

AN EXAMINATION OF ATTENTION DEFICIT HYPERACTIVITY DISORDER AND
COUNTERPRODUCTIVE WORKPLACE BEHAVIOR

by

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(Under the Direction of Karl W. Kuhnert)

ABSTRACT

As one of the most common and rapidly growing neurodevelopmental disorders, Attention Deficit Hyperactivity Disorder (ADHD) has come to the forefront of scientific research. Despite the growing prevalence, the outcomes associated with adults with ADHD have not been examined from an organizational perspective. Based on research from the ADHD literature as well as the organizational literature, the present study examined the relationship between ADHD and Counterproductive Workplace Behaviors (CWBs). Utilizing a population of 298 participants from the entering workforce demographic (ages 18-22), all of whom were working adults, relationships were explored through moderated multiple regression. Results demonstrate support for the proposed direct effect relationship between ADHD and CWBs. Implications and future directions are discussed.

INDEX WORDS: Counterproductive Workplace Behavior; Attention Deficit Hyperactivity Disorder; Perceived Organizational Justice; Mental disabilities.

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DEDICATION

“I thought of the ideas in my head as bumper cars. Sometimes they drive around crazily and other times they have been turned in one direction so hard that they do not move at all. Have you ever noticed the sparks that light up on the roof of the bumper car arena? The ideas in my head bump around until they finally spark”

It seems my thesis began to write itself a long time ago. And now, as it is finished, I dedicate this work to Mattie and Grace. You challenge me and you amaze me. You have given me patience and compassion. You are two of my favorite sparks.

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TABLE OF CONTENTS

| | Page |
|---|------|
| ACKNOWLEDGEMENTS..... | v |
| LIST OF TABLES | viii |
| LIST OF FIGURES | ix |
| CHAPTER | |
| 1 INTRODUCTION | 1 |
| 2 LITERATURE REVIEW, HYPOTHESES & RESEARCH QUESTIONS..... | 4 |
| ADHD and Executive Functions | 6 |
| ADHD and Workplace Outcomes | 8 |
| Self-Regulation Theory | 9 |
| Counterproductive Workplace Behaviors | 10 |
| Perceived Organizational Justice | 12 |
| 3 METHOD..... | 15 |
| Sample..... | 15 |
| Procedure..... | 16 |
| Measures..... | 16 |
| 4 ANALYSES & RESULTS | 20 |
| Confirmatory Factor Analyses..... | 20 |
| Hierarchical Moderated Regression..... | 21 |
| 5 DISCUSSION..... | 27 |

| | |
|--|----|
| Limitations and Future Research | 30 |
| Conclusion | 32 |
| REFERENCES | 33 |
| APPENDICES | |
| A DSM-IV-TR criteria for diagnosis of ADHD | 44 |
| B Measures | 46 |

LIST OF TABLES

| | Page |
|---|------|
| Table 1: Means, Standard Deviations, Intercorrelations, and Reliabilities | 22 |
| Table 2: Confirmatory Factor Analyses Results | 23 |
| Table 3: Hierarchical Moderated Regression | 24 |

LIST OF FIGURES

| | Page |
|--|------|
| Figure 1: Proposed main effect and moderator relationships | 25 |
| Figure 2: Simple slopes analysis..... | 26 |

CHAPTER 1

INTRODUCTION

As a nation, the United States has become fixated with health and wellness. Whether it is the obesity epidemic, the health insurance industry, or government health care policy, our cultural and societal rhetoric is constantly infused with discussions of health. Organizations have not been immune- in the past ten years organizations have begun including physical health benefits and incentives as part of their compensation packages (Vandermillen, 2012). Yet where is the focus in the realm of mental health? This conversation appears to be much less widespread, within the organizational research. In a brief survey of the top five organizational research publications (Zickar & Highhouse, 2001) from the past decade only 22 published articles were found (using the search terms “mental health,” “mental disabilities,” and “mental disorders”). Though only a cursory glance at the status of mental health research in organizational psychology, it is an indication that there is more to be learned about mental health and workplace performance. Utilizing the organizational literature that is extant along with relevant clinical literature, I have sought to bridge this gap between organizational realities and research.

Addressing this gap is important for several reasons. First, organizations need to be equipped with information regarding employees with mental health issues, as these employees are legally protected from employment action based on their mental disability status. Organizations need to protect themselves from legal consequences associated with unlawful actions taken against employees with mental disabilities. Second, organizations need to have the

best resources for understanding how to reasonably accommodate employees with mental disabilities. Not only is this important from a legal standpoint, but providing employees with reasonable accommodation for their mental disabilities should be both proximally and distally related to increased performance for those employees. Finally, contributing to the organizational literature regarding mental health may give us a sharper image of what it means to have a mental disability in the workplace. In doing so, organizations make improvements in training and create support resources, allowing individuals with mental disabilities to be better prepared for success at the workplace.

The present study seeks to contribute to the body of organizational literature by focusing on one mental disability in particular, Attention Deficit Hyperactivity Disorder (ADHD), and the relationship between this disorder and counterproductive workplace outcomes. As the most commonly diagnosed neurobehavioral disorder of childhood (Pastor & Rueben, 2008), ADHD has been the focus of national attention in families, schools, and psychological research. Pastor and Rueben (2008) report that the trends in prevalence are only increasing as the years go by, along with an increase in medication use. More specifically, the Center for Disease Control (CDC) approximates that 8.4% of children ages 6-17 were diagnosed with ADHD as of 2008 (Pastor & Rueben, 2008), with great numbers still remaining undiagnosed, as some researchers estimate that less than half who meet the Diagnostic and Statistical Manual of Mental Disorders IV criteria (see Appendix A) are actually diagnosed and receive treatment (Froelich, Lanphear, Epstein, Barbaresi, Katusic, & Kahn, 2007).

From those who are actually diagnosed with ADHD, the percentages translate to roughly 4.4 million children (Brock, Jimerson, & Hansen, 2009). The CDC further estimates that these numbers are increasing annually at a rate of 3-4%, with higher rates of increase in adolescents

(Pastor & Rueben, 2008). The American Psychiatric Association (APA) is taking these estimates of increased diagnosis into consideration as they prepare to release the next version of the Diagnostic and Statistical Manual of Mental Disorders (DSM-V). In the current version, the DSM-IV (2000), prevalence estimates are at 3-5% for children, with no available estimates for adolescents and adults (APA, 2000), yet in the proposed revisions for the DSM-V, the age of onset would be raised from 7 years old to 12 years old, and for adolescents and adults only 4 criteria need to be met for diagnosis, as opposed to the previous requirement of meeting 6 criteria for a childhood diagnosis (APA, 2010).

Since the current diagnostic criteria were developed with children in mind, there is a dearth in accuracy of prevalence estimates for adults with ADHD (Kessler, Adler, Barkley, Biederman, Connors, Demler, Faraone, Greenhill, Howes, Secnik, Spencer, Ustun, Walters, & Zavslavsky, 2006). The proposed revisions to DSM-V criteria have been crafted in response to the growing body of research indicating that ADHD symptoms persist into adulthood (APA, 2010). By making such revisions, even more individuals will meet the diagnostic criteria for ADHD; therefore it is imperative that researchers continue to explore potential relationships and outcomes associated with ADHD.

The present study sought to advance the literature on ADHD in young adult populations from the lens of industrial-organizational psychology such that findings will be relevant to organizations and at the same time help the ADHD population. Specifically, the present study sought to explore the potential relationship between ADHD and counterproductive workplace behavior, considering the impact of perceived organizational justice as a buffer to reduce the strength of the relationship between ADHD and counterproductive workplace behavior.

CHAPTER 2

LITERATURE REVIEW, HYPOTHESES, & RESEARCH QUESTIONS

The area of adult ADHD is ripe for exploration. Past research has been restricted by factors such as the previously discussed DSM-V limitations as well as the lack of inclusion of adult ADHD in either of the major psychiatric epidemiological surveys of adults in the last twenty years (Kessler et al. 2006), results from which have been used to validate estimates of the mental health burden (National Institute on Mental Health, 2013). In other words, less is known about the definitive estimates of adult ADHD, yet due to the increasing rates in childhood ADHD diagnoses, the number of adults with ADHD will inevitably increase as these children become adults. It is unknown whether this increase can be attributed to the rise in the actual presence of ADHD or due to the proliferation of public awareness and diagnosis of ADHD.

As a protected group under the Americans with Disabilities Act of 1990 (ADA), it is illegal for employers to discriminate against individuals on the basis of a diagnosis, perception of diagnosis, or association with another individual (e.g., a spouse) who has ADHD (Americans with Disabilities Act, 2008; United States Equal Employment Opportunity Commission, 2008). Further, employers are required by the ADA to provide reasonable accommodation for those who are disabled yet qualified for the job.

Reasonable accommodation is defined as “(A) making existing facilities used by employees readily accessible to and usable by individuals with disabilities; and (B) job

restructuring, part-time or modified work schedules, reassignment to a vacant position, acquisition or modification of equipment or devices, appropriate adjustment or modifications of examinations, training materials or policies, the provision of qualified-10- readers or interpreters, and other similar accommodations for individuals with disabilities” (Americans with Disabilities Act, 2008 pp.9-10). Reasonably accommodating mentally disabled employees will likely be a continuous process (Wyld, 1997), as common accommodations for employees with ADHD include allowing the employee to audio record instructions and meetings, allowing more time for training, assigning a mentor to the employee, or allowing the employee to work from home (National Alliance on Mental Illness, 2013).

From an organizational perspective, it is certainly valuable to explore implications for adults with ADHD in the workplace for legal reasons related to the ADA. As researchers attempt to measure the costs of having an employee with ADHD (Barkley, 2002), it is valuable for organizations to consider the impact in terms of bottom line effects. The present study focused on the relationship between ADHD and counterproductive workplace behavior (CWB) for several reasons. There is potential that ADHD could play a role in the relationships between CWBs and a number of organizational systems and processes such as training, performance appraisal, and organizational culture. Thus, considering the prevalence of ADHD along with the increases in diagnosis rates and medication use (Froelich et al., 2007) there are also implications for the population of young adults entering the workforce in terms of employer expectations and accommodations. The present study has attempted to examine the experiences of employees and organizations alike from both the clinical and the industrial-organizational psychology literatures.

In forming hypothesis, I have considered both relevant theory and the characteristics of ADHD which increase the likelihood for adults with ADHD to experience certain workplace outcomes. Specifically, the present study sought to examine the relationship between ADHD and counterproductive workplace behavior, as well as the nature of perceived organizational justice as a moderator in the relationship between ADHD and CWB. The remaining sections will provide a background on ADHD and how it manifests as a disorder, discuss workplace outcomes associated with ADHD, and present relevant organizational theory linking ADHD to negative workplace outcomes. I will then give a brief review of the CWB literature and discuss the potential for perceptions of organizational justice to act as a moderator in the proposed main effects relationship. Methods, analyses and results are discussed as well as implications of the findings and future directions.

ADHD and Executive Functions

ADHD is a disorder characterized by deficits in executive function (EF), which are a core set of cognitive processes most commonly recognized as working memory/updating, response inhibition, and set shifting (Lehto, Juujarvi, Kooistra, & Pulkkinen 2003; Miyake, Friedman, Emerson, Witzki, Howerter, & Wager, 2000). Working memory, also referred to as updating (Miyake et al., 2000), comes from Baddeley and Hitch's (1974) model of short term memory, which includes the central executive, visuospatial sketchpad, and phonological loop (Lehto et al., 2003). These three components of short term memory work together to receive, encode, recall and attend to information as it appears. Response inhibition refers to the ability to deliberately refrain from engaging in a stimulus response that is both automatic and prepotent, likened to an innate reflex (Lehto et al., 2003; Miyake et al., 2000). Set shifting, which is regarded as the most complex EF (Garon, Bryson, & Smith, 2008), is the ability to disengage from one mental set/task

and engage in another (Lehto et al., 2003). Deficits in executive function can manifest in daily life and within the context of the workplace as issues with problem solving, self-monitoring, multitasking, shifting between tasks, initiation, planning and organization (Bade, 2010).

Common stereotypes for individuals with ADHD perpetuate that this may mean the individual is “hyper,” cannot sit still, is easily distracted, lacks focus, or is disruptive. These behaviors may be likely to manifest in an individual with ADHD, but they are not a comprehensive representation of the nature of the disorder as an EF deficit disorder. An employee with ADHD may have trouble completing a task because they were unable to properly attend to the task instructions as they were delivered. Or perhaps this employee was in the middle of a different project and was unable to cognitively disengage from the first task so that they can work on the new task. Further, this employee may have difficulty planning and organizing the execution of the new task because it can be difficult to multi-task. There are multiple cognitive processes at play for this employee impeding their progress in completing a given task. It is not that they merely cannot sit still or speak out of turn, but a much more complex network of cognitive impairment that impedes progress.

The current literature within the realm of ADHD research is focused on outcomes of the disorder, as well as the development of measures used to detect such impairments (Barkley, Murphy & Fischer, 2008). Outcomes for ADHD fall on a continuum of severity. From the most extreme end, ADHD can lead to increased arrests, jailing, and crime diversity (Barkley & Fischer, 2011; Barkley & Murphy, 2010). Yet more common outcomes manifest as poor academic performance, learning disabilities, and social consequences for children, and eventually as educational, occupational and social consequences for adults with ADHD (Barkley, 2002; Stavro, Ettenhofer, & Nigg, 2006).

More specifically, adults with ADHD are more likely than those without ADHD to have poorer educational performance, decreased job performance and increased turnover (both voluntary and involuntary) (Barkley, Murphy, & Fischer, 2008; Murphy & Barkley, 1996), and to experience issues with social perception such as understanding and generating appropriate responses (Sibley, Evans, & Serpell, 2010). They also face a greater likelihood for suspension of their driver's license as well as multiple marriages (Murphy & Barkley, 1996). Though I have presented outcomes which may not be as common as others, over 85 of the leading authorities in the scientific community have come together and signed a consensus statement on the very serious deficits experienced by individuals with ADHD (Barkley, Cook, & Dulcan et al, 2002). With such a range in potential outcomes for the ADHD population it is important to further examine how these adverse consequences manifest in the context of the workplace.

ADHD and Workplace Outcomes

From the evidence presented thus far, one can certainly infer the nature of the issues that are likely to present within the workplace for an adult with ADHD. Results from Barkley and Murphy (2010) indicate that adults with ADHD experience significant occupational impairment as a consequence of EF deficits in time management, self-organizing, planning, problem-solving, self-activation, and self-motivation. Specific workplace outcomes have been examined, with evidence that adults with ADHD are more likely than those without ADHD to have increased interpersonal problems and hostility (Murphy & Barkley, 1996), as well as a decreased likelihood of getting along well with their supervisors (Barkley, Murphy, & Fischer, 2008; Painter, Prevatt, & Welles, 2008) and coworkers (Barkley & Murphy, 2010). Researchers have found that ADHD symptoms are predictive of problems with long-term career decisions, specifically experiencing confusion in decision making and commitment anxiety (Painter,

Prevatt, & Welles, 2008), which Nadeau (1995) has suggested leads to career dissatisfaction, negative performance evaluations, and consistent conflict in the workplace. This evidence of negative workplace outcomes that fall within the range of CWBs prompts further investigation of the relationships between ADHD and CWBs.

Though the extant literature has provided valuable support for the occupational outcomes of ADHD, there has been virtually no research on ADHD from the industrial organizational psychology perspective assessing how such outcomes affect organizations. Thus, the present study has bridged the literature between two fields and added to the body of knowledge about adults with ADHD within the context of organizational functioning.

Self-Regulation Theory

Self-regulation theory holds that self-regulation is the cognitive process of overriding a natural, habitual, or learned response by altering behavior, thoughts, or emotion (Baumeister & Vohs, 2003). Self-regulation is facilitated through one's executive functions, which we know to be a cooperative system of working memory, response inhibition, and set shifting (Baumeister & Vohs, 2003; Lehto et al., 2003; Miyake et al., 2000). Further, self-regulatory abilities are theorized to be a finite pool of resources (Baumeister & Vohs, 2003), with empirical evidence suggesting that with each act of self-regulation, each subsequent act of self-regulation will be impaired due to depletion of resources (Muraven, Tice, & Baumeister, 1998). For example, if an individual self-regulates their disappointment in the loss of an important client, subsequent self-regulation attempts will be more difficult as their cognitive resources have been "worn down." Thau and Mitchell (2010) demonstrated that as an employee's self-regulatory resources are depleted, they become more likely to engage in counterproductive workplace behavior.

In the present study, I have utilized the theoretical guidance provided by self-regulation theory in tandem with the clinical literature on ADHD to create meaningful hypotheses. We know that adults with ADHD experience deficits in executive functions, which are the governing processes of self-regulation. ADHD as a disorder is characterized by impairments in self-regulatory resources, so I expect that adults with ADHD will be even more susceptible to engage in behavior that would otherwise be inhibited. Thus consistent with Thau and Mitchell (2010) I hypothesize that adults with ADHD will be more likely to engage in CWBs.

Counterproductive Workplace Behaviors

The CWB literature is well-established, yet there has been no organizational research within this literature that examines the role of psychopathology or EF deficits in CWBs. Thus, as neither the ADHD literature, nor the CWB literature has explored this area, the present study aims to support hypotheses that ADHD symptoms manifest as CWBs. We may not know much about the role that mental disabilities may play in CWB, but what follows is a brief summary of what we do know.

CWBs are those behaviors enacted by employees of an organization that are counter to the goals of that organization (Sackett, Berry, Wiemann, & Laczó, 2006). Interpersonal deviance refers to behaviors that are directed at other individuals associated with the organization, like harassment, while organizational deviance refers to behaviors that are directed at the organization as a whole, like wasting company resources (Gruys & Sackett, 2003; Robinson & Bennett, 1995). Workplace aggression is one example of a CWB, yet most instances of workplace aggression are verbal rather than physical, and covert, rather than overt expressions (Neuman & Baron, 1998). From an organizational perspective, CWBs can be a serious threat to

bottom line productivity, employee morale, and company decision making, especially considering that by engaging in one CWB, an employee has an increased likelihood to engage in another CWB (Gruys & Sackett, 2003). Further, organizations are concerned about CWBs as a result of the negative relationships that exist between CWB and job satisfaction, organizational commitment, perceived organizational justice, and positive affect (Dalal, 2005; Colquitt, Conlon, Wesson, Porter, & Ng, 2001).

Much CWB research has examined the Big Five personality factors, with support for negative relationships between CWB and conscientiousness (Berry, Ones, & Sackett, 2007; Bowling, Burns, Stewart & Gruys, 2011; Colquitt et al., 2001; Dalal 2005; Jensen & Patel 2011; Judge, LePine, & Rich 2006; O'Neill & Hastings, 2011; Sackett, Berry, Wiemann, & Laczko, 2006), agreeableness (Berry, Ones, & Sackett, 2007; Bowling, Burns, Stewart & Gruys, 2011; Sackett et al., 2006), emotional stability (Jensen & Patel 2011; Sackett et al., 2006), openness to experience (Judge, LePine, & Rich 2006), and extraversion (Sackett et al., 2006). Other research has examined personality factors outside the traditional Big Five model, and has found support for negative relationships between CWB and the Honesty-Humility dimension of personality (O'Neill, Lewis, & Carswell, 2011), as well as positive relationships between CWB and narcissism (Judge, LePine, & Rich 2006).

Other areas of CWB research have examined motivation (Diefendorff & Mehta, 2007), aggression (Aquino, Galperin, & Bennett, 2006; Baron & Neuman, 1996; Neuman & Baron, 1998) and formal versus social status (Aquino, Galperin, & Bennett, 2006), thus, considering the overlap between these findings and those of the ADHD literature (i.e. increased conflict, aggression, and issues with authority), the present study will seek to find support for relationships between ADHD and broader organizational outcomes.

Adults with ADHD are more likely to experience deficits in work-related outcomes (Barkley, Murphy, & Fischer, 2008; Barkley & Murphy, 2010; Barkley & Murphy, 2011; Nadeau, 1995; Painter, Prevatt, & Welles, 2008), as well as conflict in the workplace (Barkley, Murphy, & Fischer, 2008; Murphy & Barkley, 1996; Nadeau, 1995; Painter, Prevatt, & Welles, 2008). Considering these findings along with evidence that impulsivity (Henle, 2005) and self-control (Restubog, Garcia, Toledano, Amarnani, Tolentino, & Tang, 2011; Restubog, Garcia, Wang, & Cheng, 2010) are both related to CWB, it is hypothesized that ADHD symptoms will increase the likelihood of engaging in CWBs. Further, I propose a research question to explore a more nuanced view of this relationship.

Hypothesis 1: ADHD symptoms in adults will increase the likelihood that these adults will engage in CWBs.

Research Question 1: What is the nature of the relationship between ADHD and the 5 different subscales of CWB (withdrawal, theft, production, sabotage, and abuse)?

Perceived Organizational Justice

Another construct that has been identified as an antecedent of CWB is perceived organizational justice (Berry, Ones, & Sackett, 2007). It is important to recognize that in the mind of an employee, an act that is perceived as unjust is the same as an act which is truly unjust (Caza, Caza, & Lind, 2010). Organizational justice can be thought of as four empirically distinct subtypes (Colquitt, Conlon, Wesson, Porter, & Ng, 2001): distributive justice concerns matters of outcomes such as pay and promotions, procedural justice concerns the process by which these outcomes were determined, interpersonal justice concerns the degree to which an employee perceives they are treated with respect by supervisors, and informational justice concerns

explanations provided to employees regarding supervisor decisions and actions (Ambrose, Seabright, & Schminke, 2002; Cohen-Charash & Spector, 2001; Henle, 2005).

Strong empirical support has been found for negative relationships between CWB and distributive justice (Ambrose et al., 2002; Cohen-Charash & Spector, 2001; Henle, 2005), procedural justice (Cohen-Charash & Spector, 2001, Henle, 2005), and interpersonal and informational justice (Ambrose, Seabright, & Schminke, 2002; Henle, 2005). Explanations for such strong relationships attribute engaging in CWBs as a means to restore equity when perceived organizational justice is low, or to retaliate against a specific party who has committed an injustice (Ambrose, Seabright, & Schminke, 2002). The same researchers also found that when multiple types of injustice occur, there is an additive effect on the severity of CWBs (Ambrose, Seabright, & Schminke, 2002). Considering the nature of the relationship between organizational justice and CWBs, I propose that perceptions of organizational justice will act as a moderating variable in the relationship between ADHD and CWB, potentially buffering the direct effect. When perceived organizational justice is low, employees will be more likely to engage in CWBs, while when perceptions of organizational justice are high, these employees will be less likely to engage in CWBs.

Current literature strongly supports the negative relationship between perceived organizational justice and CWB (Berry, Ones, & Sackett, 2007; Dalal, 2005; Cohen-Charash & Spector, 2001; Henle, 2005). Drawing from the evidence presented it was hypothesized that the level of perceived organizational justice will moderate the relationship between ADHD and CWB such that when organizational justice perceptions are low, relationship between ADHD and CWB will strengthen, yet when organizational justice perceptions are high, the relationship between ADHD and CWB will weaken.

Hypothesis 2: The positive relationship between ADHD and counterproductive workplace behavior will be weakened when perceived organizational justice is high rather than low, and vice versa

CHAPTER 3

METHOD

Sample

The present study includes participants recruited from a research participant pool within the psychology department at a large public university in the southern United States. Students received credit for their participation. This sample is not a clinical population of individuals with ADHD, thus it is important to note that this sample represents a restricted, yet representative segment of the general population. All participants have passed through numerous hurdles to be enrolled in college, thus individuals with ADHD in this sample may be considered as higher functioning than the population mean for adults with ADHD. ADHD symptoms were measured using a validated behavioral checklist. For inclusion in the study, adults must have been 18 years of age or older and they must have been employed full-time or part-time at the time of the study or within the last six months. Employment was described to participants as a paid position with a company, held presently or within the past 6-12 months. For example, being a lifeguard at a community pool qualified, while babysitting for a family would not. There were 324 respondents to the online survey, and after eliminating 26 cases on the basis of lack of consent and incomplete data, the final sample was $N= 298$.

The majority of participants were between the ages of 18-22 (97.7%) and female (51%). Participants identified as members of the following racial and ethnic groups: White (75.8%), Asian (11.7%), Black (7.7%), Mixed Race (2.7%), Hispanic (1.7%) and Native American (0.3%). Of the participants, 12.1% had been diagnosed with ADHD by a professional, while 11.4% had been prescribed and had taken medication for ADHD. These numbers are a bit higher than the CDC's estimates for children (8.4%) of children yet are consistent with the CDC's forecast of the increasing prevalence of ADHD diagnosis (Pastor & Rueben, 2008). Participants represented various academic majors including Hard Sciences (29.9 %), Social Sciences (25.8%), Business (20.1%), Journalism (8.7%), Fine Arts (8.4%), Education (4.0%), and Undecided (3.0%).

Procedure

All measures were completed through an online survey created using Qualtrics survey building software. Participants were given the opportunity to read and sign statements of informed consent, as approved by the Institutional Review Board. With their informed consent, participants were administered an electronic survey containing measures of ADHD, perceived organizational justice, CWBs, demographic information, and a measure of social desirability in answering patterns. Once these measures were completed, participants were thanked and debriefed about the nature of the study.

Measures

ADHD. ADHD was measured as a continuous variable utilizing the Adult ADHD Self-Report Scale (ASRS), developed by the World Health Organization (WHO) and Kessler, Adler, Ames, Demler, Faraone, Hiripi, Howes, Jin, Secnik, Spencer, Ustun, and Walters (2005) and used frequently in recent ADHD empirical literature (Garnier-Dykstra, Pinchevsky, Caldeira,

Vincent, and Arria, 2010; Bacskai, Czobor, and Gerevich, 2012; Sibley, Pelham, Molina, Waxmonsky, Waschbusch, Derevinko, Wymbs, Garefino, Babinski, & Kuriyan, 2012). The ASRS has been demonstrated to have, as well as high internal consistency and concurrent validity as a clinical measure of ADHD (Adler, Spencer, Faraone, Kessler, Howes, Biederman, and Secnink, 2006) The ASRS consists of 18 items which measure the frequency of the DSM-IV Criterion A symptoms that the participant has experienced persistently within the past 6 months. There are two subscales within the ASRS, hyperactivity and inattentiveness. Coefficients alpha were estimated as .81 and .84 respectively. Participants were presented with items in a 5-point Likert scale format and indicate the frequency in which they have experienced the symptom described (0= *never*, 5= *very often*). Items may be found in Appendix B.

Organizational Justice. Consistent with Colquitt (2001) and Henle (2005), the present study used a measure of perceived organizational justice consisting of separate scales for each of the three types: distributive justice, procedural justice, interpersonal justice, and informational justice. Coefficients alpha for these four subscales have been estimated as .83, .92, .91, and .88, respectively. Twenty items were presented in a 5-point Likert scale format, such that participants indicated the extent to which the items held true (1= *small extent*, 5=*great extent*). Items are presented in Appendix B.

CWB. CWBs were measured using the Counterproductive Workplace Behavior Checklist (CWB-C) as developed by Spector, Fox, Penney, Bruursema, Goh, and Kessler (2006). The CWB-C measures 5 dimensions of CWB: sabotage, withdrawal, production, theft, and abuse. Sabotage is defined as the defacing or destroying of one's employer's physical property (Spector et al., 2006), such as intentionally wasting organizational resources or purposefully damaging equipment. Withdrawal is behavior in which an employee reduces the amount of time

they work to a level below organizational expectations (Spector et al., 2006), which includes behaviors such as leaving work earlier than permitted, taking longer or more frequent breaks than permitted, and staying home from work when one is not in fact ill.

Production deviance is the intentional failure to complete one's job tasks and responsibilities as they should be completed (Spector et al., 2006). Examples of production deviance include intentionally working slower than appropriate on a task or intentionally deviating from task instructions.

Theft is the action of stealing from the organization or one's coworkers. Theft includes behaviors we traditionally categorize as stealing, like taking money from a register, as well as behavior such as putting in more hours than one actually worked. Spector et al., (2006) operationalized abuse as harmful behaviors that either physically or psychologically harm another. For example, threatening a coworker, physical aggression, and starting harmful rumors are each considered abuse.

For each of the subscales, coefficients alpha were estimated as .54, .65, .59, .79, and .90, respectively. Thirty-two items were presented in a 5-point Likert scale format, such that participants indicated the frequency to which they engage in the behavior described (1=*never*, 5=*every day*). Items may be found in Appendix B. Recent meta-analytic evidence supports the use of self-report inventories of CWB on the basis that self-report ratings are moderately correlated with other-ratings, have similar relationships as other-ratings with common correlates, and were shown to report a broader range of CWBs (Berry, Carpenter, & Barratt, 2012).

Control Measures. Previous research has indicated that participants may respond to survey items regarding sensitive material, like deviant behavior measured with CWB. To measure social desirability in responses, the present study used a short version of the Marlowe-

Crowne Scale (Strahan & Gerbasi, 1972). Coefficient alpha was estimated at .79. The measure consists of 20 items, which were answered by participants as either true or false. Items may be found in Appendix B. As with previous research, (e.g., Aquino, Lewis, & Bradfield, 1999), a social desirability scale composite was created and correlated with all other survey items. If a correlation between the social desirability composite and any one item is at or above .30, this item should be dropped. In the present study, there was no correlation above .30 between any item and the social desirability composite. No items were dropped on the basis of socially desirable responding.

Age, gender, race/ethnicity, year in school, major, were also measured to be used as control variables. Whether or not the participant had been diagnosed with ADHD, and whether or not the participant had been prescribed medication for ADHD were also controlled.

CHAPTER 4

ANALYSES & RESULTS

Descriptive statistics including variable means, standard deviations, intercorrelations, and coefficients alpha are reported in Table 1. The data analysis strategy for the present study was to utilize a hierarchical moderated multiple regression analysis (Cohen, Cohen, West & Aiken, 2003) in IBM SPSS Statistics software version 19.0 (IBM Corps, 2010). The goal of the analysis was to confirm the hypothesized relationships between ADHD and CWBs. Further, the goal of using hierarchical moderated multiple regression analysis was to support perceived organizational justice as a moderator of the relationship between ADHD and CWB. Scores from the Crowne-Marlowe Scale were used to control for social desirability in responses.

Confirmatory factor analyses. Confirmatory factor analyses were conducted using MPlus software (Muthen & Muthen, 2007). For each measure, a full model was tested at the composite level, followed by models respective to each measure's number of latent factors. Upon examining fit indices per Hu and Bentler's (1999) recommendations along with the individual item factor loadings, there were indications that the model fit would be significantly improved after dropping items. After the sample was split in to two randomly selected halves and the models were cross-validated, there was sufficient evidence to support the removal of items. Specifically, for the ADHD measure, the following item "How often do you feel overly active and compelled to do things, like you were driven by a motor?" was dropped. For the CWB

measure, the following item “Stole something belonging to someone at work” was dropped. For the Organizational Justice measure, the following items “Have you had influence over the (outcome) arrived at by those procedures?” and “Have you been able to appeal the (outcome) arrived at by those procedures?” were dropped. The final model fit index results can be found in Table 2.

Hierarchical Moderated Regression. After the best fitting models were determined and items were dropped, all variables were computed as composites. ADHD and Organizational Justice were mean centered to reduce multicollinearity (Cohen, Cohen, West, & Aiken, 2003). To test the hypotheses, hierarchical moderated regression analytic techniques were used. In the first step, all of the control variables were entered in to the regression equation (age, gender, race/ethnicity, year in school, major, ADHD formal diagnosis, and ADHD medication use) and regressed on to the dependent variable of CWB. In the second step, the independent variable ADHD was added to the model and regressed on to CWB. In the third and final step, a crossproducts term was created from the centered variables of ADHD and organizational justice. After the linear effects of ADHD and organizational justice were removed from this crossproducts term, CWB was regressed on to the resulting interaction term to test the moderating effect of organizational justice.

The main effect model was examined to test Hypothesis 1, with results indicating a significant model fit ($F(9,287)=9.385, p<.001$) and significant beta weights for ADHD as a predictor of CWB ($\beta= .317, p<.01$), thus Hypothesis 1 was supported. The interaction effect was examined to test Hypothesis 2, comparing the R^2 between the two models and testing whether the change in R^2 value was significant. Results of the comparison indicate that $\Delta R^2 = .004$, which was nonsignificant ($p= .237$). Further, beta weights for the interaction term ($\beta= -.063$,

$p=.237$) were also nonsignificant, thus Hypothesis 2 was not supported. The interaction effect was plotted and can be found in Figure 2.

Research Question 1 was explored through correlational analysis. Results indicate that ADHD was positively correlated with each of the five subscales of CWB (withdrawal, theft, production, sabotage, and abuse) at statistically significant levels. ADHD was most highly correlated with withdrawal (.285, $p>.01$) and abuse (.284, $p>.01$), followed by production (.24, $p>.01$), sabotage (.20, $p>.01$), and theft (.145, $p>.05$). Each of these correlations, excluding theft, is of moderate strength.

Table 1. Means, Standard Deviations, Intercorrelations, and Reliabilities.

| | M | SD | 1 | 2 | 3 | 4 |
|--------|-------|--------|--------|--------|-------|-------|
| ADHD | 40.44 | 9.82 | (.88) | | | |
| CWB | 37.99 | 9.05 | .32** | (.90) | | |
| OJ | 60.98 | 13.35 | -.17** | -.29** | (.91) | |
| SocDes | 42.15 | 231.30 | .05 | -.05 | -.06 | (.79) |

Note. N=298. ** $p<.01$. Reliability coefficients appear in parentheses on the diagonal. ADHD = Attention Deficit Hyperactivity Disorder. CWB = Counterproductive Workplace Behavior. OJ = Organizational Justice. SocDes = Social Desirability.

Table 2. *Confirmatory Factor Analyses Results*

| Measure | <i>df</i> | χ^2 | CFI | TLI | RMSEA | SRMR |
|---------|-----------|-----------|------|------|-------|-------|
| ADHD-I | 28 | 203.808** | .911 | .881 | .095 | .049 |
| ADHD-H* | 20 | 153.078** | .830 | .762 | .149 | .076 |
| CWB-W | 3 | 41.281** | .937 | .81 | .134 | .044 |
| CWB-P | 0 | 0.000** | 1.00 | 1.00 | .00 | .00 |
| CWB-S | 0 | 0.000** | 1.00 | 1.00 | .00 | .00 |
| CWB-T* | 2 | 21.945** | .949 | .848 | .183 | .035 |
| CWB-A | 122 | 977.893** | .805 | .778 | .114 | .069 |
| OJ-P* | 5 | 10.945 | .99 | .979 | .063 | .021 |
| OJ-D | 2 | 20.260** | .981 | .944 | .175 | .018 |
| OJ-IP | 2 | 2.013 | 1.00 | 1.00 | .0005 | .0006 |
| OJ-IF | 5 | 20.266** | .982 | .963 | .101 | .021 |
| SocDes | 152 | 315.235** | .637 | .597 | .066 | .082 |

Note. * = item dropped from original scale. ** = $p < .01$. *df* = model degrees of freedom. CFI = Comparative Fit Index. TLI = Tucker-Lewis Index. RMSEA = root mean squared error of approximation. SRMSR = standardized root squared mean residual. ADHD-I = Attention Deficit Hyperactivity Disorder-Inattentiveness. ADHD-H = Attention Deficit Hyperactivity Disorder-Hyperactivity. CWB-W= Counterproductive Workplace Behavior-Withdrawal. CWB-P= Counterproductive Workplace Behavior-Production. CWB-S= Counterproductive Workplace Behavior-Sabotage. CWB-T= Counterproductive Workplace Behavior-Theft. CWB-A= Counterproductive Workplace Behavior-Abuse. OJ-P = Organizational Justice- Procedural. OJ-D = Organizational Justice- Distributive. OJ-IP = Organizational Justice- Interpersonal. OJ-IF = Organizational Justice- Informational. SocDes = Social Desirability.

Table 3. *Hierarchical Moderated Regression*

| Model | R ² | Variable | Step 1 β | Step 2 β | Step 3 β |
|---------|----------------|-------------------------|----------|----------|----------|
| Model 1 | .069 | Age | .01 | .016 | .013 |
| | | Year in school | .001 | -.002 | .001 |
| | | Major | -.066 | -.036 | -.002 |
| | | Gender | -.211** | -.255** | -.241** |
| | | Race/Ethnicity | .005 | .034 | .014 |
| | | ADHD Diagnosis | -.175* | -.091 | -.101 |
| | | ADHD Prescription | .110 | .112 | .129 |
| Model 2 | .227 | ADHD | | .344** | .318** |
| Model 3 | .231 | ADHD x OJ Interaction | | | -.063 |
| | | OJ | | | -.218** |
| | | Δ R ² | | .227** | .004 |
| | | ΔF | | 7.796** | 1.406 |
| | | df | (7, 290) | (9, 287) | (2, 286) |
| | | Adjusted R ² | .046 | .203 | .204 |

Note. N=298. *p<.05 **p<.01. Reliability coefficients appear in parentheses on the diagonal. ADHD = Attention Deficit Hyperactivity Disorder. OJ = Organizational Justice. *df* = degrees of freedom.

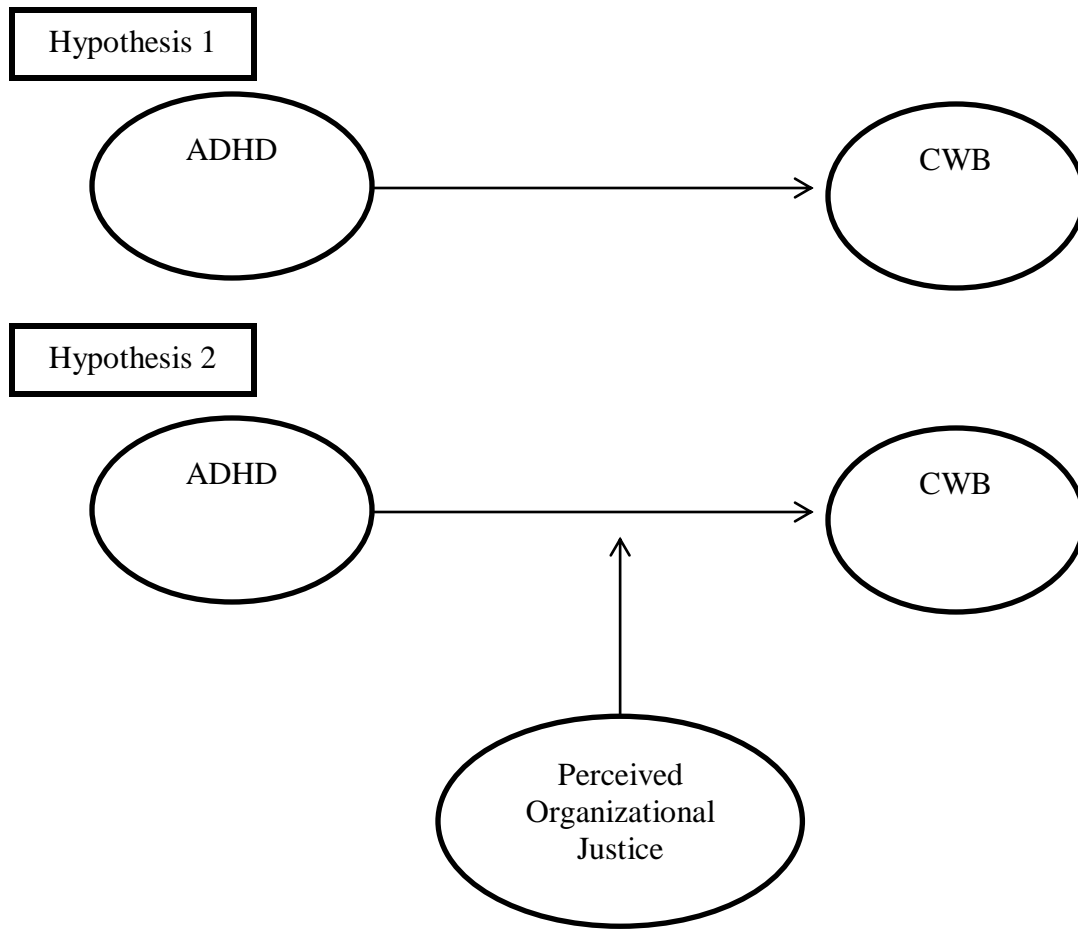
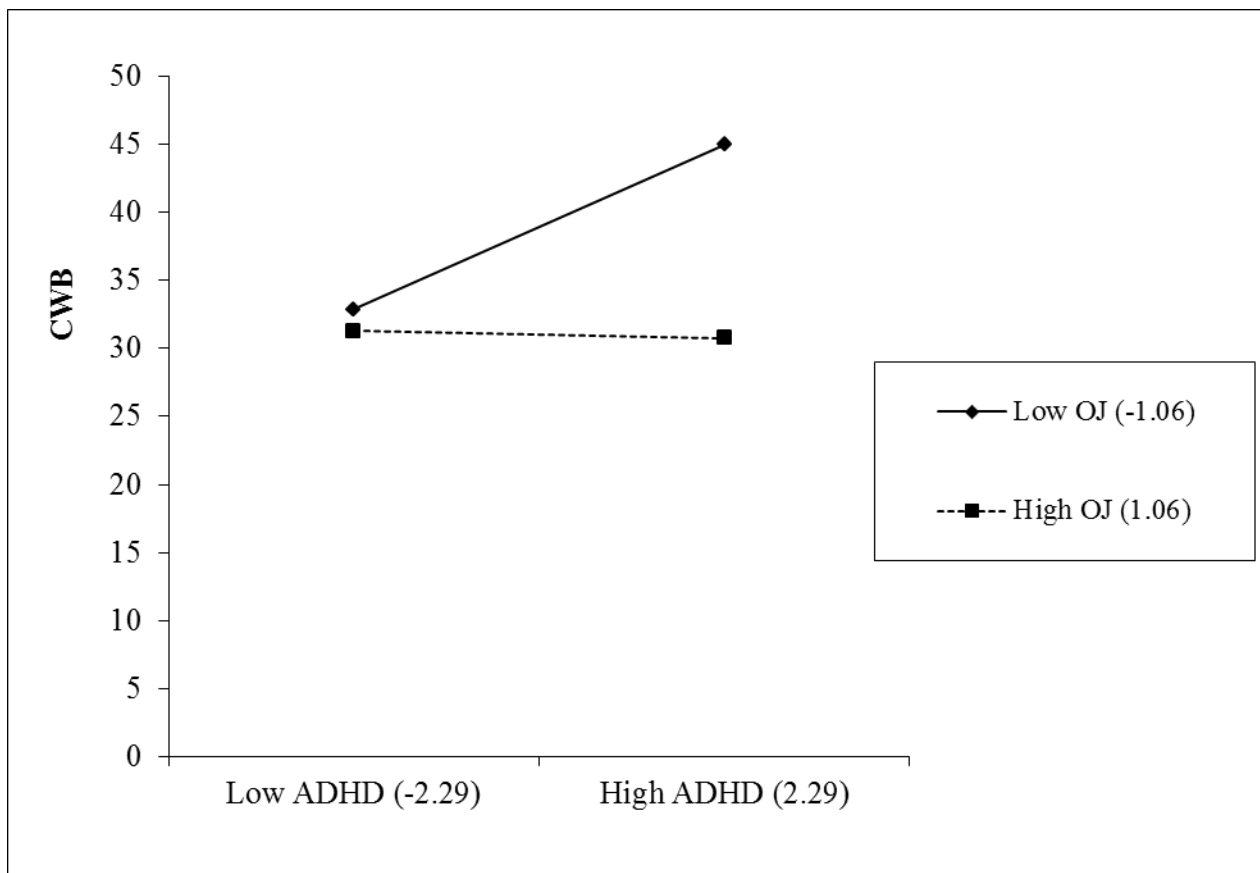


Figure 1.
Proposed main effect and moderator relationships



Note. CWB = Counterproductive Workplace Behavior. ADHD= Attention Deficit Hyperactivity Disorder. OJ = Organizational Justice.

Figure 2. Simple Slopes Analysis

CHAPTER 5

DISCUSSION

As previously mentioned, ADHD rates have increased in the past decade, and will only continue to increase in adults and children alike (Pastor & Rueben, 2008; APA, 2000). As Pastor and Rueben (2008) have noted, the diagnosis rates are highest in adolescents, and paired with Froelich et al.'s (2007) findings related to increased medication use, it is desirable to examine the adult population as they are entering the workforce. With the growing prevalence and awareness of ADHD, many young adults entering the workforce have been accommodated their entire lives and will expect this high level of accommodation and advocacy to continue in their place of employment. Considering this, there could be a conflict in perspectives between these young adults or "Millennials" and their supervisors from the "Baby Boomer Generation" and "Generation X." Keeping in mind the legal implications from the ADA (United States Equal Employment Opportunity Commission, 2008), it is important that managers and employees alike are educated on both the likelihood of adverse outcomes of CWB and preventative measures that can be taken to reduce an employee with ADHD's propensity for workplace deviance.

Self-regulation theory (Baumeister & Vohs, 2003) holds that one's cognitive resources are depleted with each act of self-regulation. The present study provides support for this theory in one sample, with evidence that ADHD is positively associated with CWB. Perhaps a measure of self-regulation as a mediating mechanism in this relationship would provide even more strength to self-regulation theory and the role it plays in employee deviance. From the present

results we can still find important implications. As organizational scientists and practitioners, we cannot alter the way ADHD manifests in individuals, but we can direct our efforts toward replenishing employees' "cognitive resources pool." Though the hypothesized moderating relationship between perceived organizational justice and the relationship between ADHD and CWB was not supported, there are other possible moderators which could act as a buffer such as perceived organizational support, job commitment, leader-member exchange, or mentoring.

If anything, considering the results from this study with what we know from self-regulation theory should help organizations see the value in accommodating employees with disabilities as more than just a legal formality. Providing accommodations to an employee with ADHD may not only help their productivity, but also allow for these employees to more easily and frequently replenish their cognitive resource pool, reducing the likelihood of engaging in CWB.

These results prove important not just for employees with ADHD but for the mental health community as a whole. Gaining insight about mental disabilities and workplace performance is an important step toward integrating individuals with mental disabilities in to the workplace. Though the present study's results may not seem to be favorable toward reducing mental health stigma, it is important to use this evidence as a tool to move toward ways to reduce or prevent such counterproductive behavior from occurring amongst individuals with ADHD.

Unfortunately, the proposed moderation effects of perceived organizational justice were not supported, thus there was not sufficient evidence for a buffering mechanism on the direct effect relationship between ADHD and CWB. Perhaps the sense of equity from perceptions of justice is not enough to override an inherent cognitive response such as self-regulation.

Alternatively, most of the participants held part-time and short-term employment, in which there

may not have been an opportunity to develop a strong sense of justice perceptions in either direction. Though this hypothesized relationship was not found to be supported, we must return to organizational theory to seek other constructs which would act as a buffer to the relationship.

Exploratory analyses examining the correlation between ADHD and the five CWB subscales did yield some interesting results. ADHD was significantly correlated with all five subscales of CWB, which was expected, yet the strongest correlations were with withdrawal and abuse.

Abuse certainly fits with the theoretical framework self-regulation theory, as adults with ADHD have deficits in self-regulation and inhibition, thus it makes sense that when cognitive resources are depleted they would be more likely to engage in behavior they might not otherwise, such as abuse. Spector et al. (2006) found that CWB abuse was moderately correlated with measures of both negative emotions (i.e. angry, anxious, depressed, furious, etc) and interpersonal conflict. Considering these correlations with what we know about ADHD and deficits in self-regulation, it makes sense that as individuals with ADHD experience negative emotions, their impairment in self-regulation allows a higher association for CWB abuse.

While self-regulation theory helps us to make sense of the high correlation between ADHD and CWB abuse, the strong correlation between ADHD and withdrawal does not fit in to the theory as intuitively. The withdrawal items from the CWB measure are essentially capturing an employee's truancy from the organization, so perhaps the results from this particular subscale reflect a different kind of behavioral process than the pro-active behavior of abuse. Coming to work late, taking longer breaks than allowed, and leaving work earlier than permitted perhaps reflect an employee with ADHD's deficits in planning, organizing, and time management rather than the tendency to have decreased inhibition from pro-actively engaging in behaviors.

Production, sabotage and theft were each correlated with ADHD at lower levels than abuse and withdrawal. Spector et al. (2006) found production, sabotage, and theft to each be moderately correlated with interpersonal conflict, as well as with organizational constraints. Considering the situational nature of interpersonal conflict and organizational constraints, there are likely factors outside of an employee's control which contribute to interpersonal conflict and organizational constraints. This being said, it is plausible that ADHD symptoms are not more highly correlated with these three subscales of CWB.

Limitations and Future Research

As with all scientific exploration, the present study is not without limitations. The present study is cross-sectional in design, which does not allow for causal relationships to be determined, thus future research should adapt a longitudinal design to increase the likelihood that causality could be inferred. Another limitation of the present study is that its hypotheses examine the constructs of CWB and organizational justice in a global sense, while only parsing the construct of CWB into the dimension level in a correlational research question. The present study serves as the first of its nature examining adult ADHD from an organizational perspective, thus now that the relationship between ADHD and CWB is established, future research should test more detailed causal hypotheses about the relationships between specific types of organizational deviance. Further, future research should include other relevant criterion, like performance or other potential moderators which may buffer the direct effect between ADHD and CWB.

There are several limitations associated with the sample in the present study. The first is that the sample is from the general population as opposed to a clinically diagnosed population. A sample of young adults from the university setting may be affected by range restriction, such that those individuals accepted to a university have passed hurdles of cognitive ability and

performance. Drawing from a university sample likely contains individuals at the high functioning level of ADHD. The sample is likely restricted in that all participants have been able to attend college, which suggests a necessary level of both cognitive and financial resources, thus the individuals in this category with ADHD may be considered high functioning (their symptoms manifest on the lower end of the possible spectrum). Yet even despite this restriction on high functioning individuals with ADHD symptoms, there was still a significant effect found between ADHD and CWB, suggesting that even at the highest levels of functioning, adults with ADHD are more likely to engage in workplace deviance. Also, due to the student status of the participants, it is far more likely that their employment was part-time and seasonal, rather than full-time and year round, which reduces the generalizability of the results. Thus, additional research should focus away from the collegiate environment to the broader population of adults who work full time.

The development of one's executive functions is a process spanning many years, with some of the major changes occurring in adolescence and early adulthood (Luna, Garver, Urban, Lazar, & Sweeney, 2004). Considering this evidence, one may speculate that perhaps the participants in the present study have simply just not yet reached maturity in executive function development. However, in a ten year longitudinal study, Miller, Ho, & Henshaw (2012) tested hypotheses specifically focused on females with ADHD and found support for the continued existence of executive function deficits in young adulthood. Further, Taylor, Barker, Heavey, & McHale (2012) found that performance on executive function tasks peaked at around age 17, suggesting that the present population of mostly 18-22 year olds (97.7%) has likely already passed the peak point for further development in executive functions.

Additional recommendations for future research would be to narrow the scope of the present study toward outcomes related to systems and processes like training and performance appraisal, in an effort to translate findings from science to practice. For example, it would be advantageous to study ADHD within the context of performance appraisal to understand how this integral part of organizational functioning may be different for an employee with ADHD or other executive function deficits.

Further, as this research examined ADHD outcomes related to deviance in the workplace, it may be of interest to test relationships between ADHD and off-duty deviance (Lyons, Bommer, & Hoffman, 2012). A more positive direction for future research is to examine the potential benefits that employees with ADHD may bring to the workplace, as well as to find ways to help adults with ADHD decrease the likelihood of engaging in CWB. This may be accomplished through testing other potential moderators of the relationship between ADHD and CWB, such as job satisfaction, employee engagement, organizational commitment, and leader-member exchange.

Conclusion

The present study examined the relationship between ADHD and CWB and found support for direct effect relationship between the predictor and the outcome. Though the proposed moderation effect of perceived organizational justice was not supported, future research should use theoretical grounding to propose additional moderators which will hopefully reduce the likelihood of employees with ADHD to engage in CWB.

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Appendix A

DSM-IV-TR criteria for diagnosis of ADHD (APA, 2010)

Attention-Deficit/Hyperactivity Disorder

A. Either (1) or (2):

- (1) six (or more) of the following symptoms of inattention have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Inattention

- (a) often fails to give close attention to details or makes careless mistakes in schoolwork, work, or other activities
- (b) often has difficulty sustaining attention in tasks or play activities
- (c) often does not seem to listen when spoken to directly
- (d) often does not follow through on instructions and fails to finish schoolwork, chores, or duties in the workplace (not due to oppositional behavior or failure to understand instructions)
- (e) often has difficulty organizing tasks and activities
- (f) often avoids, dislikes, or is reluctant to engage in tasks that require sustained mental effort (such as schoolwork or homework)
- (g) often loses things necessary for tasks or activities (e.g., toys, school assignments, pencils, books, or tools)
- (h) is often easily distracted by extraneous stimuli
- (i) is often forgetful in daily activities

- (2) six (or more) of the following symptoms of hyperactivity/impulsivity have persisted for at least 6 months to a degree that is maladaptive and inconsistent with developmental level:

Hyperactivity

- (a) often fidgets with hands or feet or squirms in seat
- (b) often leaves seat in classroom or in other situations in which remaining seated is expected
- (c) often runs about or climbs excessively in situations in which it is inappropriate (in adolescents or adults, may be limited to subjective feelings of restlessness)
- (d) often has difficulty playing or engaging in leisure activities quietly
- (e) is often “on the go” or often acts as if “driven by a motor”
- (f) often talks excessively

Impulsivity

- (g) often blurts out answers before questions have been completed

(h) often has difficulty awaiting turn

(i) often interrupts or intrudes on others (e.g., butts into conversations or games)

Appendix B

Adult ADHD Self-Report Scale (ASRS) (Kessler et al., 2005)

Please answer the following questions, rating yourself on each of the criteria by indicating the response that best describes how you have felt and conducted yourself over the past 6 months.

1. How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done? (H)
2. How often do you have difficulty getting things in order when you have to do a task that requires organization? (I)
3. How often do you have problems remembering appointments or obligations? (I)
4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started? (H)
5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time? (H) (D)
6. How often do you feel overly active and compelled to do things, like you were driven by a motor? (I)
7. How often do you make careless mistakes when you have to work on a boring or difficult project? (I)
8. How often do you have difficulty keeping your attention when you are doing boring or repetitive work? (I)
9. How often do you have difficulty concentrating on what people say to you, even when they are speaking to you directly? (I)
10. How often do you misplace or have difficulty finding things at home or at work? (I)
11. How often are you distracted by activity or noise around you? (H)
12. How often do you leave your seat in meetings or other situations in which you are expected to remain seated? (H)
13. How often do you feel restless or fidgety? (H)
14. How often do you have difficulty unwinding and relaxing when you have time to yourself?(H)
15. How often do you find yourself talking too much when you are in social situations? (H)
16. When you're in a conversation, how often do you find yourself finishing the sentences of the people you are talking to, before they can finish them themselves? (H)
17. How often do you have difficulty waiting your turn in situations when turn taking is required? (I)
18. How often do you interrupt others when they are busy? (I)

Note. All items were answered on a 5-point Likert scale (0= *never*, 5= *very often*). (H) = Hyperactivity. (I) = Inattentiveness. (D) = Item dropped.

CWB-C Scale (Spector et al., 2006)

The following items will ask you to provide information about your counterproductive workplace behaviors. Please think about your behaviors in your organization over the past 6 months (or the last 6 months that you were employed there).

In the past 6 months, how often have you:

1. Purposely wasted your employer's materials/supplies (S)
2. Purposely damaged a piece of equipment or property (S)
3. Purposely dirtied or littered your place of work (S)
4. Came to work late without permission (W)
5. Stayed home from work and said you were sick when you were not (W)
6. Taken a longer break than you were allowed to take (W)
7. Left work earlier than you were allowed to (W)
8. Purposely did your work incorrectly (P)
9. Purposely worked slowly when things needed to get done (P)
10. Purposely failed to follow instructions (P)
11. Stolen something belonging to your employer (T)
12. Took supplies or tools home without permission (T)
13. Put in to be paid for more hours than you worked (T)
14. Took money from your employer without permission (T)
15. Stole something belonging to someone at work (T) (D)
16. Started or continued a damaging or harmful rumor at work (A)
17. Been nasty or rude to a client or customer (A)
18. Insulted someone about their job performance (A)
19. Made fun of someone's personal life (A)
20. Ignored someone at work (A)
21. Blamed someone at work for error you made (A)
22. Started an argument with someone at work (A)
23. Verbally abused someone at work (A)
24. Made an obscene gesture (like the finger) to someone at work (A)
25. Threatened someone at work with violence (A)
26. Threatened someone at work, but not physically (A)
27. Said something obscene to someone at work to make them feel bad (A)
28. Did something to make someone at work look bad (A)
29. Played a mean prank to embarrass someone at work (A)
30. Looked at someone at work's private mail/property without permission (A)
31. Hit or pushed someone at work (A)
32. Insulted or made fun of someone at work (A)

Note. All items were answered on a 5-point Likert scale (0= *never*, 5= *every day*). (S) = Sabotage. (W) = Withdrawal. (P) = Production. (T) = Theft. (A) = Abuse. (D) = Dropped Item.

Organizational Justice Scale (Colquitt, 2001)

Procedural Justice

Think about your time in your company in the past 6-12 months. The following items refer to the procedures used to arrive at your PAY AND OTHER WORK OUTCOMES (i.e., more/less desirable hours, promotion/demotion, increase/decrease in pay, bonus pay, positive/negative performance evaluation, being fired/laid off etc.), which is denoted as your “outcome.” To what extent:

1. Have you been able to express your views and feelings during those procedures?
2. Have you had influence over the (outcome) arrived at by those procedures? (D)
3. Have those procedures been applied consistently?
4. Have those procedures been free of bias?
5. Have those procedures been based on accurate information?
6. Have you been able to appeal the (outcome) arrived at by those procedures? (D)
7. Have those procedures upheld ethical and moral standards?

Distributive Justice

Think about you time in your organization in the past 6-12 months. The following items refer to any change in work status you have received, which can be positive or negative (i.e., more/less desirable hours, promotion/demotion, increase/decrease in pay, bonus pay, positive/negative performance evaluation, being fired/laid off etc.), which is denoted as your “outcome.” To what extent:

1. Does your (outcome) reflect the effort you have put into your work?
2. Is your (outcome) appropriate for the work you have completed?
3. Does your (outcome) reflect what you have contributed to the organization?
4. Is your (outcome) justified, given your performance?

Interpersonal Justice

The following items refer to your supervisor To what extent:

1. Has (he/she) treated you in a polite manner?
2. Has (he/she) treated you with dignity?
3. Has (he/she) treated you with respect?
4. Has (he/she) refrained from improper remarks or comments?

Informational Justice

The following items refer to your supervisor. To what extent:

1. Has (he/she) been candid in (his/her) communications with you?
2. Has (he/she) explained the procedures thoroughly?
3. Were (his/her) explanations regarding the procedures reasonable?
4. Has (he/she) communicated details in a timely manner?
5. Has (he/she) seemed to tailor (his/her) communications to individuals' specific needs?

Note. All items were answered on a 5-point Likert scale (1= *small extent*, 5=*great extent*).
(D) = Dropped item.

Crowne-Marlowe Social Desirability Scale (Strahan & Gerbasi, 1972)

1. I'm always willing to admit it when I make a mistake.
 2. I always try to practice what I preach.
 3. I never resent being asked to return a favor.
 4. I have never been irked when people expressed ideas very different from my own.
 5. I have never deliberately said something that hurt someone's feelings.
 6. I like to gossip at times. (R)
 7. There have been occasions when I took advantage of someone. (R)
 8. I sometimes try to get even rather than forgive and forget. (R)
 9. At times I have really insisted on having things my own way. (R)
 10. There have been occasions when I felt like smashing things. (R)
 11. I never hesitate to go out of my way to help someone in trouble.
 12. I have never intensely disliked anyone.
 13. When I don't know something I don't at all mind admitting it.
 14. I am always courteous, even to people who are disagreeable.
 15. I would never think of letting someone else be punished for my wrong doings.
 16. I sometimes feel resentful when I don't get my way. (R)
 17. There have been times when I felt like rebelling against people in authority even though I knew they were right. (R)
 18. I can remember "playing sick" to get out of something. (R)
 19. There have been times when I was quite jealous of the good fortune of others. (R)
 20. I am sometimes irritated by people who ask favors of me. (R)
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Note. All items were answered as *True* or *False*. (R) = Reverse score