ADULT ADHD SELF-REPORT SCALE: IMPLEMENTATION IN A PRIMARY CARE SETTING

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Adult ADHD Self-Report Scale: Implementation in a Primary Care Setting

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ABSTRACT

Attention Deficit Hyperactivity Disorder (ADHD) is a chronic, highly prevalent, neurodevelopment disorder in children, which often persists into adulthood. A gap exists among healthcare providers' knowledge of adult ADHD and current screening practices in the primary care setting. The purpose of the project was to improve screening and identification of adult ADHD in the primary care setting by enhancing provider knowledge and awareness of the disorder.

A need was identified at a small, rural, facility in Midwestern, North Dakota to improve adult ADHD screening practices; thus the adult ADHD Self-Report Scale version 1.1 (ASRS-v1.1) was implemented among a group of providers for a five month time period. The ASRS-v1.1 is a six question rating scale which was created by a group of ADHD experts and copyrighted by the World Health Organization. The sensitivity of the tool is 68.7 percent while the specificity rate is a remarkable 99.5 percent. For the practice improvement project, providers were instructed to screen patients displaying signs and/or symptoms of inattention, hyperactivity, impulsivity, depression, anxiety, substance abuse, etc. If the screen was found to be a positive, recommendations were to refer the patient to a mental healthcare professional.

The results of the project demonstrated an overall improvement in the screening process for adult ADHD. An increase of patients referred for further diagnostic testing of adult ADHD was found. Providers felt the ASRS v1.1 was a helpful in screening and determining the course of care for the patient. Recommendations from the practice improvement project for future research include replicating the study with a larger sample size; providing easy access to the ASRS v1.1; and screening patients identified as routinely missing appointments for ADHD.

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DEDICATION

I dedicate this dissertation to my brothers, Chad and Trent.

"Children of the same family, the same blood, with the same first associations and habits, have some means of enjoyment in their power, which no subsequent connections can supply."

– Jane Austen

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CHAPTER ONE. INTRODUCTION

Mental health disorders are among the most common causes of disability (Healthy People 2020, 2013). Individuals with untreated mental health disorders are at high risk for many unhealthy and unsafe behaviors, such as alcohol and illicit drug abuse; violent or self-destructive behavior; and suicide. The most common nationally diagnosed psychiatric disorder in children is Attention Deficit Hyperactivity Disorder (ADHD) (Ryan, Katsiyannis, & Hughes, 2011). It was once believed children "out grew" this disorder when adulthood was reached (Boonstra, 2006). In recent years, this notion has been re-conceptualized, and ADHD is now considered problematic across the lifespan (American Psychiatric Association [APA], 2013; Knutson & O'Malley, 2009; McGough & Barkley, 2004). The disorder is evident in most cultures, accounting for approximately 5 percent of the children and 2.5 percent of the adult population (APA, 2013). Adult ADHD is often misunderstood and difficult to diagnose (National Association for Continuing Education [NACE], n.d.). As a result, individuals do not receive appropriate treatment and are unable to reach their full potential. Untreated mental health disorders negatively impact one's physical health, increasing the risk of chronic diseases, such as diabetes, heart disease, and cancer (Healthy People 2020, 2013). Healthy People 2020 (2013) has set a national goal to increase the proportion of adults with mental illness who receive treatment. By improving the assessment of individuals with ADHD, healthcare providers can assist in decreasing the disease burden of mental health disorders, as well as associated chronic comorbid conditions.

Background

ADHD is a neurodevelopment disorder with childhood onset before the age of 12 (APA, 2013; Nigg, Butler, Huang-Pollock, & Henderson, 2002). The disorder is considered primarily

behavioral; however, biological and environmental factors play key roles in development (Fields & Hale, 2011; Ryan et al., 2011). Individuals with ADHD struggle with atypical levels of inattention, impulsivity, and hyperactivity in environments such as home, work, school, or other various activities (APA, 2013; DuPaul, Weyandt, & Janusis, 2011). Aggression, non-compliance, and emotional lability are also prominent in individuals with ADHD (List & Barzman, 2011; Sobanski et al., 2010). Longitudinal studies conducted in the ADHD youth demonstrate reduction of hyperactivity and impulsivity with age, but persistence of inattention in up to 90 percent of individuals (Wilens, Faraone, & Biederman, 2004). Throughout a lifetime, children diagnosed with ADHD tend to become adults who have a lower occupational status, difficulty with relationships, and more misconduct offenses (Muhammad et al., 2011;Von Polier, Vloet, & Herpertz-Dahlman, 2012). Divorce rates are higher, incidence of substance abuse is increased, and traffic violations and automobile accidents are more likely (Wilens et al., 2004). Women with ADHD demonstrate difficulty with parenting (Knutson & O'Malley, 2009). Many adults with the disorder, diagnosed or undiagnosed, suffer from various forms of depression and anxiety (Faraone et al., 2000). Adults without a childhood diagnosis of ADHD, whom have any of the aforementioned characteristics, should be screened. A family history of the disorder should also prompt the provider to screen.

Significance of Proposed Project

There are an increasing number of adults presenting in the clinic setting with complaints of symptoms which may be related to undiagnosed ADHD (Matheson et al., 2013; Rostain & Ramsay, 2006). Adults with undiagnosed ADHD can present to primary care with symptoms of anxiety and depression, which leads to misdiagnoses and ineffective treatment of the etiology of anxiety and depressive symptoms (Matheson et al., 2013). A study conducted by Matheson et al.

(2013) established adults who are not diagnosed with ADHD until adulthood tend to have accumulated psychosocial burdens related to a chronic sense of failure and missed potential in numerous aspects of life. Low self-esteem, a sense of underachievement, and social impairments are common in individuals with undiagnosed ADHD and can lead to suicidal ideation. Understandably, these individuals are being diagnosed with evident symptoms of anxiety and depression; however, the ADHD symptoms are not being treated, further worsening the individual's anxiety and depression.

Healthcare providers play a pivotal role in identifying individuals with a potential diagnosis of adult ADHD. Identification and treatment of ADHD can help individuals reach their full potential (NACE, n.d.). Advanced practice nurses (APNs), such as nurse practitioners are providers involved in the process. APNs in primary care screen, diagnose, and manage individuals with ADHD (Yearwood, Pearson, & Newland, 2012). According to the literature review conducted for the project, a gap exists among healthcare providers' knowledge of adult ADHD and current screening practices. The purpose of this project was to enhance provider knowledge of adult ADHD in a rural clinic by improving screening and the identification of adults with the disorder in the primary care setting.

Healthcare providers should be screening adult individuals with any one of the following related complaints: inattention, impulsivity, hyperactivity, depression, anxiety, substance abuse, frequently changing jobs, and numerous traffic violations or automobile accidents (Adler & Shaw, 2011). A quick and easy tool, known as the ADHD Self-Report Scale version 1.1 (ASRS v1.1), may be beneficial for providers to utilize and assist with the identification of ADHD (Harvard Medical School, 2005; Kessler et al., 2007). Rating tools tend to be valuable and cost-effective for use by clinicians because significant data can be gathered quickly and indicate the

severity of the potential illness or disorder (Buitelaar, Kan, & Asherson, 2011). The ASRS v1.1 is a symptom checklist of ADHD consisting of eighteen questions, with six of the questions being most predictive of the disorder. The six predictive questions are included in 'part A' of the instrument. For the purposes of the project, only the condensed version was utilized (see Appendix A). 'Part A' of the ASRS v1.1 has been validated and is considered reliable as evidenced by a sensitivity rate of 68.7 percent and specificity rate of 99.5 percent (Adler & Shaw, 2011; Harvard Medical School, 2005). Individuals only need to meet four of the six criteria for the screening to be considered positive for ADHD. The primary care provider can then refer to a psychiatric provider for further testing and diagnosis (Pearson & Crowley, 2012).

Statement of the Problem

Adult ADHD is often unrecognized and difficult to diagnose (NACE, n.d.). Primary care providers, including APNs, can be prepared to screen, diagnose, and manage individuals with ADHD (Yearwood, Pearson, & Newland, 2012). The researcher established that a gap exists among healthcare providers' knowledge of adult ADHD and current screening practices in the primary care setting based on a thoroughly conducted literature review. Numerous tools are available to assist in the process of screening adults with ADHD. The ASRS v1.1 was found to be reliable and valid with a specificity rate of 99.5 percent, as well as easy to use (Adler, Shaw, Sitt, Maya, & Morill, 2009).

Purpose of the Project

The purpose of this project was two-fold. The first aim was to improve the screening and identification of adults with undiagnosed adult ADHD for appropriate referral and treatment utilizing the ASRS v1.1. To accomplish an improvement in screening practices, providers' knowledge of adult ADHD needs to be enhanced, which establishes the second goal of the

project. The researcher and committee members designed the project to be minimally stressful for willing participants. Factors included ease of use of the instrument; practicality; and benefits to the healthcare professionals and patients. A definitive end result was to improve the quality of life in patients, as in all aspects of healthcare.

CHAPTER TWO. LITERATURE REVIEW

ADHD is a chronic, highly prevalent, neurobehavioral disorder which may persist into adulthood (Buitelaar et al., 2011; Spencer, Biederman, & Mick, 2007). The disorder came to light in the early 1900's. The exact cause of the disorder remains unknown; however, numerous theories exist. Etiologies include genetic, environmental, and biologic. Symptoms of ADHD can widely vary, but most individuals with the disorder have problems with hyperactivity, impulsivity, and/or inattention in at least two settings, severely impacting overall quality of life (APA, 2013). Onset cannot occur in adulthood; though, a delay in diagnosis until adulthood is a possibility (Pearson & Crowley, 2012). Many healthcare providers struggle to identify the disorder due to a lack of knowledge, training, and an easy-to-use tool for screening (Adler et al., 2009). Symptoms must be present before the age of twelve for adult ADHD to be diagnosed. Comorbid conditions, such as mood, conduct, or substance use disorders are almost always present.

History

The concept of ADHD originated in 1902 from George Still's "Defect of Moral Control" (Comstock, 2011). Still's manuscript related problematic behavior of children to lack of moral control (Yearwood et al., 2012). Medicating with sedatives and hypnotics to reduce deviant behavior became apparent in the eighteenth century (Comstock, 2011). The phrase "minimal brain dysfunction" originated in the 1930's to describe children with hyperkinesis, problems with learning, impulsiveness, and a short attention span (Yearwood et al., 2012). In the 1950's, the disorder was referred to as "hyperactive child syndrome". Charles Bradley conducted experiments in the mid-twentieth century with the use of stimulants instead of sedatives to control behavior (Comstock, 2011). Stimulant use was discovered to work in children with

hyperactivity or inattention and social isolation. In the 1970's, Virginia Douglas made associations between deficits in attention and impulse control, as well as underdeveloped moral intuition. Also occurring in the 1970's, was the first recognition of adult ADHD (Buitelaar et al., 2011). In the 1990's, adult ADHD became more frequently diagnosed and treated (Quinn, 2011).

The Diagnostic and Statistical Manual of Mental Disorders third edition (DSM-III) began recognizing inattention as major component of ADHD (Buitelaar et al., 2011). The DSM-III revised version identified signs and symptoms of the disorder will persist into adulthood in approximately one third of children already diagnosed. The DSM-IV identified three subtypes of ADHD, which include: predominately inattentive, hyperactive, and combined type (Dobie et al., 2012). Six or more of the following criteria under either inattention or hyperactivity and impulsivity must be present in order to meet diagnostic criteria. The DSM-5 continues with the same criteria, with the major change being onset before the age of 12 compared to seven in the DSM-IV (APA, 2013). An adult ADHD diagnostic criterion continues to remain unclear as to whether or not an individual needs to meet the same "full criteria" as a child (Buitelaar et al., 2011).

Incidence and Prevalence

In the United States, the incidence of adult ADHD is approximately 2.5 percent (APA, 2013; Buitelaar et al., 2011). The predicted prevalence of adult ADHD is about five to six percent (Buitelaar et al., 2011). Only 38 percent of patients diagnosed with ADHD in childhood continued to meet "full" criteria as adults. Significant impairment associated with some symptoms of ADHD is present in over 90 percent of adults diagnosed with ADHD as a child. According to the Centers for Disease Control and Prevention [CDC] (2013), male children are

twice as likely to be diagnosed with ADHD compared to their female counterpart. Once adulthood is reached, the gap decreases between males and females; however, no true male to female ratio is established in adults with ADHD (Quinn, 2011). Current research reveals that a diagnosis of ADHD is often not made until a person reaches adulthood (Targum & Adler, 2014).

Pathophysiology

As specified beforehand, the origin of ADHD is thought to be primarily related to genetics, biologics, and environment (Spencer et al., 2007). Some of the etiology still remains unclear. Food additives, diet, and lead contamination were all once thought to contribute to the disorder, but studies conducted are unable to provide concrete evidence (Kaplan, 2012).

Genetics

Based on numerous studies conducted in twins, the mean heritability for ADHD has shown to be 76 percent (Faraone & Mick, 2010). Some genetic studies conducted determined regions of the chromosomes 16p13 and 17p11 likely place an individual at higher risk for developing ADHD (Spencer et al., 2007). Genetic variants of the dopamine D4 receptor (DRD4) and the dopamine D5 receptor (DRD5) showed evidence of association with ADHD, which reached genome-wide levels of significance (Asherson, 2010). If a child is diagnosed with ADHD, there is a 10 to 35 percent chance a first degree relative will also have the disorder (Yearwood et al., 2012). If a parent is diagnosed with ADHD, a 57 percent chance exists that his or her child will develop the disorder. Inattentive symptoms are thought to have pleiotropic gene effects, expressed in other clinical disorders, such as dyslexia, hyperactivity-impulsivity symptoms with oppositional problems, and ADHD with autism spectrum disorder (Asherson, 2010).

Environment

Environmental components which are independent risk factors for ADHD include maternal smoking and alcohol exposure during pregnancy, secondhand smoke exposure, low birth weight, and psychological adversity (Max, Sung, & Shi, 2013; Spencer et al., 2007). Psychological adversity factors include exposure to marital discord, low socioeconomic status, large family size, paternal criminality, maternal mental disorder, and foster care placement (Spencer et al., 2007). The aforementioned factors play a role in a child's adaptive functioning and emotional health as an underlying predisposition rather than a specific indicator of ADHD.

Biologic

The neurobiology of ADHD is not completely understood (Spencer et al., 2007). Based on neuro-imaging studies, children and adults with ADHD have shown to have a decreased size of the prefrontal cortex (Daley & Birchwood, 2009; Spencer et al., 2007; Yearwood et al., 2012). A decline or impairment in the individual's prefrontal executive functions is expected. Such functions may include response inhibition and working memory. Executive function deficits are primarily related to symptoms of inattention, and not with hyperactivity or impulsivity. Inattention signs and symptoms are closely linked with underachievement in academic performance. Other evidence demonstrates fronto-striatal and cerebellar motor dysfunctions present in individuals with ADHD (Pasini, D'Agati, Pitzianti, Casarelli, & Curatolo, 2012). The cerebellum contributes significantly to cognitive functioning (Spencer et al., 2007). Subcortical structures are also found to be smaller with neuroimaging studies. Such structures include caudate, putamen, and globus pallidus, which are part of the neural circuitry underlying motor control, executive functions, inhibition of behavior, and the modulation of reward pathways.

These frontal-striatal-pallidal-thalmic circuits provide feedback to the cortex for the regulation of behavior.

Neurotransmitter deficits are also thought to contribute to the development of ADHD (Pellow, Solomon, & Barnard, 2011; Yearwood et al., 2012). Low levels of catecholamines and serotonin may contribute to lack of focus and concentration. Imbalances in dopaminergic and nonadrenergic systems have been implicated in the core symptoms that characterize the disorder, prominently inattention (Spencer et al., 2007).

Primary Care

Many healthcare providers believe their knowledge and familiarity with adult ADHD is significantly less compared to anxiety and depressive disorders (Adler et al., 2009). In fact, according to one survey, 77 percent of physicians believe adult ADHD is not well understood by the medical community. Seventy-two percent of physicians reported it is significantly more difficult to diagnose adult ADHD compared to childhood ADHD. Reasons contributing to the lack of recognition of adult ADHD include notions that it was once thought to be only a condition of childhood; the typically lacking of hyperactivity as an obvious symptom in adulthood versus childhood; the perception that adult are able to control their impulses or improve motivational problems on their own; and lastly, reluctance by providers to treat the disorder because of potential abuse of psychostimulant medication (Knutson & O'Malley, 2009.)

Knowledge of adult ADHD exists, but it is evident more awareness is needed to assist in detection of the disorder (Adler & Shaw, 2011). In order for adults to be diagnosed with ADHD, four critical elements must be present: (1) childhood onset, (2) presence of significant symptoms, (3) impairment in daily life from these symptoms in at least two settings, and (4) symptoms are best explained by ADHD and not another psychiatric disorder (Adler, 2004; Adler & Shaw,

2011). The healthcare providers should be knowledgeable of the critical elements necessary for an ADHD diagnosis. Rating scales, such as the Adult ADHD Rating Scale (ADHD-RS), the Adult ADHD Investigator Symptom Rating Scale (AISRS), the Conners rating scale, and the ASRS v1.1 are highly valid and reliable instruments to assist with screening and aid in the diagnosis of adult ADHD (Adler & Shaw, 2011).

ADHD Rating Scales

Rating scales are valuable because they enable clinicians to obtain a large amount of data relatively quickly, including information on presence and severity of symptoms (Adler & Shaw, 2011). Most rating scales are commonly in a Likert scale-type format; generally are cost effective; and can be helpful with screening, aiding in diagnosis, and measuring response to treatment. In a survey distributed by Adler et al. (2009), "Eight-five percent of physicians indicated they would take a more active role in diagnosing and treating adult ADHD if an easy-to-use, relatively quick to administer screening tool was developed and validated by physicians or institutions they respect" (p. 62).

The ASRS v1.1 has demonstrated good sensitivity and specificity and has a positive predictive value between 57 and 93 percent (Adler et al., 2009). As earlier explained, there are two versions of this tool; a six question screener and the complete 18-question checklist. Both the condensed and longer versions are available in other languages (Rosler et al., 2006). In one study conducted, the shortened version was found to outperform the full version of the ASRS for clinical screening purposes, taking approximately three minutes to administer (Kessler et al., 2005; Rosler et al., 2006). The differences in sensitivity and specificity of the condensed version versus the longer version are slight, but studies demonstrate the six-question screener is a stronger tool because of less variation in symptom-level concordance. The 18-question screener

has a sensitivity of 56.3 percent and specificity of 98.3 percent, while the shortened version has an improved sensitivity rate at 68.7 percent and a remarkable specificity of 99.5 percent. Both versions of the ASRS v1.1 have been copyrighted by the World Health Organization (WHO) (Harvard Medical School, 2005).

Another tool that can be used to screen adults seeking evaluation of ADHD is the Wender Utah Rating Scale (WURS) (McCann, Scheele, Ward, & Roy-Byrne, 2000). Two different formats of the WURS exist, with the short version sensitive in detecting adults with ADHD 72.1 percent of the time. On the contrary, the scale misclassifies individuals who do not have ADHD 52.5 percent of the time. A more recent scale has been created based on the widely used psychiatric Symptom Checklist 90 Revised (SCL-90-R) to identify adults with ADHD (Eich et al., 2011). Nine items which are considered to be characteristic of ADHD were taken from the SCL-90-R. The new scale demonstrated a sensitivity of 75 percent and specificity of 54 percent. The scale fails to identify 25 percent of true ADHD cases, while a whopping 46 percent of non-ADHD patients will be falsely identified as having ADHD (Eich et al., 2011).

A number of Conners Adult ADHD Rating Scales (CAARS) exist and have general acceptance in the psychiatry community (Rosler et al., 2006; Van Voorhees, Hardy, & Kollins, 2011). The CAARS scales include a self-report (CAARS-SR), an observer-report (CAARS-OR), and the CAARS-Investigator (CAARS-INV). Both the CAARS-SR and CAARS-OR have a short and long screening version and are oriented towards the DSM-IV criteria, with measures also focused on emotional lability and problems with self-concept. The CAARS-INV is a 30 item version which is completed by the interviewer with cue questions; however, no reliability and validity data has been published for this version.

The Childhood Symptom Scale-Self Report Form (ChSS-SRF) created by Barkley and Murphy, is an 18 item scale which focuses on DSM-IV criteria, social functioning, oppositional defiant disorder (ODD), and conduct disorder (CD) (Rosler et al., 2006). Time to administer the ChSS-SRF is approximately 20 minutes. Reliability and validity are not well established. Another tool developed prior to the concept of the DSM-IV criteria is the Brown ADD Rating Scale (Brown ADD-RS), which is primarily directed towards symptoms of inattention. Length of the Brown ADD-RS is 40 items, taking only about 15 minutes to administer. A scale specifically designed for children and adolescents, known as the ADHD Rating Scale-IV (ADHD-RS-IV), has been studied for the use in adults also. The ADHD-RS-IV is an informant-based scaled, consists of 18 items, and takes about eight minutes to administer (Adler & Shaw, 2011; Rosler et al., 2006). Another psychometric scale that identifies and assesses five ADHD-related quality-of -life domains is the Adult ADHD Quality of Life (AAQoL) scale (Adler & Shaw, 2011). Clinicians use the 23 item, self-rated, five point scale to determine the impact of ADHD symptomatology and treatment on individuals diagnosed with disorder.

In accordance to meeting physician preferences of an adult ADHD screening tool in the survey distributed and disseminated by Adler et al. (2009), the rating scale of choice is clearly the ASRS v1.1. The six item scale takes approximately three minutes to administer and was developed by a workgroup for adult ADHD (Harvard Medical School, 2005). The WHO has endorsed and validated the ASRS v1.1. The sensitivity is about 68.7 percent; whereas the specificity is an astounding 99.5 percent. The scale should only be used for assessing and screening adults with undiagnosed or diagnosed ADHD (Adler et al., 2009; Harvard Medical School, 2005). A positive screen is not diagnostic of adult ADHD, but absolutely warrants further investigation of an adult ADHD diagnosis. Referral to a mental healthcare provider for

further diagnostic testing is the appropriate avenue for care of the patient. A negative screen would indicate to the provider that an adult ADHD diagnosis is highly unlikely due to the specificity of the test, thus the provider should consider other differential diagnoses.

Social Problems and Comorbidities

Individuals with adult ADHD tend to have chronic psychological comorbidities, social problems, and substance abuse issues (Knutson & O'Malley, 2009). Common comorbid disorders linked with ADHD include mood disorders, anxiety, and developmental disorders. Persons with undiagnosed and untreated ADHD tend to experience low self-esteem; higher rates of unemployment, arrests, traffic violations, and divorce; sustain less education; and frequently change jobs. Not surprisingly, women with ADHD will become parents at a much younger age than their non-ADHD female peer, as well as experience more problems monitoring and disciplining their own children. Sexually transmitted infection incidence is fourfold. Alcohol, marijuana, and nicotine abuse are highest among ADHD population as compared to the non-ADHD individuals smoking is twice as common in the individual with ADHD. Physiological needs of the brain are met for the adult with ADHD because nicotine enhances neurotransmitter activity and helps to improve concentration (Knutson & O'Malley).

CHAPTER THREE. THEORETICAL FRAMEWORK

Healthcare professionals, specifically individuals seeking the Doctor of Nursing Practice (DNP) degree, are determined to "positively influence healthcare now and in the future," (Moran, 2014). One way to positively influence healthcare as a DNP student is to become a scholar in one's area of interest. The DNP student's (researcher's), area of interest is improving mental health, thus the topic of adult ADHD was chosen with a focus on improving the screening and identification practices of healthcare providers for adult ADHD. The focus of the DNP discipline concentrates on evidence-based practice (EBP) for improved delivery of care and patient outcomes (Burson, 2014). EBP consists of using current research combined with clinical expertise and patient values to formulate appropriate interventions to assist in closing the gap between research outcomes and practice (Dontje, 2007). Use of the Iowa EBP Model may assist the DNP scholar with introducing, developing, implementing, and evaluating current EBP in the practice setting (Doody & Doody, 2011).

Another instrumental component to guiding a scholarly nursing project is by use of a theoretical framework. In general, a theory is considered to be a "notion or an idea that explains experience; interprets observation, describes relationships, and project outcomes" (Parker & Smith, 2010, p. 7). A framework is a logical structure that helps the researcher to measure, link, and validate outcomes of the project and disseminates findings (Walters, 2011). Therefore, a theoretical framework can be utilized to guide the development of a study or project (Grove, Burns, & Gray, 2013). The researcher also chose Everett Rogers' Diffusion of Innovations (DOI) model to guide the dissemination of the project to the providers. Both the Iowa EBP model and the DOI model will be overtly discussed.

The Iowa Evidenced-Based Practice Model

The Iowa model is an algorithm (Appendix B) which represents the process of implementing EBP in healthcare (Doody & Doody, 2011). There are nine steps of the Iowa EBP model which utilize a multidisciplinary team approach (Huntington Hospital EBP/NRC Council, 2013). Feedback loops are found throughout the algorithm in case specific steps need to be repeated. The model will help guide the entire practice improvement project. Each step of the algorithm will be discussed and applied to the practice improvement project.

Trigger

First, the researcher must identify a trigger, which may be a clinical problem or knowledge deficit (Huntington Hospital EBP/NRC Council, 2013). According to a study conducted by Adler et al. (2009), a need exists within the primary care community to improve education and training in diagnosing and treating adults with ADHD. Another finding from the study includes primary care providers' willingness to become more involved with diagnosing and treating individuals if an easy-to-use, validated tool existed to aid in the screening process. The ASRS v1.1 has been validated and takes approximately three minutes to administer (Adler et al., 2009; Harvard Medical School, 2005). A knowledge deficit of adult ADHD and current screening practices exists among primary care providers, therefore, establishing a clinical problem.

Organization Priority

Secondly, the researcher must determine an organization's priority for the identified trigger (Huntington Hospital EBP/NRC Council, 2013). Is the trigger applicable to the facility? Will the facility be supportive? Will the facility benefit in any way? After completing an interview with a psychologist from the intended small Midwestern facility in rural North Dakota,

improving the knowledge and screening process of adult ADHD has been established as beneficial to the organization.

Team Formation

Following discovery of the trigger and determining an organization's priority, the researcher should then form a multidisciplinary team (Huntington Hospital EBP/NRC Council, 2013). Members need to be committed to the change and are responsible for the development, implementation, and evaluation of the proposed project (Doody & Doody, 2011; Huntington Hospital EBP/NRC Council, 2013). Committee members were selected based on their backgrounds, areas of expertise, and professionalism. Members include: Dr. Dean Gross, PhD, FNP-BC, supervisor chair; Dr. Mykell Barnacle, DNP, FNP-BC; Dr. Kevin Ballard, DNP, FNP-C; Dr. Lisa Montplaisir, PhD, and Dr. Joel Wilson, PhD, MS, BA. Key personnel established at the rural Midwestern facility include a psychologist, chief of medical staff, nursing supervisor, participating providers, and support staff.

Gather Evidence

Next, the researcher should conduct a relevant literature review (Doody & Doody, 2011; Huntington Hospital EBP/NRC Council, 2013). Information gathered included the history, incidence, prevalence, and pathophysiology of ADHD, as well as primary care providers' knowledge and perception of adult ADHD. Numerous data was also obtained pertaining to screening tools used for adult ADHD. The researcher also interviewed the facility psychologist to collect pertinent information for the project.

Synthesize Evidence

Once the information has been gathered, the next step is to critique and synthesize the evidence (Huntington Hospital EBP/NRC Council, 2013). Quality, quantity, and consistency

should be assessed. Most data gathered was consistent throughout. Expert investigators agree the ASRS v1.1 is reliable and valid tool, with several resources citing the instrument's credibility (Adler et al., 2009; Adler & Shaw, 2011; Kessler et al., 2005). A gap in provider knowledge of ADHD and current screening practices was found to exist.

Sufficient Evidence

Next, the researcher and team members should determine if evidence gathered was sufficient to implement the proposed plan of action (Huntington Hospital EBP/NRC Council, 2013). This step was accomplished by conferring with the committee members during the project proposal meeting. Suggested changes from feedback received was applied to the improve project outcomes.

Pilot the Change

The following step is to determine the outcomes to be achieved and implement the EBP project idea (Huntington Hospital EBP/NRC Council, 2013). The projective objectives were to 1.) Improve the screening and identification of adults with undiagnosed ADHD for appropriate referral and treatment using the ASRS v1.1 and 2.) Enhance healthcare professionals' awareness and education of adult ADHD. The strategies used to accomplish the objectives are explained under the project design section of the paper.

Evaluation

After piloting the proposed project, the researcher analyzed the collected data and determined if there was an improvement in quality of care and patient outcomes (Doody & Doody, 2011; Huntington Hospital EBP/NRC Council, 2013). Evaluation was accomplished through an interview with the facility psychologist as well as by having healthcare providers complete a voluntary survey using a Likert scale format (Appendix C).

Implementation

If the intervention was found to improve care, full implementation within the organization can occur with continued monitoring (Huntington Hospital EBP/NRC Council, 2013). Intentions of the researcher were to have the ASRS v1.1 integrated into the electronic medical record. As previously explained, providers should screen individuals displaying signs and symptoms of inattention, impulsivity, hyperactivity, depression, anxiety, substance abuse, and frequent job changing in the primary care setting (Adler & Shaw, 2011).

Dissemination of Results

Lastly, the researcher should disseminate the results of the practice improvement project (Huntington Hospital EBP/NRC Council, 2013). Dissemination of results will occur through the researcher's dissertation report and final committee meeting. Stakeholders from the intended facility will be informed via electronic (e-mail) and/or during a brief in-service. A poster presentation will additionally be completed at North Dakota State University. Other hopes are to publish findings in a scholarly, peer-reviewed journal.

Summary

The Iowa EBP model is an easy-to-follow algorithm which assisted the researcher to conduct, implement, and convey results of the practice improvement project. Emphasis is placed on the importance of having a multidisciplinary team to facilitate the project. Project success is attainable with the help of the model.

Diffusion of Innovations Model

History demonstrates the need for the use of the DOI model because such a large gap exists between proven concepts of health and implementation into practice (Oldenburg & Glanz, 2008). The focus of the DOI model was to guide the researcher with the implementation of the

practice improvement project. The framework of the DOI model "enables one to understand the process of innovations and the various stages involved in the adopting a new idea, thereby narrowing the gap between what is known and what is put to use" (Pender, Murdaugh, & Parsons, 2011, p. 76). The researcher recognizes a knowledge-practice gap between healthcare providers and identification of adult ADHD.

Diffusion

Diffusion is the overall spread of an innovation, by communication of certain channels, among members of a social system over time (Oldenburg et al., 2011). As demonstrated by the definition of diffusion, four main components exist: innovation, communication channels, time, and a social system (Pender et al., 2011). An innovation is defined as an idea, practice, or object that is perceived as new by an individual or organization (Oldenburg et al., 2008). The innovation for this practice improvement project is the ASRS v1.1 implementation in the primary care setting for purposes of screening and identifying adults with ADHD. Communication channels are the means by which a message, or innovation, is spread. Channels of communication include mass media, electronic communications, and interpersonal interactions. The researcher notified healthcare professionals of adult ADHD education and implementation of the ASRS v1.1 at a formal facility meeting as well as via e-mail. Interpersonal interactions were also utilized, as the researcher was conveniently on site from time to time. For the purpose of the DOI model, a social system is defined as a set of individuals engaged in joint problem solving to accomplish a common goal. The social system for this practice improvement project is made up of the clinical dissertation committee and healthcare professionals of a small, Midwestern facility in rural North Dakota.

Spread of Diffusion

The spread of diffusion is on a continuum, with one end of the spectrum considered to be passive, while the opposite end is active diffusion (Oldenburg et al, 2008). Passive diffusion is more unintentional or informal spread of innovations by peers and social networks. Active diffusion is the spread of an idea purposefully and formally, utilizing vertical hierarchies. Three general pathways exist in which innovations can be disseminated actively. The first is "direct to practice" distribution of materials and tools. A second pathway is the implementation of policies, legislation, and regulations. Thirdly, the last pathway is a systematic long approach that utilizes multiple strategies and methods, and has ongoing evaluations over time. The researcher chose to execute the "direct to practice" approach by implementing the adult ASRS v1.1 tool in the primary care setting.

Stages of Diffusion

There are numerous stages in the diffusion process. The first stage of diffusion is innovation development, followed by dissemination, adoption, implementation, maintenance, sustainability, and institutionalization (Oldenburg et al., 2008). Typically, the innovation development stage utilizes a social marketing scheme to implement the idea. Dissemination requires persuasion of the target audience to adopt the intended innovation. Innovation development and dissemination of this project was accomplished by e-mailing healthcare professionals about the key points of adult ADHD and use of the ASRS v1.1 as well as introducing the practice improvement project at a facility meeting. Advantages of using the ASRS v1.1 were explained to persuade the healthcare professionals to utilize the suggested scale. The adoption stage is the core of the DOI process and will be discussed further in the next section. A key component of the adoption stage is the target adopters. Target adopters involved

in the project include healthcare professionals in the primary care setting of the intended facility. Before implementing a project, the target adopters' needs should be addressed and current attitudes, values, and beliefs should be evaluated. Assessing the aforementioned components of the target adopters determines the success of the diffusion process. Potential problems that may be encountered during the implementation stage should be considered. Resources and support should be sought to help execute the innovation dissemination. The maintenance and sustainability stages involve the continued use and improvement of the intended program. Institutionalization is the final stage and pertains to the organization, community, or setting where the diffusion of the innovation will take place. Plans to implement the ASRS v1.1 will take place in a small, Midwestern regional facility in rural North Dakota. Committee members were helpful in assisting with the identification of potential problems encountered during the implementation stage. Other resources and support are more broadly discussed in the project design section of the paper.

Adoption

The speed of which adoption of the innovation will occur is dependent on a number of characteristics (Oldenburg et al., 2008; Pender et al., 2011). Characteristics include relative advantage, compatibility, complexity, trialability, and observability. Each characteristic will be defined separately. Relative advantage involves the adopter's perception of the innovation. The innovation must be perceived as better than the current idea (Pender et al., 2011). The innovation must fit with the adopter's attitudes, values, and beliefs for compatibility to exist (Oldenburg et al., 2008). Ease of use and a lesser complexity of the innovation must exist for successful implementation. The ASRS v1.1 is a six item scale adopted by the WHO, which takes approximately three minutes to administer, quickly allowing the healthcare professional to

identify an individual with the potential for adult ADHD (Adler et al., 2009; Harvard Medical School, 2005). The adopter should have to opportunity to experiment with the innovation for trialability to be present (Oldenburg et al., 2008). Healthcare professionals should have been able to easily experiment with the scale as it was readily available and easy to access within the facility. Observability is the degree of which the benefits of the innovations are visible to others. All characteristics are essential components of the DOI model; however, relative advantage may be the most notable predictor of the rate of adoption. The researcher tried to convey the innovation's advantages clearly and obviously.

Types of Adopters

The degree of which individuals, organizations, or communities adopt new ideas is referred to as innovativeness (Pender et al., 2011). Five types of adopters exist among the population: innovators, early adopters, early majority, late majority, and laggards. Innovators are individuals actively seeking information and are not easily affected by high levels of uncertainty or change. Innovators are risk takers and are first to adopt a new idea. Early adopters tend to have a very valued opinion among peers and are checked with before others will adopt the idea. The early majority adopters are very concise in the decision to adopt the idea. Skepticism and pressure from peers increases the late majority type to adopt the innovation. Laggards are always the last to adopt the idea, if at all. Laggards are suspicious and often avoid change. Adopting the idea is a last resort for the laggards. The researcher was cognizant of the fact that individuals or organizations will adopt ideas at different paces. Importance was placed on the identification of the early adopters, as these individuals will facilitate change the quickest. It was an obvious advantage to persuade active committee members to help facilitate change and implement the adult ASRS v1.1 instrument.

Summary

Key components of the DOI model include characteristics influencing the speed of adoption and categories of adopters. The researcher needed to be especially clear and concise about the innovation to achieve maximum relative advantage. Identification of the early adopters was essential to the diffusion process of the ASRS v1.1.

CHAPTER FOUR. PROJECT DESCRIPTION

A Midwestern regional healthcare facility located in rural North Dakota does not have an efficient and effective way to screen adults for ADHD (J. R. Wilson, personal communication, April 4th, 2014). There is not a consistent adult ADHD screening process in place. An adult ADHD screening tool for primary care providers would be useful to determine the appropriate course of care for patients. The adult ASRS v1.1 screener can be used similarly to the Patient Health Questionnaire (PHQ-9) and Generalized Anxiety Disorder (GAD-7) when individuals have suspected symptoms or complaints of inattention, hyperactivity, impulsivity, depression, anxiety, and consistent substance abuse patterns (Adler & Shaw, 2011; J. R. Wilson, personal communication, April 4th, 2014). Individuals consistently meeting four or more criteria using the ASRS v1.1 warrant a positive screen (Harvard Medical School, 2005). A trained clinician should follow-up with individuals screening positive. A referral to a psychologist or psychiatrist is appropriate (Pearson & Crowley, 2012).

The overall goal in healthcare is to improve individuals' quality of life (J. R. Wilson, personal communication, April 4th, 2014). By improving healthcare professionals' knowledge of adult ADHD and utilizing the ASRS v1.1 tool, the process of screening and identifying adults with undiagnosed ADHD should become more efficacious. Improving the screening process will allow individuals with undiagnosed ADHD to receive the appropriate treatment and improve overall quality of life.

Project Objectives

Healthcare providers/professionals are instrumental in the process of identifying adults with ADHD. Individuals with complaints of anxiety, depression, inattention, hyperactivity, impulsivity, frequently changing jobs, or problems with substance abuse should be screened for

ADHD (Adler & Shaw, 2011; APA, 2013; DuPaul et al., 2011). By increasing healthcare professionals' awareness of signs and symptoms of adult ADHD and the six question adult ASRS v1.1, improvement in adult ADHD identification should result. Implementation of the ASRS v1.1 in the primary care setting will achieve the following objectives: 1.) Improve the screening and identification of adults with ADHD for appropriate referral and treatment and 2.) Enhance healthcare professionals' education and awareness of adult ADHD.

Project Design

Patients with ADHD can present with a wide variety of diverse symptoms (Buitelaar et al., 2011). Individuals will likely have complaints related to decreased concentration or focus, such as difficulty starting a project, forgetfulness, cloudy thinking, and distractibility. Hyperactive symptoms may not be as obvious. Individuals may express the need to be ambitious, keep busy, or have difficulty sitting still in long meetings or presentations. Other complaints may be related to chronic conflict in relationships with family members, significant others, peers, and/or authority figures. Furthermore, a detailed history may reveal family members with ADHD; difficulties with substance abuse; mood disorders; poor performances at work; struggles with academics; and lastly, frequent traffic violations or automobile accidents. The healthcare professional should keep in mind individuals with the aforementioned complaints may not have ADHD, but certainly need to be screened.

Identifying adults with ADHD can be a complex task, as the presentation of this disorder varies extensively (Buitelaar et al., 2011). Healthcare professionals have limited time with patients and distinguishing between mental health disorders can be a difficult and consuming. There is a need to increase provider awareness of adult ADHD presenting symptoms, as well as implementing more consistent screening for the disorder.

Execution of the project took place at a small, Midwestern regional facility in rural North Dakota. The site was chosen based on location and convenience for the researcher; support and easy contact with healthcare providers; and identified need to improve the screening and identification process of adults potentially undiagnosed with adult ADHD. Initiation for use of the adult ASRS v1.1 began on July 31st and concluded on December 31st, 2014. The evaluation process was completed thereafter; in which healthcare providers voluntarily completed a form and returned to the researcher via postal mail services pertaining to ease of use of the tool and benefit to clinical practice. Completion time of the post-evaluation survey by healthcare providers was estimated to be about 10 to 15 minutes. Time frame allotted to voluntarily complete the survey in regards to evaluation of the tool was approximately four weeks, from January 5th to January 29th, due to busy schedules and absences (Appendix C).

Introduction of the project, as well as proper use of the adult ASRS v1.1, was explained during a facility meeting to primary care providers prior to the initiation date by the co-investigator. All questions were answered and voluntary participation was emphasized. Healthcare professionals, which included primary care providers and nurses, were also notified via e-mail in regards to implementation and instruction of the screener prior to initiation of the project (Appendices D & E). Bright green binders were placed at each nursing station with explicit instructions; factual information about adult ADHD; copies of the ASRS v1.1; and participant consent forms (Appendices F, G, H, I, J). If patients chose to participate in the project, a member of the healthcare team made a copy of the completed ASRS v1.1 to be kept for data collection and returned it to the green binder in a designated green folder. Only patient age, sex, and if he or she was referred to psychology was noted in the upper right hand corner of the screener (Appendix H). No other identifying data was collected. Recommendations to refer a

patient to appropriate services are warranted when a positive score of the ASRS v1.1 is identified.

Project Resources

In order to complete the project, several resources were necessary. Resources utilized include support and approval from personnel and organizations, healthcare personnel, time commitments, technology, and lastly, a minimal amount of money. Two organizations the researcher sought approval from included the WHO and the University of Iowa Hospital and Clinics. Approval from the WHO to utilize and implement the ASRS v1.1 for the purposes of a dissertation project was obtained via e-mail (Appendix K). Dr. Ronald Kessler, leader of an expert adult ADHD committee, additionally provided approval and support for use of the ASRS v1.1 (Appendix L). The University of Iowa Hospital and Clinics provided permission to use the Iowa EBP model algorithm to guide the project and site within the dissertation (Appendix M). Furthermore, Dr. Marita Titler, creator of the Iowa EBP algorithm, provided permission via e-mail. Prior to beginning the project, Institutional Review Board (IRB) approval was obtained from North Dakota State University (NDSU) as well as the rural Midwestern facility's IRB (Appendices N & O).

Personnel involved include the researcher, clinical dissertation committee members, healthcare professionals (providers and nurses), and appropriately identified patients willing to participate in the project. Key personnel included the facility psychologist; the chief of medical staff physician; and the nursing supervisor. Each individual was instrumental to the facilitation of the project. The psychologist, Dr. Joel Wilson; was frequently consulted by the researcher and healthcare providers in regards to the project. Dr. David Muhs, department lead, played a vital role in the process, as he provided permission for the researcher to introduce project

materials at a provider meeting as well as forwarded e-mails with instructions to the appropriate individuals (Appendix D). The lead nurse conferred with the researcher on several occasions in regards to disbursement of materials and security of confidential information. She physically placed binders at each nurses' station; forwarded e-mails to appropriate staff about implementation of the project (Appendix E); and introduced the project and what role the nurses will play at a meeting.

Time is vital when implementing a scholarly project. Time commitments were most substantial for the researcher and dissertation committee members; however, the project would not have been completed without time commitments from all personnel involved. Certain training for IRB approval, known as the Collaborative Institutional Training Initiative (CITI), took several hours for the principal investigator and co-investigator (the researcher) to complete prior to obtaining approval (Appendix P). IRB approval from the governing bodies took days to weeks to acquire. Throughout the project, several IRB addendums from the governing bodies were necessary (Appendix Q & R).

Individuals previously mentioned volunteered their time to participate in the project. Execution of the ASRS v1.1 would not have been established without the aforementioned individuals. Extra time during clinic visits was also taken to explain and complete the Adult ASRS v1.1on the part of the healthcare professional and patient. A three minute time frame was estimated for the aforementioned process. The researcher (co-investigator) was responsible for closely following the project, e-mailing the healthcare professionals, updating committee members, and lastly, completing the final dissertation report. The dissertation committee members, especially the chair person and expert committee member, spent extensive time assisting in research, development, implementation, and evaluation of the proposed project.

Technological resources necessary for implementation of the practice improvement project included computers, internet access, electronic mail, and cellular devices. The researcher e-mailed healthcare professionals prior to implementation of the project as well periodically thereafter for project reminders (Appendices D, E, & S). Communication between the co-investigator and principal investigator was necessary throughout the process and most often occurred via e-mail.

Funding for the project was relatively insignificant. The only identifiable cost established was the cost of the green binders, green folders; and ink cartridges necessary to print the ASRS v1.1, consent forms, written instructions, and ADHD facts (Appendices H, I, J, F, & G). The researcher personally funded the aforementioned materials. The rural Midwestern facility charged no fees for implementation of the project. All personnel involved with the project did so strictly on a volunteer basis. No momentary rewards were provided to anyone participating in the project.

Protection of Human Subjects

The human subjects involved in the project encompassed healthcare professionals, including primary care providers, nurses, and a psychologist; and adults being screened for ADHD. For the purposes of this project, no special precautions were taken to include or exclude women and minorities. Patients were chosen if he or she met the following qualifications: 18 years or older; no diagnosis of ADHD; and displaying signs and symptoms which could potentially indicate adult ADHD. No children were involved in the project as a substantially different established screening and identification process for ADHD is established.

The practice improvement project indirectly involved patients by implementation of the ASRS v1.1 tool by primary care providers and nurses; therefore little to no risk to patients was

established. Patients may have potentially experienced some psychological distress when the ASRS v1.1 was administered. More anguish could have resulted if the patient's score was positive and was referred to a specialist for further diagnostic testing. Healthcare professionals also may have encountered psychological distress in relationship to being given an additional workload.

Protection of human subjects was ensured by the North Dakota State University IRB as well the intended facility's IRB (Appendices N & O). The healthcare participants were specific to the designated rural Midwestern facility. Contact between the researcher and healthcare participants existed in person and via e-mail. Participation was voluntary as evidenced by informed consent, emphasis of voluntary involvement, and implementation per choice of the provider and/or nurses. Completion of the evaluation survey to be filled out by the healthcare participants was unquestionably voluntary. The patient population chosen to partake in the project was a convenience sample of adults in primary care demonstrating signs and symptoms of ADHD based on provider discretion.

The intended benefits of the project included improvement in the screening and identification of adults with ADHD, increased knowledge of adult ADHD among healthcare providers, and overall improvement in the quality-of-life of individuals with undiagnosed and untreated adult ADHD. Other healthcare facilities in the region may choose to implement the scale based on the, further improving adult ADHD identification. By improving the screening process and identification of adult ADHD, individuals can receive necessary treatment. Reduction of comorbid conditions and chronic diseases may occur as a result; thus improving one's quality of life.

Methods

As previously mentioned by Dr. Joel Wilson (personal communication, April 4th, 2014), the intended facility does not have an efficient, consistent, nor an effective way to screen adults for ADHD. An adult ADHD screening tool for primary care providers would be useful to assist in the process of determining the appropriate course of care for patients. Prior to the project, providers at the intended facility were frequently consulting with the psychologist and potentially missing individuals with undiagnosed ADHD. The adult ASRS v1.1 is a 6 item, well-recognized, screening tool created by ADHD experts and copyrighted by the WHO (Harvard Medical School, 2005). Individuals presenting to primary care with signs or symptoms of inattention, hyperactivity, impulsivity, depression, anxiety, or consistent substance abuse patterns without a diagnosis of ADHD should be screened (Adler & Shaw, 2011; J. R. Wilson, personal communication, April 4th, 2014). Permission was granted by the WHO and Dr. Ronald Kessler to use the adult ASRS v1.1 for the project via e-mail (Appendices K & L).

In order to establish the most convenient way to implement the ASRS v1.1 and reduce workload of the project for the volunteers, the researcher consulted with the involved psychologist at the facility and the supervising nurse on several occasions. A decision was made to have binders containing copies of the ASRS v1.1, consent form, and other pertinent resources at each nurses' station. A bright green color theme was established for binders and folders as this may have helped proliferate project awareness and institute consistency. Healthcare providers and nurses were given project information in numerous formats. First, the co-investigator attended a facility meeting to introduce the project idea to the healthcare providers. E-mails were sent to healthcare providers and nurses prior to launching the project as well as thereafter to remind the healthcare professionals about the ASRS v1.1 (Appendices D, E, & S).

Appropriate use and instruction of the ASRS v1.1 was also provided within the bright green binder on the first page (Appendix G).

Healthcare professionals were instructed to administer to the ASRS v1.1 to adult patients presenting to primary care for a wellness or episodic visit displaying signs and/or symptoms of substance abuse; anxiety; depression; inattention; hyperactivity; impulsivity; frequently changing jobs; and no current ADHD diagnosis. The project coordinator checked the green binders for completed forms periodically, ranging from weekly to monthly. After several weeks of the initiation of the project, only a few forms were collected; thus, the researcher sent our reminder e-mails to the healthcare professionals (Appendix S). IRB addendum approvals from NDSU and the established facility were received (Appendix Q & R).

As stated before, data was collected throughout the implementation of the project at weekly to monthly intervals. The implementation of the ASRS v1.1 began July 31st, 2014 and ceased December 31, 2014. A voluntary survey evaluation of the ASRS v1.1 was delivered to providers. Those who chose to participate returned the evaluation via postal mail within four weeks. Data examination of the completed screeners and evaluation surveys were analyzed by the co-investigator.

Evaluation

The overall goal of the project was to meet the two designated objectives of 1) increasing the screening and identification of adults with undiagnosed ADHD for appropriate referral and treatment; and 2) improve healthcare professionals' education of adult ADHD. By execution of the adult ASRS v1.1 and evaluation of the screener in the Midwestern regional facility, both quantitative and qualitative data were able to be collected for appraisal of the project objectives. Key quantitative components of the ASRS v1.1 assessed include number of participants; patient

demographics comprising age and sex; number of negative or positive screens; and lastly, whether or not the patient was referred. Quantitative and qualitative analysis of the ASRS v1.1 and project was also conducted. Qualitative data gathered included an interview with the psychologist on the project process and open-ended questions answered on the evaluation survey. A Likert scale format was also included on the evaluation form; thus establishing an additional quantitative format to gather data. Imaginably, another excellent way to estimate the success of the project would be whether or not the Midwestern regional facility chose to consistently administer the ASRS v1.1 to appropriate patients.

CHAPTER FIVE. RESULTS

Implementation of the ASRS v1.1 was initiated July 31st, 2014 and concluded on December 31st, 2014 at a rural Midwestern North Dakota facility. The patient population included adults only. The total number of patient participants was 24. Of the 24 participants, four were screened by a psychologist and not a primary care provider; thus these data were not included in the overall results; however, analysis was still performed and may be considered beneficial. Twenty of the 24 participants were screened in primary care. No information was gathered on the number of patient participants refusing to be included in the study. The entirety of positive screens substantiated was 16. Of the 16 positive screens, only three were documented on the screener as referred; however, it is unknown if more patients were actually referred for additional evaluation.

Healthcare providers choosing to participate in the study totaled six; with a potential for thirteen. Additionally, the psychologist also participated in the study. Seven survey evaluations were distributed to providers with a return rate of five.

Sample Demographics and Data Analysis

Patients screened in primary care had the following demographics: the age of the patient participants ranged from 18 to 81, with a median age of 25; average age of 28; and mode of 18. The total number of male participants was 12, while the female sum was 8. Two of the three patients documented as referred for further care were female.

Data analysis of patient participants screened by the psychologist is summarized. The additional data could provide further insight to the project. The ages of the participants ranged from 18 to 53, with a median, average, and mode age of 34. Two of the four participants were female; whereas the other two were male. All screens were documented as positive. Individuals

were initially referred for either depression, further assessment, or other "mental problem". This information was documented in the upper right hand corner of the ASRS v1.1.

The sample population for healthcare providers included a potential of thirteen. Based on collected forms from the binders at the designated nurses' station only six primary care providers and/or healthcare professionals chose to or were able participate. It is assumed support staff, such as nurses also assisted in the process.

Data Results

To reiterate, the project objectives included 1) increasing the screening and identification of adults with undiagnosed ADHD for appropriate referral and treatment; and 2) improving healthcare professionals' education of adult ADHD. No quantifiable data were gathered in regards to the project objectives because prior numerical information of the facility's identification of adult ADHD did not exist. Overall, the assessable results are qualitative. To recall, Dr. Joel Wilson determined a facility need to create a more efficient, consistent, and effective way to screen adults for ADHD in primary care (personal communication, April 4, 2014). Based on an additional interview with Dr. Wilson, he subjectively felt that he has received more referrals since implementation of the practice improvement project (personal communication, January 20th, 2015). He additionally felt that all referrals received were appropriate and not falsely identified based on the ASRS v1.1. Acknowledgement of the lack of pursuit of an adult ADHD diagnosis in the past at the established facility was identified. Dr. Wilson felt strongly that the tool was advantageous, demonstrating clarity for the primary care providers in regards to the referral process. When reflecting back on the referrals he received, the college age patient prominently stood out in his mind as the individual with undiagnosed ADHD distinctly struggling. Comments he received throughout the project from providers were

all positive and related to the ease and efficiency of the tool; clarity of the mental health problem; and the helpfulness of justifying a referral. Based on the interview, both projective objectives were met.

Next, results of the five completed evaluation surveys completed by providers will be given. Of the five surveys, none were entirely answered. Four of the five surveys had some of the open-ended questions completed and all five had the Likert section finished. First, the quantitative data will be provided. A four-point Likert scale was created, with response choices of *strongly disagree, disagree, agree, and strongly agree.* A total of four questions were asked. The answers to the Likert scale are given below:

Statement One

The ASRS v1.1 is easy to use. This statement was created with the intention to establish practicality of the instrument. All responders agreed, with four of the five strongly agreeing with the statement.

Statement Two

The ASRS v1.1 is quick to administer. Similarly to statement one, this question was developed to evaluate efficiency of the tool. Again, every response was documented as agreed, with four out five feeling strongly.

Statement Three

The ASRS v1.1 has been helpful in distinguishing between different comorbid psychiatric disorders. The purpose of statement three is an attempt to distinguish adults with ADHD whom present with anxiety, depression, addictive behaviors, or other common psychiatric disorders. Two of the five replies indicated a strongly agreed answer. Additionally, two other responders agreed with the statement. The last individual disagreed.

Statement Four

Implementing the ASRS v1.1 has improved my knowledge in regards to adult ADHD. Question four helps to demonstrate the objective of improving healthcare professional's knowledge of adult ADHD was met. Two providers felt strongly this statement was accurate based on their experience, whereas one response simply agreed. The final two responses indicated an "X" in the disagree column.

Next the qualitative data from the evaluation survey is provided. To reiterate, this section of the survey was not entirely completed by the providers. Some questions were left blank, while other questions had helpful feedback.

Question Five

What did you like about the ASRS v1.1? Intention of this question was to establish benefits of the screener. Providers choosing to answer the question felt the tool was simple, efficient, and appreciated the standardized questions. One provider also mentioned the tool's helpfulness in determining a referral to psychology for testing. Only one evaluation did not produce a response to this question.

Question Six

What didn't you like about the ASRS v1.1? The purpose of this question of was to identify barriers based on provider responses. Two providers felt that the tool could be "figured out" by the patient for purposes of faking results. Additionally, one of these responses included a comment establishing that further diagnostic testing would address the potential issue. One provider found no barriers of the tool; while the remaining two providers did not answer the question.

Question Seven

What would you like to see done differently in screening individuals with the potential for adult ADHD? This question was included to provide recommendations for future projects and additional information for improvements in the screening and identification of adults with ADHD. Only one evaluation had a documented response to the question in which it was stated to "continue to emphasize benefits of screening, similarly to PHQ-9 and GAD-7, to improve patient care."

Question Eight

What information about adult ADHD would you like to know more about? Pertinence of question eight was to establish educational needs of providers in regards to adult ADHD. Two of the five providers responded to the eighth question. One response pertained to more knowledge about medications for treating adults with ADHD as well as the risk for abuse of the medications prescribed. The other provider also documented the desire to learn more about treatment options. Furthermore, the provider was interested in knowing the likelihood of a new ADHD diagnosis in patients who were previously diagnosed as children.

CHAPTER SIX. DISCUSSION AND RECOMMENDATIONS

The greatest cause of disability in the United States is mental health disorders (Healthy People 2020, 2013). Untreated mental health disorders frequently lead to high risk behaviors, such as drug and illicit alcohol abuse; violent or self-destructive behavior, and/or suicide. Among children, ADHD is the utmost collectively diagnosed mental disorder (Ryan, Katsiyannis, & Hughes, 2011). Prior beliefs were that children outgrew the disorder preceding adulthood; however, a more recent concept is that ADHD is problematic in adulthood as well (Boonstra, 2006; Dalsgaard, Østergaard, Leckman, Mortensen, & Pedersen, 2015; McGough & Barkley, 2004). Research has identified that adult ADHD is persistently misjudged and not well understood as compared to other comorbid mental health disorders, such as anxiety and depression, by primary care providers (NACE, n.d.). Consequently, individuals with undiagnosed ADHD do not receive proper medical care and treatment; thus eliminating the ability to achieve one's maximum capacity as a member of society. A goal of Healthy People 2020 (2013) is to increase the proportion of adults with mental health disorders who receive treatment. Both objectives of this project were applicable to Healthy People 2020 above-mentioned goal. By improving screening and identification of adults with undiagnosed ADHD, the likelihood of receiving proper treatment should be amplified. Correspondingly, enlightening healthcare provider's knowledge of ADHD ought to assist in the screening, identification, and treatment of individuals who currently remained undiagnosed with ADHD.

Qualitative Results and Interpretation

Secondary to a small sample size, statistics of the study are not relevant or appropriate; however, much of the qualitative information gathered was still distinguished as valid. Of the qualitative data, several trends were discovered which could be deemed beneficial. According to

the qualitative data provided by Dr. Wilson, an enhancement in the screening process for adults with undiagnosed ADHD was achieved. He subjectively noted an increase in the amount of patients he was seeing to be further evaluated for adult ADHD. All referrals he received in which the ASRS v1.1 was instituted were concluded to be appropriate. He distinguished the tool as exceptionally valuable and affording simplicity to primary care providers. Numerous comments he received related to the straightforwardness, efficiency, and precision of the ASRS v1.1. As for the answers provided in the evaluation survey completed by the providers; a consensus of the effortlessness, efficacy, and standardization of questions seemed to be appreciated. Two providers felt a barrier of the tool is that patients could replicate a positive result due to the face validity of the tool; however, one individual ultimately felt that further testing could eliminate the potentially identified problem. Two providers confessed that having more knowledge pertaining to the best treatment options for adults and associated risks with use of medication would be advantageous. To further improve the process in the future, one provider indicated that continual emphasis of the screener may be helpful.

Quantitative Results and Interpretation

The total number of patient participants screened in the primary care setting was 20, with a male to female ratio of 3:2. The average age of the patient was 28; a median age of 25; and lastly, a mode of 18. Of the 20 patients screened, 16 received a positive score; however, only three of these patients were documented as referred for further care. Two of the three patients documented as referred were female. Several inferences from these results can be made. One could speculate since 80 percent of the patients screened were positive, providers are likely cognizant of individuals at risk for adult ADHD, but may have simply needed a screening tool to validate a referral or to make the process easier. Other inferences include the idea that possibly,

more males than females display signs and symptoms of ADHD; or, males more predominately have the disorder, which would be consistent with the literature review conducted for the study. Another extrapolation from these results may be that individuals in their mid-twenties display the most signs and symptoms of ADHD; are diagnosed most commonly in their twenties; or seek care more frequently. Additionally, to recall, 16 of the 20 participants screened received a positive score; which may indicate that providers were not screening appropriately prior to being made aware that ADHD was a significant issue or is commonly missed. Another idea to consider is that the screening is still not completed enough based on such a high positive response rate. One can conclude that the tool significantly assisted in the screening process. Ultimately, individuals should be receiving further testing and proper care as a result.

Although the project had no intentions of gathering data in a specialty; four additional ASRS v1.1 were obtained from the facility's psychologist. All screens were positive and the male to female ratio was 1:1. The patients were referred from primary for further assessment of mental health disorders. The average, median, and mode age of the patients was 34. Insinuations from these results primarily indicate that patients with mental health disorders could benefit from the ASRS v1.1 screener in primary care.

Advanced Practice Nursing Implications

The following section will discuss implications for the future and current advanced nursing practice. The two objectives of the project will be restated and the researcher will explain appropriate applications. As state previously, a goal of Healthy People 2020 (2013) is to increase the proportion of adults with mental health disorders who receive treatment. Advanced practice nurses, as well as other members of the healthcare team should work together to help achieve the aims of Healthy People 2020.

Objective One

The first intention of the project was to improve the screening and identification of adults with undiagnosed ADHD for appropriate referral and treatment utilizing the ASRS v1.1. According to subjective information provided by the active psychologist in the project, this goal was met. From the initiation date of July 31st, 2014 to the end date of December 31st, 2014; he noted an increase in referrals for adults who needed further ADHD testing; however, no quantifiable data was gathered to establish this statement. All healthcare providers opting to participate in the study felt the tool was beneficial, improving the simplicity and efficiency of the ADHD screening process. Implementing a basic and valid tool in primary care to screen for a mental health disorder consequently assists in the identification of patients with undiagnosed psychological disorders. Thus, appropriate treatment and improvement in one's quality of life should result.

Objective Two

A second purpose of the practice improvement project was to enhance provider knowledge of adult ADHD, with hopes of ultimately augmenting the screening, identification, and treatments of undiagnosed adult ADHD patients. Based on the quantitative and qualitative data obtained from the project, the goal was met. Three of the five provider responses on the evaluation survey indicated an improvement in their adult ADHD knowledge since commencement of the project. Two of the five did not recognize an enrichment of knowledge on the topic. The researcher recognizes a discrepancy in the disagreement responses. Upon reflection of the project, no primary care providers were aware of the ASRS v1.1; therefore all providers' knowledge of adult ADHD was ultimately improved. By introducing a simple and valid tool to unknowing providers, enriched care of patients with mental health disorders results.

Subsequently, reduction in comorbid chronic diseases, such as diabetes, heart disease, and cancer is an implied expected outcome, as untreated mental health disorders negatively impact one's physical health (Healthy People 2020, 2013).

Project Limitations and Recommendations for Future Research

Limitations of the project will now be discussed. An obvious inadequacy of the project is the small sample size. To achieve the best sample size for the population, the researcher should have configured this prior to initiation of the project (McClave & Sincich, 2013). The Midwestern regional facility in which the study took place only had a total of 13 primary care providers, and only six chose to participate in the study; accordingly limiting the patient participation sample size. Reasons some providers chose not to participate could be because they were not well solicited by the researcher. Additionally, potential explanations include additional workload; lack of patient population displaying signs or symptoms of ADHD; disinterest or disbelief in adult ADHD; or absence of awareness of the project. Lastly, thinking back to the DOI model, having only about half of the providers participate could be contributed to individuals whom are innovators or early adopters versus late adopters or the laggards.

Another constraint of the study may have been the placement of the green binders which contained copies of the ASRS v1.1. The binders were located at each nurses' station during the project. A potential improvement could be placing a binder in every exam room for convenience and a reminder to screen appropriate patients. Having the ASRS v1.1 integrated into the electronic medical record may provide the highest level of benefit.

Individuals with ADHD often have difficulty keeping appointments (J.R. Wilson, personal communication, April 4th, 2014). One may deduce that this could have hypothetically

impeded the provider's ability to screen for ADHD. Conversely, missing an appointment could elicit a red flag to the provider to screen for ADHD in the future.

Although healthcare professionals were provided an introduction to the project face to face; sent e-mails on separate occasions; and provided binders with explicit instruction; in hindsight, a more formal training session may have been beneficial. Such training could have included an in-service elaborating on adult ADHD and the benefit of improving the screening and identification process; an engaging lunch session; or a session at a local provider conference.

From the identified limitations of the study, the co-investigator has several recommendations for future research in adult ADHD. First, sustaining a larger sample size may be helpful. Taking measures to ensure a larger participation rate would be essential for future studies. Possible ways to provoke a larger sample size include offering a more formal training, such as an in-service or education at a local conference, as mentioned previously, to healthcare professionals about adult ADHD and intentions of the project. Easy access to the ASRS v1.1 copies is also important to increase the likelihood of use in the primary care setting. Lastly, patients frequently "no showing" for appointments should likely be screened for ADHD if no established diagnosis is in place.

Project Implications for the Nurse Practitioner

ADHD is evident in most cultures, and accounts for 5 percent of children and 2.5 percent adult populations (APA, 2013). The National Association for Continuing Education (n.d.) recognizes lack of knowledge and misinterpretations of adult ADHD. Dr. Joel Wilson identified a need to improve the screening and referral process of adult ADHD in a rural Midwestern facility, thus the DNP practice improvement project was created with the help of numerous outstanding and professional individuals. In alignment with Healthy People 2020's (2013) goal

of increasing the proportion of adults with mental health disorders who receive treatment; the researcher, along with assistance from committee members, created two practice improvement project objectives. Improving screening and identification of adults with undiagnosed ADHD should result in proper treatment. Secondly, by augmenting healthcare provider's knowledge of ADHD, an essential result should be increasing the screening, identification, and treatment of individuals who currently remained undiagnosed with a mental health disorder.

Nurse practitioners, as well as other healthcare providers, are typically first line in identifying mental health disorders (J.R. Wilson, personal communication, April 4th, 2014). Knowledge of mental health disorders is essential for primary care providers. ADHD is a neurodevelopment disorder with a childhood onset established before age 12 (APA, 2013; Nigg, Butler, Huang-Polluck, & Henderson, 2002). The disorder was once thought to only exist in childhood; however, recent evidence demonstrates otherwise (APA, 2013; Dalsgaard, 2015; McGough & Barkley, 2004). Struggles faced for individuals with disorder include atypical levels of inattention, impulsivity, and hyperactivity in common environments (APA, 2013; DuPaul, Weyandt, & Janusis, 2011). When questioning if a patient has adult ADHD, the primary care provider should be aware that the patient must have been struggling with symptoms prior to the age of 12. This bit of information is crucial in the diagnosis of adult ADHD.

Patients presenting to primary care for any type of visit displaying signs and/or symptoms of inattention; impulsivity; hyperactivity; depression; anxiety; substance abuse; changing jobs frequently; numerous motor vehicle accidents or traffic violations undoubtedly need to be screened for adult ADHD (Adler & Shaw, 2011). Consequences of not screening include patients having lower occupational statuses; difficulty with relationships; more misconduct

offenses; and higher divorce rates (Faraone et al., 2000; Muhammad et al., 2011; Von Polier, Vloet, & Herpertz-Dahlman, 2012; Wilens et al., 2004).

Personal Growth and Development

Conducting a practice improvement project demonstrated quite a challenge for the co-investigator. Finding a topic which could be guided locally by the researcher in primary care took several months to institute and would not have been established without a number of very important, intelligent, and supportive individuals. Deep reflection was accomplished by the researcher prior, during, and after completion of the project. As a whole, nurse practitioners' main goals in providing care are health promotion and disease prevention. Hence, what does "health" actually mean? The definition of health is multifaceted. The researcher believes a holistic approach to defining health is imperative. The following is the researcher own definition of health:

> "Health is a perception of one's physical, mental, and social well-being. Health is inseparable from one's environment, family, and community. All of the above-mentioned factors may greatly impact one's health, positively or negatively. Biological, psychological, sociological, ethnological and spiritual factors can greatly influence one's health as well. Adaptability to these factors plays a key role in one's quality of life."

Signifying one's desires to contribute to society requires deep reflection of values, expectations, and life experiences. A passionate area of interest for the researcher is mental health, thus was chosen as the focus of this project. As specified by the previously mentioned definition of health, mental health affects all other aspects of one's life; such as physical health; social well-being; environmental conditions; and relationships with families and the community.

The researcher felt addressing an area of mental health would be the most meaningful for her and the community.

Another challenge for the researcher was instigating contact with professionals whom may have been accommodating to the project. Difficulty did not lie in the lap of the professionals; but instead was the researcher's perception of the potential rejection faced. Forcing oneself to initiate contact with professionals was a challenge in itself. After conquering the perceived challenge; self-worth, leadership, professionalism was realized. Tackling a large and career-focused project can be quite overwhelming. Importance is paid to decreasing distractions; reflecting on importance of the project; and lastly; knowing at least one person's life was made easier because of the practice improvement project. Looking to the future, knowledge and experience gained from the dissertation project will assist the researcher in defeating upcoming obstacles and provide her with the confidence to initiate future and necessary changes in healthcare. Continued leadership, passion, and professionalism will be essential throughout the researcher's nursing career.

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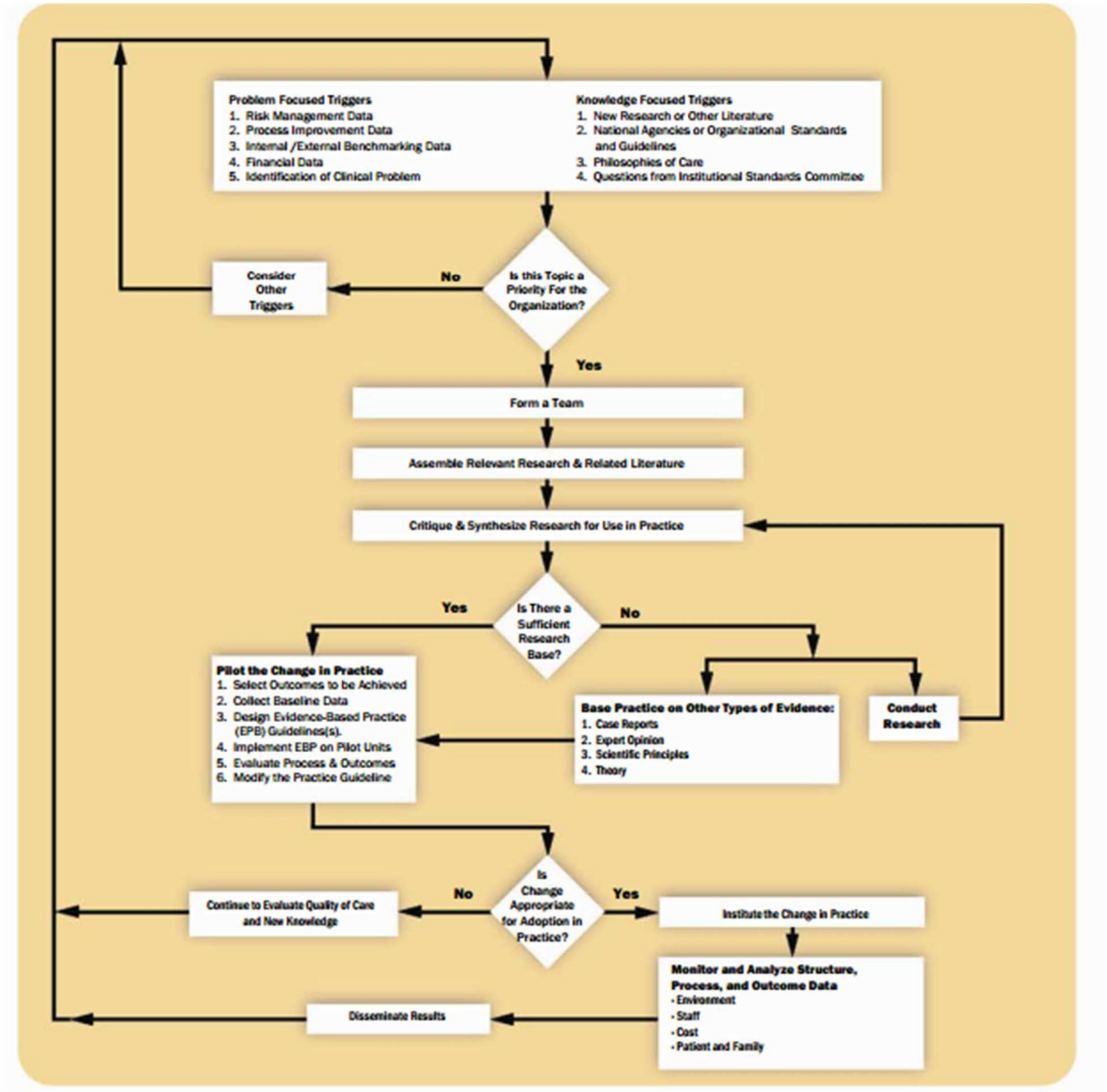
APPENDIX A. ADULT ADHD SELF-REPORT SCALE SYMPTOM CHECKLIST

Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist

Patient Name		Today's Date					
Please answer the questions below, rating yourself on each of the criteria shown using the scale on the right side of the page. As you answer each question, place an X in the box that best describes how you have felt and conducted yourself over the past 6 months. Please give this completed checklist to your healthcare professional to discuss during today's appointment.			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?							
2. How often do you have difficulty getting things in order when you have to do a task that requires organization?							
3. How often do you have problems remembering appointments or obligations?							
4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?							
5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?							
6. How often do you feel overly active and compelled to do things, like you were driven by a motor?							

APPENDIX B. THE IOWA MODEL OF EVIDENCED-BASED PRACTICE ALGORITHM



APPENDIX C. EVALUATION OF THE ASRS V1.1

Evaluation of the Adult ADHD Self-Report Scale v1.1 (ASRS v1.1) Screener

The following questionnaire is to be completed by individuals who have utilized the six-item Adult ADHD Self-Report Scale v1.1 (ASRS v1.1) in the clinic setting. Completion of the survey is absolutely voluntary and is in no way required; however, feedback is greatly appreciated.

Please answer the following questions to the best of your ability. Please put an "x" in the box in which you feel you either strongly disagree; disagree; agree; or strongly agree.

	Strongly disagree	Disagree	Agree	Strongly agree
1. The ASRS v1.1 is easy to use.				
2. The ASRSv1.1 is quick to administer.				
3. The ASRSv1.1 has been helpful distinguishing between different comorbid psychiatric disorders.				
4. Implementing the ASRSv1.1 has improved my knowledge in regards to adult ADHD.				

Please answer the following questions utilizing a short answer format.

5. What did you like about the ASRS v1.1?

6. What didn't you like about the ASRS v1.1?

7. What would you like to seen done differently in screening individuals with the potential for adult ADHD?

8. What information about adult ADHD would you like to know more about?

Thank you for your time and response!

APPENDIX D. E-MAIL TO HEALTHCARE PROVIDERS

Dear Providers:

My name is Taryn Treumer. I am a nurse practitioner student from North Dakota State University (NDSU). I was able to speak with a few of you at a recent provider meeting in regards to implementation of my project at Sanford. I have now received IRB approval from NDSU and Sanford for the study involving implementation of the Adult ADHD Self-Report Scale (ASRS V1.1) in the primary care setting. The purpose of the project is to improve screening practices for adult ADHD in the primary care clinic setting. If a patient presents to the clinic with signs and/or symptoms of adult ADHD or your own history taking suggests there may be a problem, the **ASRS V1.1 would be a useful screening tool.** The tool is **not** meant to be used to diagnose adult ADHD. The ASRS V1.1 is a six item questionnaire that can be completed by the patient without supervision.

Beginning on July 31st, 2014, you will notice a **bright, green binder at each nurses' station, labeled "Adult ADHD Study"**. The binder will provide you with explicit instructions for use and scoring of the tool, copies of the ASRS V1.1, and other valuable information.

Please remember that your participation is completely voluntary and you are in no way obligated to participate in the study; however, **your participation will be greatly appreciated**. If you have any questions or concerns, please feel free to contact me at **taryn.n.treumer@ndsu.edu** or **701.320.5583**. You many also contact **Dr. Joel Wilson** via phone or e-mail with any immediate concerns or questions. Thank you for time and efforts.

Sincerely,

Taryn Treumer
NDSU FNP Student
taryn.n.treumer@ndsu.edu
701.320.5583

APPENDIX E. E-MAIL TO HEALTHCARE PROFESSIONALS

Dear healthcare professionals:

My name is Taryn Treumer. I am a nurse practitioner student from North Dakota State University (NDSU). I am conducting a study in regards to adult ADHD. The study will be conducted at the 2nd and 5th Ave Sanford Health clinics in Jamestown.

I have received Institutional Review Board (IRB) approval from NDSU and Sanford for this study, which involves implementation of the Adult ADHD Self-Report Scale (ASRS V1.1) in the primary care setting. The purpose of the project is to improve screening practices for adult ADHD. Providers may indicate to you he or she would like the patient to use this screener. It may also be helpful to remind providers that this screening tool is available.

Intentions are to begin the study on July 31st, 2014. **Y**ou will notice a **bright, green binder at each nurses' station, labeled "Adult ADHD Study"** on this date. The binder will provide you with explicit instructions for use and scoring of the tool, copies of the ASRS V1.1, and other valuable information.

Please remember that your participation is completely voluntary and you are in no way obligated to participate in the study; however, **your participation will be greatly appreciated**.

If you have any questions or concerns, please feel free to contact me at **taryn.n.treumer@ndsu.edu** or **701.320.5583**. You many also contact **Dr. Joel Wilson** via phone or e-mail with any immediate concerns or questions. Thank you for time and efforts.

Sincerely,

Taryn Treumer
NDSU FNP Student
taryn.n.treumer@ndsu.edu
701.320.5583

APPENDIX F. PROJECT INSTRUCTIONS FOR HEALTHCARE PROVIDERS

NDSU NORTH DAKOTA STATE UNIVERSITY

Department of Nursing
College of Pharmacy, Nursing, and Allied Sciences
NDSU Dept. 2670
136 Sudro Hall, PO Box 6050
Fargo, ND 58108-6050
701.231.7395

Title of Research Study: ***Adult ADHD Self-Report Scale: Implementation in a Primary Care Setting***

Instructions:

1. Consider administering the Adult ADHD Self-Report Scale version 1.1 (ASRS-v1.1) to individuals, age 18 and older, presenting with signs and/or symptoms of ADHD, whom do not currently have an adult ADHD diagnosis.

2. Give the individual the participant form which explains the project. The form must be given prior to administering the ASRS-v1.1. The form explains demographic data gathered, confidentiality of the project, and that participation is completely voluntary.

3. If the individual agrees, administer the ASRS-v1.1. The ASRS-v1.1 can be given to participant to be completed at any time during the office visit. It is a self-report scale; therefore, the provider or healthcare professional does not need to be present while the patient completes the 6-item questionnaire. However, this form should not be administered in the waiting room or in public areas for ANY reason.

4. To score the ASRS-v1.1, observe the checkmarks in the shaded area. Four (4) or more checkmarks indicate the individual may have symptoms consistent with Adult ADHD. This does not indicate the patient is diagnosed with ADHD. Further screening and diagnostic testing may be necessary. Referral to a psychologist or psychiatrist may be appropriate.

5. The original document of the ASRS-v1.1 must be kept with the patient's medical record. **A copy of the completed ASRS-v1.1 needs to be retained for the project**. If a label is already on the ASRS-v1.1, it will be vital to "black out" any identifying information, as the researcher cannot know this information for the purposes of the study. If able, it would be appreciated if the patient's age, sex, and if a referral was made could be written on the ASRS-v1.1. Preference to copy the ASRS-v1.1 prior to placing a label is the preferred method. **Copies should be kept in the BRIGHT GREEN folder at the nurses' station.**

APPENDIX G. ATTENTION DEFICIT HYPERACTIVITY DISORDER FACTS FOR HEALTHCARE PROFESSIONALS

NDSU NORTH DAKOTA STATE UNIVERSITY

Department of Nursing
College of Pharmacy, Nursing, and Allied Sciences
NDSU Dept. 2670
136 Sudro Hall, PO Box 6050
Fargo, ND 58108-6050
701.231.7395

Title of Research Study: ***Adult ADHD Self-Report Scale: Implementation in a Primary Care Setting***

ADHD Facts:

- Prevalence: 5% of children; 2.5 percent of adults
- Inattention is most common symptom in adults
- Genetic, environmental, and biological etiology:
  - Likely to have a 1st degree relative with the disorder
- Common comorbidities: Mood, conduct, and substance abuse disorders

Adult ADHD Self-Report Scale version 1.1 (ASRS-v1.1)

- Created by an expert committee of psychiatrists and researchers:
  - Panel: Lenard Adler, MD; Ronald Kessler, PhD; Thomas Spencer, MD
- Copyrighted by the World Health Organization (WHO)
- Sensitivity: 68.7% & Specificity: 99.5%
- Permission to use ASRS-v1.1 granted by Dr. Kessler and WHO.

APPENDIX H. ADULT ADHD SELF-REPORT SCALE SYMPTOM CHECKLIST UTILIZED FOR THE PROJECT

Age:_____

Sex:_____

Referral:_____

Adult ADHD Self-Report Scale (ASRS-v1.1) Symptom Checklist

Patient Name _____ Today's Date _____

Please answer the questions below, rating yourself on each of the criteria shown using the scale on the right side of the page. As you answer each question, place an X in the box that best describes how you have felt and conducted yourself over the past 6 months. Please give this completed checklist to your healthcare professional to discuss during today's appointment.	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?					
2. How often do you have difficulty getting things in order when you have to do a task that requires organization?					
3. How often do you have problems remembering appointments or obligations?					
4. When you have a task that requires a lot of thought, how often do you avoid or delay getting started?					
5. How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?					
6. How often do you feel overly active and compelled to do things, like you were driven by a motor?					

APPENDIX I. HEALTHCARE PROVIDER INFORMED CONSENT

NDSU **NORTH DAKOTA STATE UNIVERSITY**

Department of Nursing
College of Pharmacy, Nursing, and Allied Sciences
NDSU Dept. 2670
136 Sudro Hall, PO Box 6050
Fargo, ND 58108-6050
701.231.7395

Title of Research Study: ***Adult ADHD Self-Report Scale: Implementation in a Primary Care Setting***

Dear healthcare provider,

My name is Taryn Treumer. I am a graduate student in the Nursing Department at North Dakota State University, and I am conducting a practice improve project to improve screening practices for adult Attention Deficit/Hyperactivity Disorder (ADHD) in the primary care clinic setting. Currently, there is not a screening tool or protocol being used to identify individuals with the potential for adult ADHD at this facility. Hopes are to improve screening practices and identification of adults with undiagnosed adult ADHD by implementing a screening tool specifically designed by a group of ADHD experts.

Because you are a healthcare provider, you are invited to take part in this project. Your participation is entirely your choice, and you may change your mind or quit participating at any time, with no penalty to you.

If you choose to participate in this project, intentions are to screen individuals with signs, symptoms, or comorbid conditions associated with adult ADHD utilizing the adult ADHD Self-Report Scale version 1.1 (ASRS-v1.1) after I have reviewed and given you instructions on the use of the instrument. Administering the ASRS-v1.1 will be entirely at the discretion of, you, the healthcare provider. Patients need to be informed that by completing the screen, statistical information will be gathered for a practice improvement project and he or she has the right to refuse completing the ASRS-v1.1. Only the patient's age and sex will be gathered and will in no way be linked with the results of the screening. If the patient completes the ASRS-v1.1, a positive screen should warrant further investigation of adult ADHD. Referral to a psychologist or psychiatrist may be appropriate. The tool should take no longer than 3 minutes to administer. The anticipated end date of the project is December 2014 to May 2015. At the end of the project a brief evaluation survey in regards to the use of the ASRS-v1.1 will be distributed. The survey should take no longer than 5 minutes. Feedback given will remain anonymous. I will be the only individual from the study having access to the completed ASRS-v1.1 forms and evaluation surveys.

It is not possible to identify all potential risks in practice improvement projects, but my dissertation committee and I have taken reasonable safeguards to minimize any known risks. There are minimal risks associated with administering the ASRS-v1.1 and evaluation survey are marginal to you and your patients.

If you have any questions about this project, please contact me at 701-320-5583 or Taryn.N.Treumer@ndsu.edu. You may also contact my advisor, Dr. Dean Gross at 701-231-8355 or Dean.Gross@ndsu.edu.

You have rights as a participant. If you have questions about your rights or complaints about this project, you may talk to the investigator or contact the NDSU Human Research Protection Program at 701.231.8908, toll-free at 1-855-800-6717, by email at ndsu.irb@ndsu.edu, or by mail at: NDSU HRPP Office, NDSU Dept. 4000, P.O. Box 6050, Fargo, ND 58108-6050; or contact Sanford Health Institutional Review Board at 605-312-6430.

By administering the adult ASRS-v1.1, you are giving your consent and are freely making a decision to participate in this practice improvement project. Again, you may quit participating at any time throughout this project.

Thank you for your taking part in this project. If you wish to receive a copy of the results, please contact me or my advisor.

APPENDIX J. PATIENT INFORMED CONSENT

NDSU NORTH DAKOTA STATE UNIVERSITY

Department of Nursing
College of Pharmacy, Nursing, and Allied Sciences
NDSU Dept. 2670
136 Sudro Hall, PO Box 6050
Fargo, ND 58108-6050
701.231.7395

Title of Research Study: ***Adult ADHD Self-Report Scale: Implementation in a Primary Care Setting***

Dear Participant:

My name is Taryn Treumer. I am a graduate student in the Nursing Department at North Dakota State University, and I am conducting a practice improvement project to help better identify any patients whom might be suffering from adult ADHD. It is our hope, that with this practice improvement project, we will learn more about the screening process and identification of adults with the potential for an adult ADHD diagnosis.

Because you are at this healthcare clinic and may be displaying signs and symptoms consistent with adult ADHD, you are invited to take part in this research project. Your participation is entirely your choice, and you may change your mind or quit participating at any time, without penalty to you.

It is not possible to identify all potential risks in research procedures, but my dissertation supervisory committee and I have taken reasonable safeguards to minimize any known risks. Currently, there are no known identifiable risks. A potential risk of psychological or emotional distress could occur from completing the 6 instrument questionnaire.

By taking part in this research, you may potentially benefit by being assessed and referred for help. However, you may not get any benefit from being in this study. Benefits to others and society are likely to include advancement of the knowledge of adult ADHD and improvement in the screening process for adults with the potential for ADHD in the primary care setting.

The screening survey should take about 2-3 minutes to complete with questions about your daily life. Please answer the questions to the best of your ability. As you answer each question, place an X in the box the best describes how you have felt and conducted yourself over the past 6 months.

We will keep private all research records that identify you. The only information that will be gathered and used is your age and sex. Your information will be combined with information from other participants taking part in the project and we will write about the combined information that we have gathered. You will not be identified in any written materials. We may publish the results of the project; however, we will keep your name and other identifying information private.

If you have any questions about this project, please contact me at 701.320.5583 or Taryn.N.Treumer@ndsu.edu, or contact my advisor, Dr. Dean Gross at 701.235.8355 or Dean.Gross@ndsu.edu

You have rights as a research participant. If you have questions about your rights or complaints about this research, you may talk to the researcher or contact the NDSU Human Research Protection Program at 701.231.8908, toll-free at 1-855-800-6717, by email at ndsu.irb@ndsu.edu, or by mail at: NDSU HRPP Office, NDSU Dept. 4000, P.O. Box 6050, Fargo, ND 58108-6050; or contact Sanford Health Institutional Review Board at 605-312-6430.

APPENDIX K. WORLD HEALTH ORGANIZATION PERMISSION TO USE ASRS V1.1

Dear Ms Treumer,

Thank you for completing the online form and for interest in WHO health informations products.

On behalf of the World Health Organization, we are pleased to authorize your request to reproduce the WHO item detailed in the form below.

This permission is subject to the following conditions:

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20 Avenue Appia, **Office 4152**
CH-1211 Genève 27, Switzerland
campanariod@who.int

We thank you for your interest in WHO Information products and we wish you all the best with your project.

Kind regards.

Ms Dolores Campanario
World Health Organization Press - *(Permissions Management, Licensing and Reprint Rights)*
Department of Knowledge Management and Sharing
20 Avenue Appia, Office: 4152, CH-1211 Genève 27, Switzerland
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If authorship is attributed to individual authors or a group:
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"Please note that if the requested item was jointly produced with other organization/s outside WHO or if not originally produced by WHO source, then please, also make every effort to obtain permissions from the appropriate external sources as mentioned on the original product details."

APPENDIX L. PERMISSION TO USE ASRS V1.1 FROM DR. KESSLER

Dear Taryn,
Thank you for contacting Dr. Kessler regarding the use of the ADHD-ASRS v1.1.
Use of the ASRS is free and does not require any formal permission or approval. We do, however, ask that you please cite the below article when using the ASRS. Should you publish any work that uses the ASRS, please send us the citations to all final publications.

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
Please feel free to follow-up with me should you have any additional questions regarding the use of the ASRS.
Kind regards,
Avery Borreliz

Avery Borreliz
Research Assistant
Department of Health Care Policy
Harvard Medical School
180A Longwood Ave.
Boston, MA 02115

617-432-2634
Borreliz@hcp.med.harvard.edu

APPENDIX M. PERMISSION TO USE THE IOWA MODEL

Permission to Use and/or Reproduce The Iowa Model

Kimberly Jordan - University of Iowa Hospitals and Clinics <noreply@qemailserver.com>

Mon 1/19/2015 10:28 AM

To: Taryn Treumer;

To help protect your privacy, some content in this message has been blocked. To re-enable the blocked features, click here.

To always show content from this sender, click here.

You have permission, as requested today, to review/use *The Iowa Model of Evidence-Based Practice to Promote Quality Care (Titler et al., 2001).* Click the link below to open the model.

Copyright of the Iowa Model of Evidence-Based Practice to Promote Quality Care will be retained by The University of Iowa Hospitals and Clinics.

Permission is not granted for placing the Iowa Model on the internet.

The Iowa Model

In written material, please add the following statement:

- *Used/Reprinted with permission from the University of Iowa Hospitals and Clinics and Marita G. Titler, PhD, RN, FAAN. Copyright 1998. For permission to use or reproduce the model, please contact the University of Iowa Hospitals and Clinics at (319)384-9098*

.

If you have questions, please contact Kimberly Jordan at 319-384-9098 or kimberly-jordan@uiowa.edu.

APPENDIX N. NORTH DAKOTA STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD APPROVAL

NDSU NORTH DAKOTA STATE UNIVERSITY

June 9, 2014

Dr. Dean Gross
Nursing
Sudro Hall

Re: IRB Certification of Exempt Human Subjects Research:
Protocol # PH14288, "Adult ADHD Self-Report Scale: Implementation in a Primary Care Setting"

Co-investigator(s) and research team: Taryn Trenmer

Certification Date: 6/9/14 Expiration Date: 6/8/17
Study site(s): Sanford Health, Jamestown, ND
Sponsor: n/a, not funded

The above referenced human subjects research project has been certified as exempt (category # 2) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, Protection of Human Subjects). This determination is based on the revised protocol materials (received 6/9/14).

Please also note the following:
☐ If you wish to continue the research after the expiration, submit a request for recertification several weeks prior to the expiration.
☐ The study must be conducted as described in the approved protocol. Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.
☐ Notify the IRB promptly of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
☐ Report any significant new findings that may affect the risks and benefits to the participants and the IRB.

Research records may be subject to a random or directed audit at any time to verify compliance with IRB standard operating procedures.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.
Sincerely,
Kristy Shirley

Kristy Shirley, CIP, Research Compliance Administrator

For more information regarding IRB Office submissions and guidelines, please consult www.ndsu.edu/irb. This Institution has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.

INSTITUTIONAL REVIEW BOARD
NDSU Dept 4000 | PO Box 6050 | Fargo ND 58102-6050 | 701.231.8995 | Fax 701.231.8098 | ndsu.edu/irb
Shipping address: Research 1, 1735 NDSU Research Park Drive, Fargo ND 58102

APPENDIX O. SANFORD INSTITUTIONAL REVIEW BOARD APPROVAL

SANFORD HEALTH

July 11, 2014

PI: Dean Gross, Ph.D., FNP-C
Project: 03-14-076 Adult ADHD Self-Report Scale: Implementation in a Primary Care Setting
Project Review Level: Exempt 2
Project Risk: No more than minimal
Approved through exempt review: 07/09/2014
Items Approved with this Review: Adult ADHD Self-Report Scale Symptom Checklist; Evaluation of the Adult ADHD Self-Report Scale v1.1 Screener; Healthcare Provider Consent Letter; Participant Consent Letter

The study submission and informed consent letters for the proposal referenced above has been reviewed and approved via the procedures of the Sanford Health Institutional Review Board (IRB).

Attached is your original consent document that has been stamped with the IRB approval date. You must keep this original on file. Please use this original consent document to make copies for subject enrollment/re-consent. No other consent form should be used.

Prior to initiation, promptly report to the IRB, any proposed project updates / amendments (e.g., protocol amendments/revised informed consents) in previously approved human subject research activities.

The forms to assist you in filing your: project closure, continuation, adverse/unanticipated event, project updates /amendments, etc. can be accessed online at SanfordConnect.

You have approval for this project starting from the approval date. Exempt projects do not expire; however, please update the IRB of your study status annually. Exempt projects can be closed when data collection is completed. When this study is completed please notify the Human Research Protection office.

Sincerely,

Deb Langstraat, CIP
Director-Sanford IRB

Sanford Health Human Research Protection Program, Route #5033 • 1305 W. 18th Street • Sioux Falls SD 57117-5039 • P 605-312-6430

APPENDIX P. COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE

COLLABORATIVE INSTITUTIONAL TRAINING INITIATIVE (CITI)

HUMAN RESEARCH CURRICULUM COMPLETION REPORT

Printed on 05/16/2014

LEARNER	Taryn Treumer (ID: 4106565)
PHONE	7013205583
EMAIL	taryn.n.treumer@my.ndsu.edu
INSTITUTION	North Dakota State University
EXPIRATION DATE	05/15/2017

SOCIAL/BEHAVIORAL RESEARCH COURSE

COURSE/STAGE:	Basic Course/1
PASSED ON:	05/16/2014
REFERENCE ID:	12931741

REQUIRED MODULES	DATE COMPLETED
Belmont Report and CITI Course Introduction	05/16/14
History and Ethical Principles - SBE	05/16/14
Defining Research with Human Subjects - SBE	05/16/14
The Regulations - SBE	05/16/14
Assessing Risk - SBE	05/16/14
Informed Consent - SBE	05/16/14
Privacy and Confidentiality - SBE	05/16/14
Records-Based Research	05/16/14
Research with Children - SBE	05/16/14
Research in Public Elementary and Secondary Schools - SBE	05/16/14
Internet Research - SBE	05/16/14
Vulnerable Subjects - Research Involving Workers/Employees	05/16/14
North Dakota State University	05/16/14

For this Completion Report to be valid, the learner listed above must be affiliated with a CITI Program participating institution or be a paid Independent Learner. Falsified information and unauthorized use of the CITI Progam course site is unethical, and may be considered research misconduct by your institution.

Paul Braunschweiger Ph.D.
Professor, University of Miami
Director Office of Research Education
CITI Program Course Coordinator

APPENDIX Q. NORTH DAKOTA STATE UNIVERSITY INSTITUTIONAL REVIEW BOARD ADDENDUM

NDSU NORTH DAKOTA STATE UNIVERSITY

INSTITUTIONAL REVIEW BOARD
office: Research 1, 1735 NDSU Research Park Drive, Fargo, ND 58102
mail: NDSU Dept. #4000, PO Box 6050, Fargo, ND 58108-6050
p: 701.231.8995 f: 701.231.8098 e: ndsu.irb@ndsu.edu w: www.ndsu.edu/irb

Date Received

RECEIVED

INSTITUTIONAL REVIEW BOARD

IRB Protocol #:

Protocol Amendment Request Form

Changes to approved research may not be initiated without prior IRB review and approval, except where necessary to eliminate apparent immediate hazards to participants. Reference: SOP 7.5 Protocol Amendments.

Examples of changes requiring IRB review include, but are not limited to changes to: investigators or research team members, purpose/scope of research, recruitment procedures, compensation strategy, participant population, research setting, interventions involving participants, data collection procedures, or surveys, measures or other data forms.

Protocol Information:

Protocol #: **PH14288** Title: **Adult ADHD Self-Report Scale: Implementation in a Primary Care Setting**

Review category: ☒ Exempt ☐ Expedited ☐ Full board

Principal investigator: **Dr. Dean Gross** Email address: **Dean.Gross@ndsu.edu**
Dept: **Nursing**

Co-investigator: **Taryn Treumer** Email address: **Taryn.N.Treumer@ndsu.edu**
Dept: **Nursing**

Principal investigator signature, Date: Dean Gross (email) 9/15/14

In lieu of a written signature, submission via the Principal Investigator's NDSU email constitutes an acceptable electronic signature.

Description of proposed changes:

1. Date of proposed implementation of change(s)*: **Immediately: 7/9/14. Sanford requested a small change be made to ASRS-v1.1. Name and date needs to be removed.**
   ** Cannot be implemented prior to IRB approval unless the IRB Chair has determined that the change is necessary to eliminate apparent immediate hazards to participants.*

2. Describe proposed change(s), including justification:
   In order to received Sanford IRB approval, they will not allow "name" or "date" to be on the ASRS-v1.1; even with careful instructions not to fill this out.

3. Will the change involve a change in principal or co- investigator?

☒ No - skip to Question 4
☐ Yes:

- *Include an Investigator's Assurance (last page of protocol form), signed by the new PI or co-investigator*
- *Conflict of Interest disclosure.* Does any investigator responsible for the design, conduct or reporting of the project (including their immediate family members) have a financial, personal or political interest that may conflict with their responsibility for protecting human participants in NDSU research? *(SOP 6.2 Conflict of Interest in Human Research, Investigator and Research Team)*

  ☐ No – As PI, I attest that I have conferred with my co-investigators and key personnel and confirmed that no financial, personal or political interests currently exist related to this research.
  ☐ Yes – Describe the related financial, personal or political interests, and **attach documentation of COI disclosure and review** *(as applicable).*

  Financial, personal or political interests related to the research (the sponsor, product or service being tested, or a competing product or service) may include:
  - compensation (e.g., salary, payment for services, consulting fees)
  - intellectual property rights or equity interests
  - board memberships or executive positions
  - enrollment or recruitment bonus payments

  (Refer to *NDSU Policy 151.1, External Activities and Conflicts of Interest, and NDSU Policy 823, Financial Disclosure – Sponsored Projects* for specific disclosure requirements.)

Note: If the change is limited to addition/change in research team members, skip the rest of this form.

4. Will the change(s) increase any risks, or present new risks *(physical, economic, psychological, or sociological)* to participants?
   ☒ No
   ☐ Yes: *In the appropriate section of the protocol form, describe new or altered risks and how they will be minimized.*

5. Does the proposed change involve the addition of a vulnerable group of participants?
   Children: ☒ no ☐ yes – include the *Children in Research* attachment form
   Prisoners: ☒ no ☐ yes – include the *Prisoners in Research* attachment form
   Cognitively impaired individuals: ☒ no ☐ yes*
   Economically or educationally disadvantaged individuals: ☒ no ☐ yes*

   **Provide additional information where applicable in the revised protocol form.*

6. Does the proposed change involve a request to waive some or all the elements of informed consent or documentation of consent?
   ☒ no
   ☐ yes – Attach the *Informed Consent Waiver or Alteration Request.*

7. Does the proposed change involve a new research site?
   ☒ no
   ☐ yes

If information in your previously approved protocol has changed, or additional information is being added, incorporate the changes into relevant section(s) of the protocol. Highlight (e.g. print and highlight the hard copy, or indicate changes using all caps, asterisks, etc) the changed section(s) and attach a copy of the revised protocol to this form. *(If the changes are limited to addition/change in research team members, a revised protocol form is not needed.)*

Impact for Participants (future, current, or prior):

1. Will the change(s) alter information on previously approved versions of the recruitment materials, informed consent, or other documents, or require new documents?
   ☐ No
   ☒ Yes - attach revised/new document(s)

2. Could the change(s) affect the willingness of *currently* enrolled participants to continue in the research?
   ☒ No
   ☐ Yes - describe procedures that will be used to inform current participants, and re-consent, if necessary:

3. Will the change(s) have any impact to *previously* enrolled participants?
   ☒ No
   ☐ Yes - describe impact, and any procedures that will be taken to protect the rights and welfare of participants:

----------FOR IRB OFFICE USE ONLY--------

Request is: ☒ **Approved** ☐ **Not Approved**

Review: ☒ **Exempt, category#:** 2 ☐ **Expedited method, category #** ____ ☐ **Convened meeting, date:** _____
☐ **Expedited review of minor change**

IRB Signature: [signature] **Date:** [illegible]

Comments:

APPENDIX R. SANFORD INSTITUTIONAL REVIEW BOARD ADDENDUM

SANFORD HEALTH

September 18, 2014

PI: Dean Gross, Ph.D., FNP-C
Project: 03-14-076 Adult ADHD Self-Report Scale: Implementation in a Primary Care Setting
Project Review Level: Exempt 2
Project Risk: No more than minimal
Current Approved Date Stamped Consent: 07/09/2014
Amendment: Reminder e-mail to providers
Amendment approved through Expedited Review: 09/18/2014

The Sanford Health Institutional Review Board (IRB) received and reviewed your amendment. The Sanford Health IRB has approved the amendment and the information has been added to the study file. Thank you for keeping the IRB informed of project changes.

This amendment did not require the consent form to be revised.

Prior to initiation, promptly report to the IRB, any proposed project updates / amendments (e.g., protocol amendments/revised informed consents) in previously approved human subject research activities.

The forms to assist you in filing your: project closure, continuation, adverse/unanticipated event, project updates /amendments, etc. can be accessed online at SanfordConnect.

Sincerely,

Deb Langstraat, CIP
Director-Sanford IRB

APPENDIX S. REMINDER E-MAIL TO HEALTHCARE PROVIDERS

Dear Providers and Healthcare Professionals:

My name is Taryn Treumer. I am a nurse practitioner student from North Dakota State University (NDSU). I am sending out an e-mail reminder to utilize Adult ADHD Self-Report Scale (ASRS V1.1) screening tool if a patient presents with signs and/or symptoms of ADHD. Please remember your participation in this study is completely voluntary and you are in no way obligated to use the ASRS V1.1.

There should be a **green binder** at each nurse's station with guidance and instruction about the process. Please refer to the binder or contact myself or Dr. Wilson with any questions or concerns. My contact information is: **taryn.n.treumer@ndsu.edu** or **701.320.5583.** **I will be checking the green folders for completed ASRS's at weekly to monthly intervals.**

Below is a list of signs/symptoms or red flags that may prompt you to use the ASRS V1.1:

- Substance abuse
- Frequently changing jobs/inability to keep a job
- Inattentive/distracted
- Comorbid conditions, such as anxiety or depression
- Frequent traffic violations
- 1st degree relative with ADHD
- Problems in school
- Inability to complete tasks/projects

The tool is **not** meant to be used to diagnose adult ADHD. **Your participation in this study is greatly appreciated**. Thank you for your time and efforts.

Sincerely,

Taryn Treumer
NDSU FNP Student
taryn.n.treumer@ndsu.edu
701.320.5583

APPENDIX T. EXECUTIVE SUMMARY

Project Summary

The purpose of this project was two-fold. The first aim was to improve the screening and identification of adults with undiagnosed adult ADHD for appropriate referral and treatment utilizing the ASRS v1.1. In order to accomplish this task an additional goal was created to enhance healthcare professionals' knowledge and awareness of adult ADHD. The researcher and committee members designed the project to be minimally stressful for willing participants. Factors considered included ease of use of the instrument; practicality; and benefits to the healthcare professionals and patients.

Background

Implementation of the ASRS v1.1 in a primary care setting originated because of an identified need to improve the process of screening for adult ADHD in a rural, Midwestern healthcare facility.

- Attention Deficit/Hyperactivity Disorder (ADHD) is a chronic, highly prevalent, neurodevelopment disorder in children, which may persist into adulthood (American Psychiatric Association [APA], 2013; Knutson & O'Malley, 2009; Nigg, Butler, Huang-Pollock, & Henderson, 2002).
- There are an increasing number of adults presenting in primary care with signs and/or symptoms which may be related to undiagnosed ADHD (Matheson et al., 2013; Rostain & Ramsay, 2006).
- Adults with undiagnosed ADHD typically present with comorbid conditions, such as anxiety, depression, substance abuse, and other psychosocial burdens related to a chronic sense of failure or missed potential in life (Matheson et al., 2013).

- Primary care health providers play a pivotal role in identifying individuals with mental health disorders.
- Identification and treatment of ADHD can help individuals reach their full potential, improving one's overall quality of life (National Association for Continuing Education [NACE], n.d.).
- A gap exists among healthcare providers' knowledge of adult ADHD and current screening practices in the primary care setting based on a thoroughly conducted literature review.
    - One way to develop a consistent screening process would be by the use of an adult ADHD rating scale.
        - Rating scales are valuable because they enable clinicians to obtain large amount of data relatively quickly, including information on presence and severity of symptoms (Buitelaar, Kan, & Asherson, 2011).
    - The adult ADHD Self-Report Scale version 1.1 (ASRS-v1.1) is a six question screener which has demonstrated good sensitivity (68.7%) and specificity (99.5%) (Harvard Medical School, 2005).
    - The ASRS v1.1 was developed by a group of ADHD experts and copyrighted by the World Health Organization (Harvard Medical School, 2005).

Process

In order to establish the most convenient process to implement the ASRS v1.1 and reduce workload of the project for volunteers, the researcher consulted with the involved psychologist of the intended facility as well as the supervising nurse on several occasions.

- A decision was made to have binders containing copies of the ASRS v1.1, consent form, and other pertinent resources at each nurses' station.
- Healthcare providers and nurses were given project information in numerous formats. The co-investigator attended a facility meeting to introduce the project idea to the healthcare providers.
    - E-mails were sent to healthcare providers and nurses prior to launching the project as well as thereafter to remind the healthcare professionals about the ASRS v1.1.
    - Appropriate use and instruction of the ASRS v1.1 was also provided within the binder on the first page.

Healthcare professionals were instructed to administer to the ASRS v1.1 to adult patients presenting to primary care for a wellness or episodic visit displaying signs and/or symptoms of ADHD.

- Signs and symptoms may include, but are not limited to: substance abuse; anxiety; depression; inattention; hyperactivity; impulsivity; frequently changing jobs; and no current ADHD diagnosis (Adler & Shaw, 2011).
- The project coordinator checked the binders for completed forms periodically, ranging from weekly to monthly.
- The implementation of the ASRS v1.1 began July 29th, 2014 and ceased December 31, 2014.
- A voluntary survey evaluation of the ASRS v1.1 was delivered to providers thereafter.
- Those who chose to participate returned the evaluation via postal mail within four weeks.

- Data examination of the completed screeners and evaluation surveys were analyzed by the project coordinator.

Findings

The implementation of the ASRS v1.1 in the primary care setting began on July 29th, 2014 and December 31st, 2014. The providers were allotted approximately four weeks to complete the survey evaluation forms post-implementation of the ASRS v1.1.

- Total number of patient participants screened in primary care was 20.
    - The entirety of positive screens substantiated was 16. Of the 16 positive screens, only three were documented on the screener as referred; however, it is unknown if more patients were actually referred for additional care.
- Healthcare providers choosing to participate in the study totaled six.
    - Five providers completed the evaluation form.
- Subjective information provided reinforced an enhancement in the screening process for adults with undiagnosed ADHD were achieved.
    - Providers described the tool as exceptionally valuable as well as affording simplicity to primary care providers.
    - ASRS v1.1 is straightforward, efficient, and precise.
        - A barrier of the tool is that patients could replicate a positive result due to the face validity of the tool.
- Objective One: Increase screening of adult with undiagnosed ADHD using the adult ASRS v1.1.
    - Goal met: The involved psychologist established an increase in referrals for patients with undiagnosed ADHD.

- Objective Two: Enhance healthcare professionals' knowledge and awareness of adult ADHD.
    - Goal met. None of the primary care providers employed at the Midwestern regional facility were aware of the ASRS v1.1. Three of the five providers felt their knowledge level of ADHD increased.

Recommendations

From the practice improvement project, several recommendations were ascertained.

- Configure appropriate sample size prior to initiation of the project.
- Screen patients identified as routinely missing appointments for ADHD.
- Ensure ease of access of the ASRS v1.1 for screening purposes
    - Have screener in the exam room or integrated into the electronic medical record.
- Offer a formal training and/or educational in-service for healthcare professionals about adult ADHD and the practice improvement project.

Conclusion

The National Association for Continuing Education (n.d.) recognizes lack of knowledge and misinterpretations of adult ADHD. A need to improve the screening and referral process of adult ADHD in a rural Midwestern facility was recognized. Primary care providers are typically first line in identifying mental health disorders; thus, a practice improvement project was created to improve screening and identification of adults with undiagnosed ADHD. Secondly, augmentation of healthcare provider's knowledge of adult ADHD may enhance screening; identification; and treatment of individuals who currently remained undiagnosed with the

disorder, ultimately improving one's overall quality of life, creating an opportunity to reach one's fullest potential.