 | 74.630 | 5.503 | .000 |
| | Intercept | 32,521.847 | 1 | 32,521.847 | 2,398.180 | .000 |
| | JC | 556.690 | 4 | 139.173 | 10.263 | .000 |
| | CG_NDS | 193.096 | 1 | 193.096 | 14.239 | .000 |
| | JC * CG_NDS | 195.301 | 4 | 48.825 | 3.600 | .007 |
| | Error | 7,092.432 | 523 | 13.561 | | |
| | Total | 137,273.290 | 533 | | | |
| | Corrected total | 7,764.099 | 532 | | | |

*a*. Weighted least squares regression
*b*. R squared = .078 (adjusted R squared = .058)
*c*. R squared = .087 (adjusted R squared = .071)

Post hoc testing using custom hypotheses tests of contrast coefficient matrices using polynomial contrasts per Wilcox (2012) identified a statistically significant simple main effect of neurodiversity symptomology on workplace social capital for women, $F(4, 531) = 4.724$, $p = .030$, but not for men, $F(4, 407) = 2.840$, $p = .093$.

### *RQ1 Hypothesis 2: Job Satisfaction Results*

A second three-way ANOVA analysis was performed to address the second hypothesis regarding how the same independent variables impact job satisfaction (JS). Similar procedures were followed as used for the first hypothesis. The review of outliers identified and removed 23 outliers greater than 1.5 box-lengths from the edge of the box and just one outlier greater than three box-lengths from the edge of the box through two rounds of analysis. As with the first analysis, these, along with respondents from the last five job categories were excluded, resulting in a participant pool of 976.

The Shapiro-Wilk analysis found violations of normal distribution ($p < .05$) in half of cells while Q-plots showed overall normal distribution as shown in Table 10. The data also violated the assumptions test for homogeneity as assessed by Levene's test for equality of variances, $p < .001$. As with the first analysis, to reduce the likelihood of Type I and Type II errors, the analysis used robust ANOVA methods, incorporating weighted least squares regression and bootstrapping was utilized in performing the analysis.

**Table 10**

*Tests of Normality for Job Satisfaction Three-Way ANOVA*

| | | | Shapiro-Wilk | df | *p* |
|---|---|---|---|---|---|
| Male | Managers | Symptoms not consistent | .957 | 99 | .003* |
| | | Symptoms consistent | .812 | 11 | .013* |
| | Professionals | Symptoms not consistent | .968 | 113 | .008* |
| | | Symptoms consistent | .946 | 16 | .434 |
| | Technicians and associate professionals | Symptoms not consistent | .978 | 63 | .325 |
| | | Symptoms consistent | .918 | 22 | .071 |
| | Clerical support workers | Symptoms not consistent | .900 | 15 | .096 |
| | | Symptoms consistent | .750 | 3 | .000* |
| | Services and sales workers | Symptoms not consistent | .968 | 55 | .155 |
| | | Symptoms consistent | .968 | 16 | .813 |
| Female | Managers | Symptoms not consistent | .965 | 99 | .009* |
| | | Symptoms consistent | .965 | 17 | .721 |
| | Professionals | Symptoms not consistent | .971 | 149 | .003* |
| | | Symptoms consistent | .971 | 25 | .671 |
| | Technicians and associate professionals | Symptoms not consistent | .967 | 58 | .115 |
| | | Symptoms consistent | .915 | 14 | .187 |
| | Clerical support workers | Symptoms not consistent | .965 | 103 | .008* |
| | | Symptoms consistent | .945 | 17 | .376 |
| | Services and sales workers | Symptoms not consistent | .965 | 74 | .040* |
| | | Symptoms consistent | .808 | 10 | .018* |

* Shapiro-Wilk's test for normality of distribution was violated ($p < .05$)

The intent of this analysis was to address the second hypothesis to understand the effect of job classification, gender, and neurodiversity symptomology on job satisfaction. There was a statistically significant three-way interaction between the three independent variables on job satisfaction, $F(4, 956) = 3.724$, $p = .005$. Table 11 provides the full results of the ANOVA analysis. Based on these findings, the $H_0 1_2$ hypothesis is accepted, and the null $H_1 1_2$ is rejected.

**Table 11**

*Three-Way ANOVA of Gender, Neurodiversity, Job Class on Job Satisfaction*

| Source | Type III sum of squares | df | Mean square | F | *p* |
|---|---|---|---|---|---|
| Corrected model | 3,182.824[b] | 19 | 167.517 | 10.369 | .000 |
| Intercept | 96,039.866 | 1 | 96,039.866 | 5,944.807 | .000 |
| Gender | .017 | 1 | .017 | .001 | .974 |
| JC | 111.936 | 4 | 27.984 | 1.732 | .141 |
| CG_NDS | 184.255 | 1 | 184.255 | 11.405 | .001 |
| Gender * JC | 73.875 | 4 | 18.469 | 1.143 | .335 |
| Gender * CG_NDS | 286.865 | 1 | 286.865 | 17.757 | .000 |
| JC * CG_NDS | 470.844 | 4 | 117.711 | 7.286 | .000 |
| Gender * JC * CG_NDS | 240.654 | 4 | 60.164 | 3.724 | .005 |
| Error | 15,444.423 | 956 | 16.155 | | |
| Total | 495,730.565 | 976 | | | |
| Corrected total | 18,627.247 | 975 | | | |

*a*. Weighted least squares regression - weighted by JS reciprocal weighting
*b*. R squared = .171 (adjusted R squared = .154)
*c*. Computed using alpha = .05

Bootstrapped parameter estimates and contrast analyses shown in Table 12 confirmed these findings. These results suggested further two-way analyses were warranted to explore the significance of the interactions between gender and job class, and gender and neurodiversity symptomology. Further post-hoc analysis using two-way ANOVA while splitting the file by gender in SPSS was also conducted as shown in Table 13. A significant two-way interaction was identified between gender and job class for men, $F(4, 403) = 3.905$, $p = .004$. but not women $F(4, 553) = .178$, $p = .950$. = 2.409, p = .048.

**Table 12**

*Bootstrapped Parameter Estimates for Job Satisfaction Three-Way ANOVA*

| | | | Std. | | 95% CI | |
|---|---|---|---|---|---|---|
| Parameter | B | Bias | error | *p* [c] | Lower | Upper |
| Intercept | 76.892 | -1.392[b] | 6.300[b] | .001[b] | 61.071[b] | 84.100[b] |
| [G=1.00](Male) | 13.288 | -5.327[b] | 13.216[b] | .290[b] | -16.685[b] | 28.882[b] |
| [JC=1.00] | -9.940 | .761[b] | 7.396[b] | .116[b] | -21.573[b] | 6.262[b] |
| [JC=2.00] | -2.936 | .442[b] | 8.067[b] | .701[b] | -16.740[b] | 14.071[b] |
| [JC=3.00] | -3.668 | .435[b] | 8.569[b] | .618[b] | -20.431[b] | 14.672[b] |
| [JC=4.00] | -7.857 | .326[b] | 9.234[b] | .339[b] | -26.998[b] | 10.833[b] |
| [CG_NDS=1.00] | 8.080 | .090[b] | 8.362[b] | .276[b] | -7.454[b] | 25.960[b] |
| [G =1.00] * [JC=1.00] | -13.234 | 5.419[b] | 14.107[b] | .333[b] | -32.438[b] | 19.054[b] |
| [G =1.00] * [JC=2.00] | 7.870 | 3.896[b] | 15.462[b] | .582[b] | -16.144[b] | 42.297[b] |
| [G =1.00] * [JC=3.00] | -8.563 | 5.585[b] | 15.056[b] | .532[b] | -30.068[b] | 27.890[b] |
| [G =1.00] * [JC=4.00] | -8.500 | 3.974[b] | 19.311[b] | .614[b] | -50.640[b] | 30.790[b] |
| [G =1.00] * [CG_NDS=1.00] | -29.998 | 6.407[b] | 14.934[b] | .038[b] | -49.039[b] | 6.388[b] |
| [JC=1.00] * [CG_NDS=1.00] | 17.429 | .171[b] | 9.476[b] | .052[b] | -1.873[b] | 34.729[b] |
| [JC=2.00] * [CG_NDS=1.00] | 6.190 | .306[b] | 10.026[b] | .506[b] | -12.428[b] | 26.521[b] |
| [JC=3.00] * [CG_NDS=1.00] | 1.091 | -.720[b] | 11.873[b] | .916[b] | -23.070[b] | 22.981[b] |
| [JC=4.00] * [CG_NDS=1.00] | 13.568 | .350[b] | 10.914[b] | .187[b] | -7.026[b] | 35.418[b] |
| [G =1.00] * [JC=1.00] * [CG_NDS=1.00] | 16.250 | -6.307[b] | 15.876[b] | .314[b] | -22.073[b] | 37.955[b] |
| [G =1.00] * [JC=2.00] * [CG_NDS=1.00] | -4.842 | -4.512[b] | 17.245[b] | .764[b] | -44.259[b] | 20.258[b] |
| [G =1.00] * [JC=3.00] * [CG_NDS=1.00] | 26.726 | -6.275[b] | 18.178[b] | .139[b] | -16.318[b] | 53.768[b] |
| [G =1.00] * [JC=4.00] * [CG_NDS=1.00] | 24.505 | -13.706[b] | 25.608[b] | .351[b] | -41.886[b] | 61.557[b] |

*a*. Unless otherwise noted, bootstrap results are based on 1,000 bootstrap samples

*b*. Based on 947 samples

*c*. *p* is two-tailed.

*Note.* Rows with no results were excluded from this table for brevity.

**Table 13**

*Post-Hoc Two-Way ANOVA Summary for Job Satisfaction*

| Gender | Source | Type III sum of squares | df | Mean square | F | *p* |
|---|---|---|---|---|---|---|
| Male | Corrected model | 1,353.744[b] | 9 | 150.416 | 13.046 | .000 |
| | Intercept | 39,207.957 | 1 | 39,207.957 | 3,400.701 | .000 |
| | JC | 180.098 | 4 | 45.024 | 3.905 | .004 |
| | CG_NDS | 4.613 | 1 | 4.613 | .400 | .527 |
| | JC * CG_NDS | 692.654 | 4 | 173.164 | 15.019 | .000 |
| | Error | 4,646.338 | 403 | 11.529 | | |
| | Total | 145,156.603 | 413 | | | |
| | Corrected total | 6,000.082 | 412 | | | |
| Female | Corrected model | 1,184.693[d] | 9 | 131.633 | 6.741 | .000 |
| | Intercept | 61,971.763 | 1 | 61,971.763 | 3,173.746 | .000 |
| | JC | 13.901 | 4 | 3.475 | .178 | .950 |
| | CG_NDS | 601.212 | 1 | 601.212 | 30.790 | .000 |
| | JC * CG_NDS | 103.560 | 4 | 25.890 | 1.326 | .259 |
| | Error | 10,798.086 | 553 | 19.526 | | |
| | Total | 350,573.962 | 563 | | | |
| | Corrected total | 11,982.779 | 562 | | | |

*a*. Weighted least squares regression weighted by JS reciprocal weighting
*b*. R squared = .226 (adjusted R squared = .208)
*c*. Computed using alpha = .05
*d*. R squared = .099 (adjusted R squared = .084)

Conversely, using ANOVA, a significant two-way interaction was identified between gender and neurodiversity symptoms for women $F(4, 553) = 30.790$, $p < .001$, but not for men, $F(4, 403) = .400$, $p = .527$. Post hoc testing review of contrast estimates found no statistically significant one-way interaction between gender and job satisfaction, $F(1, 956) = 1.369$, p = .242 or gender and neurodiversity symptomology, $F(1, 956) =$

2.816, p = .094. A significant one-way interaction was found between job classification and job satisfaction, $F(4, 956)$.

***RQ1 Hypothesis 3: Turnover Intent Results***

The final hypothesis for the first research question was analyzed through a third three-way ANOVA performed with the same independent variables of gender, neurodiversity symptomology consistent with ADHD, and job classification, on turnover intent using the same methods of analysis. The data file was split and sorted by the three independent variables to review outliers, identifying two outliers greater than 1.5 box-lengths from the edge of the box but no outliers greater than three box-lengths from the edge of the box. The participant pool for the turnover intent study was 999. The data were mostly normally distributed according to Q-plots but showed greater variability for participants with symptoms consistent with adult ADHD. As shown in Table 14, Shapiro-Wilk's test ($p < .05$) found assumptions of normality were violated for 10 of the 20 cells. While the data met the assumption of homogeneity as Levene's test of equality ($p = .187$), I followed the same procedures for bootstrapping and regression in order to reduce the likelihood of Type I and Type II errors.

**Table 14**

*Tests of Normality for Turnover Intent Three-Way ANOVA*

| | | | Shapiro-Wilk | df | *p* |
|---|---|---|---|---|---|
| Male | Managers | Symptoms not consistent | .965 | 99 | .010* |
| | | Symptoms consistent | .935 | 11 | .459 |
| | Professionals | Symptoms not consistent | .964 | 123 | .002* |
| | | Symptoms consistent | .916 | 16 | .145 |
| | Technicians and associate professionals | Symptoms not consistent | .949 | 67 | .008* |
| | | Symptoms consistent | .953 | 22 | .364 |
| | Clerical support workers | Symptoms not consistent | .856 | 16 | .017* |
| | | Symptoms consistent | .750 | 3 | .000* |
| | Services and sales workers | Symptoms not consistent | .960 | 55 | .065 |
| | | Symptoms consistent | .826 | 16 | .006* |
| Female | Managers | Symptoms not consistent | .943 | 100 | .000* |
| | | Symptoms consistent | .974 | 17 | .878 |
| | Professionals | Symptoms not consistent | .996 | 153 | .001* |
| | | Symptoms consistent | .969 | 25 | .620 |
| | Technicians and associate professionals | Symptoms not consistent | .952 | 58 | .023* |
| | | Symptoms consistent | .940 | 14 | .412 |
| | Clerical support workers | Symptoms not consistent | .935 | 107 | .000* |
| | | Symptoms consistent | .946 | 17 | .400 |
| | Services and sales workers | Symptoms not consistent | .976 | 75 | .162 |
| | | Symptoms consistent | .871 | 10 | .102 |

* Shapiro-Wilk's test for normality of distribution was violated ($p < .05$)

A three-way ANOVA analysis was performed to address the hypothesis to understand the effect of job classification, gender, and neurodiversity on turnover intent. There was a statistically significant three-way interaction between the three independent

variables on turnover intent, $F(4, 979) = 2.385$, $p = .05$. Table 15 provides the full results of the ANOVA analysis. Based on these findings, the $H_0 1_3$ hypothesis is accepted, and the alternate null $H_1 1_3$ is rejected.

**Table 15**

*Three-way ANOVA of Gender, Neurodiversity, and Job Class on Turnover Intent*

| Source | Type III sum of squares | df | Mean square | F | *p* |
|---|---|---|---|---|---|
| Corrected model | 57.566[b] | 19 | 3.030 | 4.933 | .000 |
| Intercept | 1,536.994 | 1 | 1,536.994 | 2,502.575 | .000 |
| Gender | 2.149 | 1 | 2.149 | 3.499 | .062 |
| JC | 20.215 | 4 | 5.054 | 8.229 | .000 |
| CG_NDS | 5.989 | 1 | 5.989 | 9.751 | .002 |
| Gender * JC | 6.843 | 4 | 1.711 | 2.786 | .026 |
| Gender * CG_NDS | 1.063 | 1 | 1.063 | 1.730 | .189 |
| JC * CG_NDS | 6.419 | 4 | 1.605 | 2.613 | .034 |
| Gender * JC * CG_NDS | 5.859 | 4 | 1.465 | 2.385 | .050 |
| Error | 601.268 | 979 | .614 | | |
| Total | 4,795.493 | 999 | | | |
| Corrected total | 658.834 | 998 | | | |

*a*. Weighted least squares regression

*b*. Computed using alpha = .05

**Table 16**

*Bootstrapped Parameter Estimates for Turnover Intent Three-Way ANOVA*

| | | | Std. | | 95% CI | |
|---|---|---|---|---|---|---|
| Bootstrapped parameter estimates | B | Bias | error | *p* [c] | Lower | Upper |
| Intercept | 5.056 | -.044[b] | .368[b] | .001[b] | 4.136[b] | 5.568[b] |
| [G=1.00](Male) | .309 | .014[b] | .443[b] | .438[b] | -.435[b] | 1.355[b] |
| [JC=1.00] | -.633 | -.049[b] | .717[b] | .358[b] | -2.020[b] | .751[b] |
| [JC=2.00] | -.973 | .032[b] | .446[b] | .025[b] | -1.739[b] | .088[b] |
| [JC=3.00] | -.474 | -.036[b] | .619[b] | .416[b] | -1.725[b] | .640[b] |
| [JC=4.00] | .240 | -.037[b] | .603[b] | .663[b] | -1.079[b] | 1.403[b] |
| [CG_NDS=1.00] | -.719 | .042[b] | .431[b] | .088[b] | -1.411[b] | .331[b] |
| [G =1.00] * [JC=1.00] | .249 | -.016[b] | .924[b] | .776[b] | -1.578[b] | 2.005[b] |
| [G =1.00] * [JC=2.00] | -1.284 | -.020[b] | .567[b] | .019[b] | -2.483[b] | -.214[b] |
| [G =1.00] * [JC=3.00] | -.178 | .012[b] | .798[b] | .813[b] | -1.739[b] | 1.417[b] |
| [G =1.00] * [JC=4.00] | -2.982 | .031[b] | .765[b] | .001[b] | -4.501[b] | -1.452[b] |
| [G =1.00] * [CG_NDS=1.00] | -.059 | -.042[b] | .564[b] | .900[b] | -1.277[b] | .944[b] |
| [JC=1.00] * [CG_NDS=1.00] | -.018 | .045[b] | .780[b] | .971[b] | -1.485[b] | 1.587[b] |
| [JC=2.00] * [CG_NDS=1.00] | .287 | -.030[b] | .518[b] | .537[b] | -.880[b] | 1.169[b] |
| [JC=3.00] * [CG_NDS=1.00] | .213 | .035[b] | .700[b] | .737[b] | -1.100[b] | 1.630[b] |
| [JC=4.00] * [CG_NDS=1.00] | -.581 | .024[b] | .683[b] | .364[b] | -1.865[b] | .861[b] |
| [G =1.00] * [JC=1.00] * [CG_NDS=1.00] | -.397 | .046[b] | 1.046[b] | .704[b] | -2.455[b] | 1.718[b] |
| [G =1.00] * [JC=2.00] * [CG_NDS=1.00] | 1.305 | .045[b] | .691[b] | .054[b] | .012[b] | 2.718[b] |
| [G =1.00] * [JC=3.00] * [CG_NDS=1.00] | -.587 | .007[b] | .935[b] | .520[b] | -2.409[b] | 1.132[b] |
| [G =1.00] * [JC=4.00] * [CG_NDS=1.00] | 2.162 | .010[b] | .895[b] | .013[b] | .482[b] | 4.047[b] |

*a*. Unless otherwise noted, bootstrap results are based on 1,000 bootstrap samples

*b*. Based on 946 samples

*c*. *p* is two-tailed.

*Note*. Rows with no results were excluded from this table for brevity.

**Table 17**

*Post-Hoc Two-Way ANOVA Summary for Turnover Intent*

| Source | Type III sum of squares | df | Mean square | F | *p* | Source |
|---|---|---|---|---|---|---|
| Managers | Corrected model | 6.513[b] | 2 | 3.257 | 5.652 | .004 |
| | Intercept | 96.460 | 1 | 96.460 | 167.423 | .000 |
| | Gender | .398 | 1 | .398 | .691 | .407 |
| | CG_NDS | 6.261 | 1 | 6.261 | 10.867 | .001 |
| | Error | 128.480 | 223 | .576 | | |
| | Total | 960.181 | 226 | | | |
| | Corrected total | 134.993 | 225 | | | |
| Professionals | Corrected model | .289[d] | 2 | .144 | .270 | .763 |
| | Intercept | 92.887 | 1 | 92.887 | 173.757 | .000 |
| | Gender | .284 | 1 | .284 | .531 | .467 |
| | CG_NDS | .001 | 1 | .001 | .001 | .972 |
| | Error | 167.324 | 313 | .535 | | |
| | Total | 1,231.856 | 316 | | | |
| | Corrected total | 167.613 | 315 | | | |
| Technicians and associate professionals | Corrected model | 6.920[e] | 2 | 3.460 | 5.380 | .005 |
| | Intercept | 58.617 | 1 | 58.617 | 91.140 | .000 |
| | Gender | 1.235 | 1 | 1.235 | 1.920 | .168 |
| | CG_NDS | 6.176 | 1 | 6.176 | 9.602 | .002 |
| | Error | 101.618 | 158 | .643 | | |
| | Total | 772.422 | 161 | | | |
| | Corrected total | 108.538 | 160 | | | |
| Clerical support workers | Corrected model | 9.883[f] | 2 | 4.942 | 6.241 | .003 |
| | Intercept | 6.695 | 1 | 6.695 | 8.455 | .004 |
| | Gender | 2.642 | 1 | 2.642 | 3.337 | .070 |
| | CG_NDS | 6.994 | 1 | 6.994 | 8.833 | .003 |
| | Error | 109.271 | 138 | .792 | | |
| | Total | 749.913 | 141 | | | |
| | Corrected total | 119.154 | 140 | | | |
| Services and sales workers | Corrected model | 5.636[g] | 2 | 2.818 | 4.257 | .016 |
| | Intercept | 122.213 | 1 | 122.213 | 184.642 | .000 |
| | Gender | .761 | 1 | .761 | 1.150 | .285 |
| | CG_NDS | 4.161 | 1 | 4.161 | 6.286 | .013 |
| | Error | 100.608 | 152 | .662 | | |
| | Total | 1,081.122 | 155 | | | |
| | Corrected total | 106.244 | 154 | | | |

a. Weighted least squares regression
b. R squared = .048 (adjusted R squared = .040)
c. Computed using alpha = .05
d. R squared = .002 (adjusted R squared = -.005)
e. R squared = .064 (adjusted R squared = .052)
f. R squared = .083 (adjusted R squared = .070)
g. R squared = .053 (adjusted R squared = .041)

Further post-hoc analysis using bootstrapped parameter estimates as shown in Table 16 confirmed the need for further analysis. Two-way ANOVA while splitting the

file by job classification in SPSS was also conducted. As shown in Table 17, a significant two-way interaction was identified between all job classes and neurodiversity symptomology except for professionals. Post hoc testing using custom hypotheses tests of contrast coefficient matrices using polynomial contrasts per Wilcox (2012) identified statistically significant simple main effects for job class, $F(4, 979) = 8.229, < .001$, and neurodiversity, $F(1, 979) = 9.751$, $p = .002$, on turnover intent.

**Research Question 2 Mediation Analysis and Results**

Tabachnick and Fidell (2019) and Hayes (2018) guidance on mediation analysis was used to answer the second research question: "To what extent does WSC mediate the relationships between SS_NDS and leave-taking, as measured by JS, and TI?" Mediation analysis was used to address the extent of the following two hypothesized mediation pathways:

$H_02_1$: WSC does significantly mediate the relationship between SS_NDS and JS.

$H_12_1$: WSC does not significantly mediates the relationships between SS_NDS and JS.

$H_02_2$: WSC does significantly mediate the relationship between SS_NDS and TI.

$H_12_2$: WSC does not significantly mediates the relationships between SS_NDS and TI.

Figures 10 and 11 show the hypothesized mediation model pathways.

**Figure 10**

*Mediation Model of Neurodiversity, Workplace Social Capital, and Job Satisfaction*

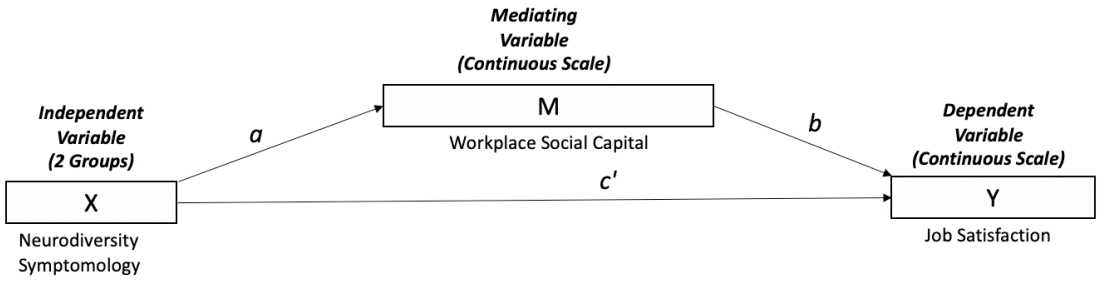
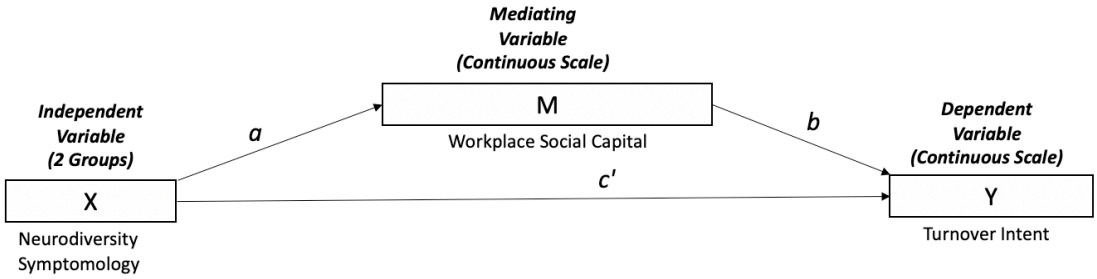



**Figure 11**

*Mediation Model of Neurodiversity, Workplace Social Capital, and Turnover Intent*




### *Descriptive Statistics Related to Mediation Model*

Mediation requires a continuous dependent variable and both dependent variables, job satisfaction and turnover intent are continuous scales. The independent variables must be nominal or continuous. I used the full ASRS neurodiversity scale as well as the workplace social capital scale, job satisfaction scale, and turnover intent scale.

All outliers and cases excluded during earlier analyses were removed resulting in a reduced n, $n = 921$, as shown in Table 18.

**Table 18**

*Descriptive Statistics for Mediation Analyses*

| | N | Range | Min | Max | *M* | *SD* |
|---|---|---|---|---|---|---|
| ASRS total score | 921 | 22 | .00 | 1.00 | 8.8284 | 4.03044 |
| Workplace social capital | 921 | 71.97 | 10.04 | 82.01 | 51.5563 | 16.17019 |
| Job satisfaction | 921 | 90.00 | 10.00 | 100.00 | 66.0966 | 17.48112 |
| Turnover intent | 921 | 6.00 | 1.00 | 7.00 | 3.3786 | 1.43355 |
| Valid N (listwise) | 921 | | | | | |

### *Assumption Testing for Mediation Model*

To confirm that the data could be analyzed using mediation, I first performed the assumption tests for regression as outlined by Tabachnick and Fidell (2019). Using SPSS, assumptions of normality, linearity, homoscedasticity and independence of residuals were confirmed through multiple means. First, through visual review of scatterplot graphs of residuals against predicted dependent variable scores, histograms, and P-Plots. Next, descriptive analysis was used to review skewness finding low level of positive and negative skew that did not require transformation. Durbin-Watson was used to confirm independence of residuals. Independence of residuals was confirmed for job satisfaction score of 1.854, $F(2, 918) = 177.218$, $p < .001$. Turnover intent also was within the 1 to 3 range considered reasonable by Field (2018), 1.420, $F(2, 918) = 98.619$, $p < .001$. Finally, collinearity diagnostics indicated no cause for concern of multicollinearity as assessed through correlation analysis. While relationships between the variables was

significant, they did not approach the < .90 point of concern indicated by Tabachnick and Fidell (2019).

### *Mediation Analysis Results*

Mediation analysis was conducted using SPSS and PROCESS (Hayes, 2018) as recommended by Tabachnick and Fidell (2019), Field (2018) and Warner (2013) to allow for bootstrapped methods to obtain confidence intervals. Using PROCESS, Sobel tests were generated using 5,000 bootstrap samples, 95% confidence intervals, and an HC2 heteroscedasticity consistent standard error based and covariance matrix estimator.

The results of the Sobel test indicated that workplace social capital does significantly mediate the relationship between neurodiversity symptomology (as measured by ASRS ADHD Scale) and job satisfaction, $z$ = -4.185, $p$ < .001, $se$ = .0738. While the Sobel test is well recognized as the primary significance test for mediation, Hayes (2018) suggests that confidence interval testing of the indirect effects of X on Y through confirming that the confidence interval does not include 0 is a more accurate approach that is less likely to cause a type I error. Thus, this method was also performed. The indirect effect of neurodiversity symptomology on job satisfaction through workplace social capital was confirmed to be significant, $b$ = -.3088, 95% CI [-.4595, -.1658]. Based on these findings, the null $H_0 2_1$ hypothesis that WSC does significantly mediate the relationship between SS_NDS and JS is accepted, and the alternate null hypothesis $H_1 2_1$ is rejected.

Workplace social capital was also found to significantly mediate the relationship between neurodiversity symptomology (as measured by ASRS ADHD Scale) and turnover intent using the Sobel test method, z = 4.039, p < .001, *se* = .004. Mediation significance was also confirmed through confidence interval analysis, identifying that neurodiversity symptomology exerted an indirect effect on turnover intent through workplace social capital, *b* = .0180, 95% CI [.0099, .0270]. Based on these findings, the $H_02_2$ hypothesis that WSC does significantly mediate the relationship between SS_NDS and TI is accepted, and the alternate $H_12_2$ null is rejected.

**Post-hoc Analyses**

Based on the statistically significant simple and two-way interactions identified in the ANOVA study relating to gender and job class related to neurodiversity symptomology, additional post-hoc analysis was conducted in SPSS using PROCESS to understand the interactive effect of gender and job class the observed mediation effect. Based on the observed differences in significance between gender, job class, and neurodiversity symptomology identified in the previous ANOVA analyses as shown previously, I tested the addition of gender and job class as covariates within the model to identify whether inclusion improved the model fit.

In the original model, the total effect of neurodiversity symptomology on job satisfaction through workplace social capital as a mediator explained 1% of the variability in job satisfaction, $R^2$ = .01, $F$= 7.3989 (1, 919), $p$ = .006. With the addition of gender and job class as covariates, the total effect explained increased to 4%, $R^2$ = .0409,

$F$= 10.5069 (1, 919), $p$ < .001. In the original model, the total effect of neurodiversity symptomology on turnover intent through workplace social capital as a mediator explained 4% of the variability in turnover intent, $R^2$ = .04, $F$= 35.5190 (1, 919), $p$ < .001. With the addition of gender and job class as covariates, the total effect explained increased to 5%, $R^2$ = .0562, $F$= 16.6042 (1, 919), $p$ < .001.

## Summary

In summary, two research questions were answered by this study. The first research question, "To what extent do interactions between categorical neurodiversity grouping based on ADHD symptomology (CG_NDS), gender, and job classification (JC) explain employee workplace social capital (WSC), job satisfaction (JS), and turnover intent (TI) scores?" was addressed through three-way ANOVA, and found that:

- there are statistically significant three-way interactions between categorical neurodiversity groping based on ADHD symptomology, gender, and job classification on workplace social capital,
- there are statistically significant three-way interactions between categorical neurodiversity groping based on ADHD symptomology, gender, and job classification on job satisfaction; and,
- there are statistically significant three-way interactions between: categorical neurodiversity groping based on ADHD symptomology, gender, and job classification on turnover intent.

The second research question, To what extent does workplace social capital (WSC) mediate the relationships between neurodiversity symptom severity as measured through ADHD symptomology (SS_NDS) and employee leave-taking sentiment, as measured by job satisfaction (JS), and turnover intent (TI)?. was answered through mediation analysis. Workplace social capital did act as a mediator on the relationship between SS_NDS and JS and did act as a mediator on the relationship between SS_NDS and TI.

These findings confirm the relationships between workplace social capital with job satisfaction, as well as turnover intent that have been previously identified by other researchers. The findings also suggest that the relationship between neurodiversity symptomology, as measured by symptoms of ADHD, and worker outcomes such as job satisfaction and turnover intent, are not only mediated by workplace social capital, but differ significantly between groups. In the following chapter, these results will be explored relative to prior research findings. The limitations of this study, recommendations for future research, and conclusions will also be discussed.

# Chapter 5: Discussion, Conclusions, and Recommendations

The purpose of this quantitative causal-comparative study was to investigate the effects of neurodiversity and workplace social capital on job satisfaction and turnover intent. The study included 1,231 full-time employees working in the United States who completed an anonymous online survey. The survey consisted of demographic questions as well as four instruments to measure ADHD symptomology, workplace social capital, job satisfaction, and turnover intent.

I analyzed the survey responses using two methods of analysis: a three-way ANOVA and mediation. For the three individual three-way ANOVA analyses, the independent variables were neurodiversity symptomology categorical grouping (CG_NDS), job classification (JC), and gender, and the three dependent variables were workplace social capital (WSC), job satisfaction (JS), and turnover intent (TI). For the mediation analysis, severity of neurodiversity as expressed by ADHD symptom score (SS_NDS) was the independent variable, workplace social capital was the mediator, and job satisfaction (JS) and turnover intent (TI) were the dependent variables.

The results of the three-way ANOVA analyses identified statistically significant three-way interactions between job classification, gender, and neurodiversity as expressed by ADHD symptomology on three separate dependent variables: workplace social capital, $F(4, 922) = 6.331$, $p < .001$; job satisfaction, $F(4, 956) = 3.724$, $p = .005$; and turnover intent, $F(4, 979) = 2.385$, $p = .05$.

Additional significance was identified in multiple two-way and one-way relationships as shown in Table 19. The results of the first mediation analysis showed that workplace social capital does significantly mediate the relationship between neurodiversity symptomology and job satisfaction, $z = -4.185$, $p < .001$, $se = .0738$. The second mediation analysis identified that workplace social capital significantly mediates the relationship between neurodiversity symptomology and turnover intent, $z = 4.039$, $p < .001$, $se = .004$. Table 19 provides a summary of the findings. Although the primary method used was the Sobel test, indirect effect and significance as measured through confidence interval analysis was also performed, as shown in Table 19. In this chapter, I will discuss the results of the study. The discussion includes an interpretation of the findings, limitations of the study, recommendations, social change implications, and concluding thoughts.

**Table 19**

*Summary of Study Findings of Relationships Between Variables*

| Independent variable | Dependent variable | Significant? | Values |
|---|---|---|---|
| Three-way interaction of gender, neurodiversity, and job class on | Workplace social capital | Significant | $F(4, 922) = 6.331$, $p < .001$ |
| | Job satisfaction | Significant | $F(4, 956) = 3.724$, $p = .005$ |
| | Turnover intent | Significant | $F(4, 979) = 2.385$, $p = .05$ |
| Two-way interaction of gender and job class on | Workplace social capital | Significant | M: $F(4, 399) = 3.827$, $p = .005$<br>W: $F(4, 523) = 10.263$, $p < .001$ |
| | Job satisfaction | Mixed | M: $F(4, 403) = 3.905$, $p = .004$<br>W: $F(4, 553) = .178$, $p = .950$ |
| Two-way interaction of gender and neurodiversity symptoms on | Workplace social capital | Mixed | M: $F(4, 399) = 3.583$, $p = .059$<br>W: $F(4, 523) = 14.239$, $p < .001$ |
| | Job satisfaction | Mixed | W: $F(4, 553) = 30.790$, $p < .001$<br>M: $F(4, 403) = .400$, $p = .527$ |
| Neurodiversity | Workplace social capital | Mixed | W: $F(4, 531) = 4.724$, $p = .030$<br>M: $F(4, 407) = 2.840$, $p = .09$ |
| Job class | Job satisfaction | Significant | $F(4, 956) = 2.409$, $p = .048$ |
| Gender | Job satisfaction | Not significant | $F(1, 956) = 1.369$, $p = .242$ |
| Gender | Neurodiversity | Not significant | $F(1, 956) = 2.816$, $p = .094$ |
| Neurodiversity | Job satisfaction as mediated by Workplace social capital | Significant | $z = -4.185$, $p < .001$, $se = .0738$<br>$b = -.3088$, 95% CI [-.4595, -.1658] |
| Neurodiversity | Turnover intent as mediated by Workplace social capital | Significant | $z = 4.039$, $p < .001$, $se = .004$<br>$b = .0180$, 95% CI [.0099, .0270] |

## Interpretation of the Findings

### Study Population and Findings in Relation to Prior Literature

Analysis of the study population in relation to prior research on adults with ADHD in the United States overall confirms the trustworthiness of the study data as being generally comparable to that identified in prior studies in relation to gender and ADHD. The gender subgroup breakdown as shown in Table 20 shows that the population

sampled for this study is consistent with prior research that has suggested a greater prevalence of ADHD among men than women (e.g., Kessler et al., 2006). An initial look at the study population as shown in Table 20 shows 15.2% of participants met the criteria for recommending evaluation for adult ADHD.

However, not everyone who has symptoms will be diagnosed by a clinician as having ADHD. Kessler et al. (2005a) found the ASRS screen to have a moderate level of sensitivity where more than two thirds of those clinically diagnosed with ADHD screened positive on the ASRS. Kessler et al. also found that the screener had a high level of specificity, with less than 0.5% of noncases screening positively for ADHD using the ASRS instrument used for this study. Using Kessler et al.'s two thirds estimation to extrapolate the likelihood that those participating in the current study would be clinically diagnosed with adult ADHD, approximately 10% of the current study's respondents might meet the criteria for clinical diagnosis of ADHD.

The study findings that 10% of respondents might meet diagnostic criteria for ADHD seems high in comparison to prior research estimations that 5% of adults worldwide (Polyzoi et al., 2018) and 4.4% in the United States (Kessler et al., 2006) meet the diagnostic criteria for adult ADHD. However, this figure is in line with Wymbs and Dawson's (2019) study of MTurk workers, which found that 10.48% of all MTurk study respondents ($N$ = 6,526) had a clinical diagnosis of ADHD as either a child or adult. However, there are notable differences between Wymbs and Dawson's study and the current study.

**Table 20**

*Demographic Breakdown of Study Sample by ADHD Symptom Grouping*

| NDS symptomatic of ADHD | | n | % of group |
|---|---|---|---|
| Symptoms not consistent with adult ADHD | Male | 395 | 42.8 |
| | Female | 528 | 57.2 |
| | Total | 923 | 100.0 |
| Symptoms consistent with adult ADHD | Male | 77 | 46.4 |
| | Female | 89 | 53.6 |
| | Total | 166 | 100.0 |
| Symptoms among males | | | |
| Symptoms not consistent with adult ADHD | | 395 | 83.7 |
| Symptoms consistent with adult ADHD | | 77 | 16.3 |
| Total | | 472 | 100.0 |
| Symptoms among females | | | |
| Symptoms not consistent with adult ADHD | | 528 | 85.6 |
| Symptoms consistent with adult ADHD | | 89 | 14.4 |
| Total | | 617 | 100.0 |
| Total study (male and female combined) | | | |
| Symptoms not consistent with adult ADHD | | 923 | 84.8 |
| Symptoms consistent with adult ADHD | | 166 | 15.2 |
| Total | | 1,089 | 100.0 |

One significant difference between the Wymbs and Dawson (2019) study and this study is that Wymbs and Dawson included any MTurk participant in the United States aged 18 and over. In comparison, the current study was limited to workers in the United States aged 18 and over who were employed full-time. Ipeirotis (2010) found that in the United States, approximately 30% of those participating on Amazon Mechanical Turk are unemployed or work part-time, which would have excluded them from the current study. As Fredriksen et al. (2014) highlighted that unemployed workers in the United States are more likely to have ADHD than employed workers, I expected to find a lower percentage of respondents with high ADHD symptomology compared to Wymbs and Dawson's (2019) study.

This expectation was partially supported by the current study finding that 12.03% of respondents had a cumulative score of 14 or greater on the ASRS, compared to Wymbs and Dawson' finding 18.51% had a cumulative score of 14 or greater in their study which included unemployed and part-time workers. This finding may be partially accounted for by the exclusion of those not employed full-time. It is also possible that other factors not incorporated into the current study, such as the impact of being conducted during the COVID-19 pandemic, may partially account for the differences between the findings between this and prior studies.

As previously discussed in the literature review, De Graaf et al. (2008) found that, regardless of clinical diagnosis, ADHD symptomology at the level likely to meet clinical diagnostic criteria (in the current study, 15.2%) is negatively associated with work performance. This being the case, the literature is clear that based on the challenges associated with higher ADHD symptom presentation, a significant number of workers and their employers are likely struggling with work performance concerns.

**Findings in Relation to Prior Literature**

The current study supports Antshel's (2018) suggestion that the environment influences outcomes for adults with ADHD due to the statistically significant three-way interactions observed between gender, neurodiversity, and job class on the three separate dependent variables of workplace social capital, job satisfaction, and turnover intent. The two-way interactions between neurodiversity and both job satisfaction and workplace social capital quantitatively support research performed by others such as Schrevel et al.

(2016) and Fabiano et al. (2018) regarding the impact of the social environment, communication, and social skills on workplace outcomes.

The current study's findings that workplace social capital significantly mediates the relationships between neurodiversity and both job satisfaction and turnover intent confirm the findings relating to the importance of social support identified by prior researchers as well (e.g., Bjerrum et al., 2017; Phillips et al., 2018). The study findings also confirm the findings of prior researchers in demonstrating that workers with ADHD have lower job satisfaction (e.g., Fried et al., 2012) and higher turnover intent (e.g., Iyer & Masling, 2015) compared to coworkers. Additionally, the current study builds upon Alosio et al.'s (2018) findings that social capital predicted job satisfaction by not only confirming this finding, but also exploring workplace social capital as a mediator between neurodiversity and job satisfaction.

**Findings Relative to SCCT and the SCCT-CSM Conceptual Framework**

Acting upon Thompson et al. (2017)'s suggestion that future researchers evaluate the potential for SCCT-CSM in researching differences between groups especially for those with or without disabilities, the findings of this study extend the knowledge in the discipline by providing an example of using SCCT-CSM to research differences between neurodiverse and neurotypical worker groups. While this study evaluated between group differences between those whose symptoms were consistent or inconsistent with ADHD symptomology, rather than between those with and without a disability, these results support Thompson et al. (2017)'s suggestion that the SCCT-CSM might provide a good

model for evaluating between-group differences such as those with and without disabilities.

The first aspect of SCCT-CSM where this study adds to the body of knowledge is on how worker neurodiversity, gender, and job classification interact within the framework. The SCCT theoretical framework uses bi-directional arrows to demonstrate that person inputs and background contextual affordances have an interactive effect. As discussed in Chapter 4, with the first research question, I used three-way ANOVA to identify whether there were statistically significant three-way interactions between individuals grouped by categorical neurodiversity symptom score, job classification, and gender which would then explain differences between individuals on employee workplace social capital (WSC), job satisfaction (JS), and turnover intent (TI) scores. Since the null hypotheses, that there were no statistically significant three-way interactions, were disproved, this supports positioning of these variables within theoretical framework and further use in this context.

The results of the current study also build upon Dutta et al.'s (2015) research using the SCCT framework where they identified strong, causal effect relationships between social support and outcome expectations among college students with disabilities. The current study confirms similar, significant relationships between social support and outcome expectations among adult workers with ADHD in the workplace, compared to Dutta et al.'s study of college students. The current study findings also partially support Pham et al.'s (2019) use of SCCT where Pham et al found increased

workplace social capital (through provision of a mentor-mentee relationship) was related to lower turnover intent among nurses in Taiwan. However, the current study was limited to the United States, not China, and evaluated workplace social capital as a whole, rather than the mentor-mentee relationship, studied by Pham et al., specifically.

The second aspect of SCCT-CSM where this study adds to the body of knowledge is in through identifying that workplace social capital is a significant mediator between neurodiversity and workplace outcomes. The current study's finding that the relationship between neurodiversity and both turnover intent and job satisfaction is mediated by workplace social capital provides a quantifiable support endorsing further consideration of how to use workplace social capital interventions to improve workplace outcomes as Asherson (2016) recommended. Overall, the findings suggest that SCCT-CSM provides a potentially viable model for researching between group differences between workers with and without neurologically based disabilities.

## Limitations of the Study

There are several limitations to the generalizability of this study. One limitation is in regard to population validity due to the study use of non-probability sampling methods in collecting the data and the validity concerns due to differences in neurodiversity scoring in the population sampled compared to prior studies of adults in the U.S. with ADHD. The ability to address this validity concern is limited due to the lack of data on unemployed, part-time workers, and self-employed workers in this study limits the ability to compare and evaluate this study's results in comparison to prior research.

Other concerns regarding population validity and generalizability include the generalizability of the study to others with ADHD symptomology due to the challenges in comparing the current study to prior studies of adults with ADHD symptomology in the United States. As explained by both Sibley et al. (2016) and Wymbs and Dawson (2019) this as an artifact of researchers lacking a universal method of defining, including, and diagnosing individuals within the study populations. This leads to studies varying significantly in how they study those with ADHD, which leads to significantly different estimates of ADHD prevalence in the population being reported.

For example, Kessler et al. (2005c) reported overall lifetime prevalence of ADHD among adults to be 8.1%. Yet Kessler et al. (2006) reported an estimate of only 4.4% of adults to currently had ADHD. In considering the current impact of ADHD, Kessler et al.'s studies did not specify how the 5% of children and adolescents who are estimated to have ADHD (APA, 2013) were factored. Based on DeGraff et al.'s (2008) comparison of working and non-working adults in the US, employed or self-employed workers in the U.S. would be approximately 4.5% (consistent with Kessler et al., 2006), while all other respondents are estimated at a 7.2%. However, these numbers vary from the current study as the current study does not include workers who are not employed full time as well as those who are self-employed. Based on these factors, it would have been expected that the percent of individuals likely to have clinically significant ADHD symptoms would have been lower than DeGraff et al.'s, yet the current study suggests 10%, rather than 4.5%, may currently be struggling with clinically significant ADHD.

The generalizability of this study's finding is further limited by differences between participant recruitment, classification, and screening methods between the current and prior studies. For example, the ability to more accurately compare the current findings to previous findings is also limited by the current study not including other demographic variables such as education level, and race. Additionally, there are currently no other published studies of ADHD symptomology during the COVID-19 pandemic to compare this study to and the current study did not include pre- post- pandemic questions, which would be required to accurately control for the impact of the COVID-19 pandemic of workers. Therefore, this study's generalizability may be construed as limited to workers' experiences during the COVID-19 pandemic or similar pandemics that may occur in the future.

In regard to generalizability across the workforce, this study is limited in generalizability to full-time workers within the occupational classes studied. While this study used the ten ISCO-08 classification categories (International Labor Organization, 2016), the United States Bureau of Labor Statistics has not published any reports using the ISCO-08 classifications, limiting my ability to specifically address the level of generalizability across the U.S. workforce. Also, not enough participants responded to allow for analysis in five of the 10 ISCO-08 classifications. Therefore, these findings may not be generalized to workers within the five job classifications that were not studied: skilled agricultural, forestry and fishery workers, craft and related trades

workers, plant and machine operators and assemblers, elementary occupations, and armed forces occupations.

Another limitation of this study is being restricted to a portion of the COPSOQ questionnaire rather than the full question set. Inclusion of the full COPSOQ question set may have provided further insight into differences between participants. Further research that incorporates the full COPSOQ questionnaire could be valuable in understanding other psychosocial elements in relationship to workplace social capital, towards a greater understanding of how to support workers with ADHD symptoms.

To partially address limitations regarding trustworthiness concerns due to the sample size relative to the United States workforce, bootstrapping using 1,000 samples was used to increase confidence regarding study findings. Another limitation to the trustworthiness of the study data collected is concerns regarding use of paid participants using Amazon MTurk. This limitation was addressed by using the CloudResearch MTurk Toolkit (Litman et al., 2016). The MTurk Toolkit provides enhanced fraud detection to reduce the likelihood of untrustworthy participant responses including the ability to only advertise a survey to MTurk workers who have previously passed screenings for accuracy and paying attention. The current study paid to utilize the CloudResearch universal exclude list to enhance data quality (Moss & Litman, 2020, CloudResearch Knowledge Base, 2019). It also allowed for removal of suspicious geolocations (Moss et al., 2020) including where CloudResearch has previously identified likely server farms where workers from India mask their international IP (Litman et al., 2020). While use of these

enhanced features sought to address concerns regarding the trustworthiness of the study data, it may also have inadvertently excluded some workers who should have been included some of the study population.

At the same time, use of MTurk allows for greater reliability, as the anonymous survey respondents each have a unique MTurk ID. Using the ASRS instrument also allowed the current study to partially address reliability and validity concerns regarding reports on neurodiversity symptomology through the comparative analyses of the study findings compared to prior research discussed earlier in this chapter. Additionally, by use of the MTurk workforce, through using these unique worker IDs, future research regarding reliability could be conducted by soliciting study participation on MTurk specifically to workers who participated in the current study.

Another limitation to the validity of this study findings and its generalizability is the lack of qualitative or quantitative data allowing further in-depth comparison of differences between groups or the ability to compare pre-pandemic versus during-pandemic responses. During the pandemic, a significantly larger percentage of the population were working from home, where many of the supports than normally help workers be productive are missing. Since Asherson et al. (2016) previously identified support systems as part of the reason why symptoms might remain undetected until adulthood, it seems reasonable that workers suddenly thrust into a work-from-home environment without adequate support might have led a number of individuals who had symptoms that once were minimal or manageable, now be noticeably a problem in the

new, at home, environment. This is likely shifting the responses collected in current study to an unknown extent. One survey participant in this study sent an anonymous comment alluding to this, suggesting that the study should have asked the participant about their responses, prior to the pandemic, compared to their current date's responses.

This study also limited in its ability to factor for other latent variables that likely account for a portion of the differences between participants as well as the higher expression of symptomology. As one example, another reason why the number of individuals with symptomology may be higher than expected due to the pandemic that future studies could investigate is the relationships between physical exercise and improved ADHD functioning (e.g., Mehren et al., 2019). Working from home as well as other limitations on physical activity such as gyms shutting down may be having a greater impact on the ability of workers with ADHD to be productive.

Also, Holman et al. (2020) found that in the United States, adults with pre-pandemic diagnoses for mental health conditions were at greatest risk of depressive symptoms during the pandemic. This suggests that workers with neurodiverse symptomology such as ADHD may be struggling with co-occurring mental illnesses that may be hampering their productivity and resilience to a greater extent than other workers without similar pre-existing mental health conditions. Thus, this study is limited by its lack of accounting for these types of latent variables.

## Recommendations

This study was been designed to focus on a few, significant variables, based on the literature and prior history of significance. While this method allowed for high internal validity within the study, it limits the external validity. Thus, may be desirable in future research to include a greater number of variables. Based upon the strengths and limitations of the current study, several recommendations for further research can be made. As discussed in the literature review and limitations of this study, in addition to the factors investigated in this study, many other factors have been studied relating to either neurodiversity, ADHD, or workplace social capital. There are several identified in the literature review that are recommended for further study.

Since those with ADHD are unemployed at a higher percentage than other workers, Fredriksen et al. (2014) suggested workplaces consider the impact of ADHD symptoms such as inattention on occupational impairment to prevent work disability and turnover. Wymbs and Dawson's (2019) study showed an overall higher percent of individuals with a total score of 14 or higher (18.51%) compared to the current study (12.03%). Kuriyan et al. (2013) recommended one particular avenue future research could be interventions to examine factors of employee termination as they relate to ADHD symptomology and what interventions prevent or reduce turnover. Taking these perspectives into account and the limitations of the current study, future research could incorporate the perspective of those who are currently unemployed but who were previously employed as well as those who are employed part-time or self-employed.

The current study also relied on the ASRS as the sole metric for measuring ADHD. Based on prior literature and the initial findings of the significance of ADHD identified in the current study, future studies might want to consider executive functioning measured separately from ADHD symptomology. This could be measured with the WebExec 6-question Likert scale, which the authors have previously approved for research as long as it is cited (Buchanan et al., 2010). Future study might also include incorporation of other methods of predicting ADHD levels of significance within a study population.

Due to the current study's lack of generalizability to the five job classifications that were not studied, further research could provide new insights in studying workers within these categories: skilled agricultural, forestry and fishery workers, craft and related trades workers, plant and machine operators and assemblers, elementary occupations, and armed forces occupations. Additionally, future research might consider using the United States Standard Occupational Classification system or including both measures if generalizability within the United States, versus internationally, is of concern. Further study of workers including other areas where reliability, generalizability, or validity concerns were discussed in the limitations could also be considered, such by incorporating additional socioeconomic factors such as race and age.

In considering the findings reported by the current study, there are several additional recommendations for future research. Lerner et al. (2018) and Vibert (2018) suggested further research is needed to identify areas to target interventions and which

models of delivering occupational assistance can help improve outcomes for workers with ADHD. Since the current study demonstrates that workplace social capital is a significant mediator, future research could study interventions that have potential to improve workplace social capital towards identifying or developing evidence-based workplace social capital interventions. For example, based on Pham et al.'s (2019) findings that providing a mentor-mentee relationship as a form of workplace social capital demonstrates some effectiveness, future research could evaluate the extent to which providing a mentor-mentee workplace support to employees with ADHD mediates job satisfaction and turnover intent and the extent to which it can improve outcomes for workers.

The three-way interaction identified in the current study between gender, neurodiversity and job class being significant would seem to support Antshel's (2018) suggestion that person-role fit plays a significant part in whether neurodiverse individuals are able to be successful; however, the lack of any significant two-way interactions between neurodiversity and job class suggest that further research on other factors than what were included in the current study are needed to better understand person-role fit in workplace success. Therefore, future research could incorporate other personality trait measurements that have been previously studied in relationship to work performance, turnover intent, or job satisfaction, such as the big five personality dimensions to better understand the relationship between neurodiversity and job class in relation to other personality traits (Barrick & Mount, 1991).

Future research is recommended to build upon the findings of the current study to further understand the relationships between neurodiversity and workplace outcomes within SCCT. This research could include using a larger number of variables to provide a greater contextual framework for understanding influencers and drivers using structural equation modeling. For example, re-examining findings regarding the relationships between ADHD and job performance (e.g., Rosario-Hernandez et al., 2020) with the addition of workplace social capital as a mediator. Future research could also study specific types of workplace social capital, or other metrics that relate to workplace social capital that are more widely by industrial/organizational professionals and how they also relate to workplace social capital measurement, such as Leader/Member Exchange Theory scores (Graen et al., 1982). Another domain of relevance to the SCCT model but not included due to survey length limitations is social factors outside of work.

A more comprehensive survey might also include the long form of the COPSOQ rather than the shortened form proposed in this study and might also incorporate the Minnesota Job Satisfaction Questionnaire (MSQ) form developed by Weiss et al. (1967) in order to compare the responses to these at-work factors compared to those included in the COSPOQ. The short form version of the MSQ is a 20-question survey estimated to take five minutes to complete. The short form MSQ has been released into creative commons (Regents of the University of Minnesota, 2020) and has been tested in many organizational situations, countries, and languages (Martins & Proenca, 2012). Future study could also incorporate other social capital metrics, such as the Social Network

Index (SNI), comprised of 12 questions regarding different types of external relationships and supports (Cohen et al., 1997).

Based on the finding that workplace social capital acts as a mediator, further exploration of mediating variables is recommended. Future research could explore what other factors have a mediating role on the relationship between neurodiversity and workplace outcomes. For example, in identifying whether factors such as exercise that have been identified in prior research to be related to improved ADHD functioning (Mehren et al., 2019) mediate the relationship between neurodiversity and workplace outcomes.

Future research could also explore workplace social capital as a mediator between workplace outcomes and other protected classes of workers. This could include comparing outcomes for different sub-groups within neurodiversity spectrum, for example, to include those with dyslexia and autism. Alternatively, future research could look beyond neurodiversity to other disabled employee groups and other protected classes of workers, such as older adults. Future research that leads to a more comprehensive understanding of workplace social capital as a mediator encompassing this broader perspective could be undertaken to support advocacy of improving workplace social capital as part of diversity and inclusion efforts.

The results of this study also suggest the need to compare participant ADHD symptomology during a pandemic, such as the COVID-19 pandemic, to those prior to or after the conclusion of a pandemic in order to identify and control for the impact of a

pandemic on participant level of symptomology. In addition, further study in this area, where feasible, could investigate differences between workers to better understand mitigating factors that improve worker outcomes during a pandemic.

## Implications

The results of this study have implications that could support positive social change for adults with ADHD and their workplaces. While Kessler et al. (2006) estimate 4.4% of adults in the United States have ADHD, ADHD is consistently underdiagnosed by clinicians (Polyzoi et al., 2018). Awareness of ADHD is increasing the number of diagnoses. In the United States, Zhu, et al. (2018) found employees with employer-sponsored insurance were diagnosed at a rate of between 1.2 to 4.02 per 1,000 patients between 2002 to 2007 while among Medicaid insured patients, diagnosis increased from 2.2 to 10.57 per 1,000 patients between 1999 and 2010. Zhu et al.'s findings raise two concerns: first, diagnosis is still significantly lower than the expected prevalence; second, diagnosis is significantly higher among low-income and Medicaid insured patients, compared to employees with employer insurance plans. The findings of this study suggest that, regardless of the likelihood of clinical diagnosis, as much as 15.2% of the working adult population in the United States may be struggling with ADHD symptoms at the present time. Through providing additional perspective on the experience of employees with ADHD symptoms, this study hopes to support social change towards improving the outcomes of these workers.

The results of this study also have implications that could support organizations that seek to support neurodiverse individuals and society as a whole. The unexpectedly large percent of participants with ADHD symptomology, limitations of this study, and resultant recommendation for future research on the impact of the pandemic on individuals with ADHD, may encourage further awareness and study of the impact of the pandemic on neurodiverse workers. While it is impossible to predict when the next pandemic might occur (Taubenberger, 2007), information learned from the current pandemic regarding the needs of neurodiverse workers compared to neurodivergent workers may improve society's ability to provide more robust support and reduce adverse impacts felt by neurodiverse workers during a future pandemic. De Graaf et al. (2008) suggested that there was a need to look at workplace screening and treatment programs, as well as to perform evaluations on how outreach and treatment interventions could improve work performance and provide increased return on investment for employers. The findings of the current study support De Graaf et al.'s suggestion and the discovery that workplace social capital acts as a mediator may encourage future research and intervention testing or evaluation to this end.

The finding of significant three-way interactions between gender, job class, and neurodiversity may encourage further research within the area of workforce development, rehabilitation, and vocational development. The impact of utilizing SCCT theory and the SCCT-CSM model in this study may encourage further researchers to consider this model in future studies of adversely impacted sub-groups of workers such as neurodiverse

workers. Further exploration in these directions, in the long term, could help reduce the negative effects that adults with ADHD currently experience across their lifetime such as higher stress and burnout, higher job loss, and lower income (e.g., Joseph et al., 2019).

As a practical recommendation, vocational and career counselors at the high school and college level might consider the findings from this study and use the knowledge and future research in this area to consider how to better assist youth and other job seekers in considering how personality characteristics such as traits consistent with neurodiversity need to be considered in addition to skills or other aptitude testing. The findings related to workplace social capital's function as a mediator may similarly encourage further research and practical evaluation into which types of workplace social supports are the most effective. Human resource and industrial/organizational psychology practitioners supporting workers could also consider these findings and how they might relate to current or future workplace social capital development programs towards improving diversity and inclusion outcomes with neurodiverse workers.

## Conclusion

The purpose of this study was to help fill two gaps in the literature on studying the effects of neurodiversity and workplace social capital on job satisfaction, and turnover intent. The first gap was regarding whether workers experience measurable between-group differences based on neurodiversity (as expressed by ADHD symptomology sub-group classification), job classification, and gender, on workplace social capital, job satisfaction, and turnover intent. Using a sample of U.S.-based full-time employees who

completed an anonymous online survey, the results of three, independent three-way ANOVA analyses identified significant three-way interactions between gender, neurodiversity, and job class on the independent variables (workplace social capital, job satisfaction, and turnover intent). The second gap in the literature was in understanding whether workplace social capital functions as a mediator between neurodiversity symptom severity as expressed through ADHD symptomology and predictors of employee attitudes and intentions as measured by job satisfaction and turnover intent. The results of the study showed that the relationship between neurodiversity and job satisfaction is significantly mediated by workplace social capital, as is the relationship between neurodiversity and job satisfaction.

A significant takeaway from this study is that of participants who were surveyed during the pandemic, 15.2% experience levels of ADHD symptomology that would suggest discussing symptoms with a physician, with a related estimated likelihood that 10% would meet the criteria for adult ADHD diagnosis. As this number is far higher than the 4.4% estimation of adult ADHD that Kessler et al. (2006) hypothesized, these findings suggest that the pandemic may be causing an inflation in the number of individuals struggling with ADHD symptomology. As ADHD symptomology, regardless of diagnosis, has been negatively associated with job performance (e.g., De Graaf et al., 2008) these finding suggest employers and employees alike are struggling with an increase in problems at work, in those areas measured by the ASRS.

At the same time, workers with ADHD are a valuable talent pool, possessing in abundance the types of skills organizations need to competitively adapt to a post-pandemic world (e.g., Lanivich, 2015). However, these workers need adequate supports to maintain their participation as active members of the workforce. Another significant takeaway from this study is the mediation effect workplace social capital demonstrated. Through this mediation, the current study demonstrated that supports aligned with increasing workplace social capital have potential and suggests future study is merited.

From a diversity and inclusion perspective, it essential that organizations consider how to best leverage the mediation potential of workplace social capital towards improving occupational outcomes for workers with ADHD. From a practical perspective, since only a portion of those with ADHD know they have it or disclose it to their superiors, employers are encouraged to consider strategic implementation of workplace social capital support programs for all employees. Such programs could integrate with corporate social responsibility, human resource, and diversity and inclusion initiatives. While helping improve workplace outcomes for all employees, these programs could promote social change in retaining workers with ADHD and help companies retain the creative and entrepreneurial capital inherent within employees with ADHD symptomology.

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# Appendix A: Screening Questions

Do you typically work full time (35 hours or more)?

- Yes
- No

Are you primarily employed by someone else, or for yourself?

- I am employed by someone else.
- I am self-employed.

What is your current age?

- Under 21 (if under 21, disqualify)
- 21 and older

Please specify age: _____ (slider from 21 to 100 and over)

Do you currently work in the US? (if yes, continue. If no, disqualify).

*Notes on use:*

*Indivdiuals must respond "Yes" to working fulltime, and "I am employed by someone else" indicating that they work for an employer other than themselves in order to qualify to participate in the study.*

Appendix B: Study Invitation

Subject: Please fill out a survey to help me complete my dissertation?

Hi <NAME>!

I'm emailing you from my school email address, which is why you may not recognize it.

As you know, **I am a doctoral candidate for my PhD in Industrial/Organizational Psychology at Walden University. For my dissertation, I have made an online survey to explore the interactions between neurodiversity and employee workplace sentiment.**

**Are you able to spare about 15 minutes to take the study?**

**If so, please go to <Survey Link> .**

I can't complete my doctorate until I've completed this study, so time is of the essence.

You can contact me by phone [*throw away number to be purchased*] or e-mail [*alice.edwards@waldenu.edu*] if you have any questions.

If you know anyone else who might be willing to take this survey, please feel free to share this with them.

**Thanks for your help!**

Alice

*Note on use of this sample consent in formats other than email: For use on other platforms as specified in the data collection plan (for example, Facebook) this invitation would be shortened to just the text that is bolded, above. The rest of the information that is not bolded is repeated on the informed consent.*

# Appendix C: Demographic Questions

1. Please choose the occupational classification category that best describes your job role.
    - o 1 Managers
    - o 2 Professionals
    - o 3 Technicians and Associate Professionals
    - o 4 Clerical Support Workers
    - o 5 Services and Sales Workers
    - o 6 Skilled Agricultural, Forestry and Fishery Workers
    - o 7 Craft and Related Trades Workers
    - o 8 Plant and Machine Operators and Assemblers
    - o 9 Elementary Occupations
    - o 0 Armed Forces Occupations
    - o N I am currently not employed
2. What is your gender?
    - o Male
    - o Female

# Appendix D: Adult ADHD Self-Report Scale and Right to Use


NCS Home

- Home
- Publications
- FAQ
- Diagnosis
- Summer Training
- NCS Data
- Instruments
- Scales

## Adult ADHD Self-Report Scales (ASRS)

We have had many requests from people who want to post the ADHD-ASRS v1.1 instruments on their websites. Our preference would be that you link to this website and to our PDF of the instrument. This is because we are unable to coordinate with other sites in order to provide updates to the new methodological evidence about the instrument as it becomes available. However, these updates will be available from this site.

If you find it necessary to recreate the ADHD-ASRS v1.1 either in paper or electronic format, it is important that the instrument is not altered (i.e., that all the response options are included, that the scoring algorithm is not altered, and that the two levels of shading within the response categories are included).

For more information on validation and translation of the ASRS, please send an email to: ronkadm@hcp.med.harvard.edu.

| |
|---|
| Adult ADHD Self-Report Scale (ASRS) Version 1.1: Background Information (PDF) |
| Information on ASRS Distribution Scale in the General Population (PDF) |
| Updates based on the DSM-5 version of the screening scale (PDF) |

**ADHD-ASRS Screeners**

| | |
|---|---|
| ADHD-ASRS Screener v1.1-English (PDF) | ASRS-5 Screener-English (PDF) |

**Translated versions of the ADHD-ASRS instruments**

| Language | ADHD-ASRS Screener v1.1 | ASRS-5 Screener |
|---|---|---|
| Arabic | Download | |
| Chinese (Mandarin) | Download | |
| Chinese (Traditional) | Download | |
| Dutch | Download | |
| Finnish | Download | |
| French | Download | |
| German | Download | |
| Hebrew | Download | |
| Italian | Download | Download |
| Japanese | Download | |
| Norwegian | Download | |
| Portuguese | Download | |
| Portuguese (for Brazil) | Download | |
| Russian | Download | |
| Spanish (for Mexico & U.S.) | Download | |
| Spanish (for Spain) | Download | |
| Swedish | Download | |
| Turkish | Not available | Download |
| Thai | Download | |
| Urdu | Download | |

These materials are posted here for unrestricted use. No approval is required to use the ASRS so long as the user acknowledges in all print materials that the ADHD-ASRS Screener v1.1 and ADHD-ASRS Symptom Checklist v1.1 are copyrighted by the World Health Organization. In addition we also

request that people who write scientific papers that use the ASRS v1.1 or the ASRS Screener v1.1 cite the key methodological paper on these instruments as follows:

Kessler, R.C., Adler, L., Ames, M., Demler, O., Faraone, S., Hiripi, E., Howes, M.J., Jin, R., Secnik, K., Spencer, T., Ustun, T.B., Walters, E.E. (2005). The World Health Organization Adult ADHD Self-Report Scale (ASRS). Psychological Medicine, 35(2), 245-256

We would like to thank Sergio Aguilar-Gaxiola, Saena Arbadzadeh-Bouchez, Ron de Graaf, Josep Maria Haro, Norito Kawakami, Viviane Kovess, Jean-Pierre Lepine, Sing Lee, Daphna Levinson, Hans Ormel, Svetlana Stepukhovich, Maria Carmen Viana, Chuck Webb, Hans-Ulrich Wittchen, and Victoria Zakhozha for their comments on prior versions of the translations.

*Note to all users: If you are unable to download the PDF files above, you will need to install Adobe Acrobat on your computer. This is a free download available from:
http://www.adobe.com/products/acrobat/readstep2.html

# Appendix E: Michigan Organizational Assessment Questionnaire

***Intent to Turnover Measure (from the Michigan Organizational Assessment Questionnaire or MOAQ)***

| | |
|---|---|
| **Description** | Developed initially in 1975 as part of a larger survey instrument measuring employee perceptions, the three-item instrument has been used with many different occupational samples (Cammann et al., 1983). This set of items focuses on behavioral intent rather than affective attachment as indicating degree of commitment to the organization. |
| **Measure** | Behavioral intent to leave job |
| **Administration** | Survey Administration<br>(1) Paper and pencil<br>(2) < 5 minutes<br>(3) 3 questions<br>(4) 7-point or 5-point Likert scaling (strongly disagree to strongly agree; not at all likely to extremely likely)<br><br>Readability<br>Flesch-Kincaid: 7.1 |
| **Scoring** | (1) Simple calculations.<br>(2) Score = Sum of the 3 items (Range 3 – 21).<br>(3) Lower scores indicate greater organizational commitment. |
| **Availability** | Free. |
| **Reliability** | Internal consistency of scale is .83 from diverse occupational sample at 11 sites. |
| **Validity** | Logical relationships found between "look for new job" item and age, loneliness, and satisfaction with pay and benefits in study of home health aides. |
| **Contact Information** | Not needed for use of this instrument. |

***Survey Items***

Here are some statements about you and your job. How much do you agree or disagree with each?

1. I will probably look for a new job in the next year.

   1-strongly disagree
   2-disagree
   3-slightly disagree
   4-neither agree nor disagree
   5-slightly agree
   6-agree
   7-strongly agree

2. I often think about quitting.

    1-strongly disagree
    2-disagree
    3-slightly disagree
    4-neither agree nor disagree
    5-slightly agree
    6-agree
    7-strongly agree

Please answer the following question.

3. How likely is it that you could find a job with another employer with about the same pay and benefits you now have?

    1-not at all likely
    2-
    3-somewhat likely
    4-
    5-quite likely
    6-
    7-extremely likely

Excerpted from Chapter 3, Kiefer, Kristen M., et al. "Measuring long-term care work: A guide to selected instruments to examine direct care worker experiences and outcomes." Washington, DC: Office of the Assistant Secretary for Policy, US Department of Labor (2005): 1-0025. Online searchable version version: https://aspe.hhs.gov/basic-report/measuring-long-term-care-work-guide-selected-instruments-examine-direct-care-worker-experiences-and-outcomes#note4; PDF: https://aspe.hhs.gov/system/files/pdf/73236/dcwguide3.pdf

Requirements for inclusion in the guide include being free to use for research purposes.

## Appendix F: Workplace Social Capital Scale Questions

Regarding your work in general. How pleased are you with... your work prospects?

- Very satisfied
- Satisfied
- Neither/Nor
- Unsatisfied
- Very unsatisfied

Regarding your work in general. How pleased are you with...the physical working conditions?

- Very satisfied
- Satisfied
- Neither/Nor
- Unsatisfied
- Very unsatisfied

Regarding your work in general. How pleased are you with...the way your abilities are used?

- Very satisfied
- Satisfied
- Neither/Nor
- Unsatisfied
- Very unsatisfied

Regarding your work in general. How pleased are you with...your job as a whole, everything taken into consideration?

- Very satisfied
- Satisfied
- Neither/Nor
- Unsatisfied
- Very unsatisfied

Regarding your work in general. How pleased are you with...your salary?

- Very satisfied
- Satisfied
- Neither/Nor
- Unsatisfied
- Very unsatisfied

Do the employees withhold information from each other?

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent

Do the employees withhold information from the management?

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent

Do the employees in general trust each other?

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent

Does the management trust the employees to do their work well?

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent

Can the employees trust the information that comes from the management?

- To a very large extent
- To a large extent

- Somewhat
- To a small extent
- To a very small extent

Does the management withhold important information from the employees?

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent

Are the employees able to express their views and feelings?

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent

Are conflicts resolved in a fair way?

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent

Are employees appreciated when they have done a good job?

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent

Are all suggestions from employees treated seriously by the management?

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent

Is the work distributed fairly?

- To a very large extent
- To a large extent
- Somewhat
- To a small extent
- To a very small extent