UTILIZATION OF BEHAVIORAL HEALTH WITHIN A PATIENT-CENTERED MEDICAL HOME MODEL FOR CHILDHOOD ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD)

by

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Dedication

Para mi familia y para todos los Latinos a quienes les dijieron que no se puede. ¡Si se pudo!

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ABSTRACT

UTILIZATION OF BEHAVIORAL HEALTH WITHIN A PATIENT-CENTERED MEDICAL HOME MODEL FOR CHILDHOOD ATTENTION-DEFICIT/HYPERACTIVITY DISORDER (ADHD)

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University of Houston-Clear Lake, 2022

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Attention-deficit hyperactivity disorder (ADHD) is one of the most common pediatric referrals in primary care. Standard of care treatment for ADHD includes stimulant medication, behavioral therapy, and school interventions. However, traditional biomedical primary care settings often fall short in providing these services in a single setting. Instead, patients have to seek services from many providers throughout the community. Health disparities including race/ethnicity and gender are associated with limited access to primary care and behavioral health services for children with ADHD. The Patient-Centered Medical Home (PCMH) model could help underserved communities receive access to ADHD treatment. In this model, primary care physicians work collaboratively with behavioral health specialists to provide services. This study investigated ethnic and gender differences in behavioral health services as measured by

the total number of outpatient visits with primary care providers, psychiatrists, psychologists, and master's-level behavioral health specialists at a PCMH setting versus a traditional healthcare setting (comparison group). This study also investigated the likelihood of receiving ADHD medication management under a PCMH model compared to a traditional healthcare model, after controlling for gender and ethnicity. Data for this study was derived from an existing Medicaid database of patients seeking behavioral health services. A total of 2,724 cases were analyzed; 1,362 from PCMH and 1,362 from traditional fee-for-service clinics in the community. Results from this study suggest the number of encounters with behavioral health increases when psychology is integrated within primary care as opposed to a traditional setting. There was a main effect with regard to ethnicity, suggesting that those who identify as White have more encounters than Hispanic and African Americans, regardless of setting. There was also a statistically significant interaction with ethnicity and type of provider seen suggesting that the type of provider is influenced by a family's ethnicity. Finally, the likelihood of patients receiving medication was 37.6% greater at a PCMH setting than traditional setting. The current findings suggest having psychology integrated in primary care increases access to an interdisciplinary treatment plan for ADHD. Future studies should investigate the barriers African American and Hispanic families encounter that affect the number of completed visits.

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CHAPTER I:

INTRODUCTION

Mental health concerns in childhood are prevalent, with recent research indicating one in five children or adolescents meet criteria for a behavioral health concern (i.e., behavioral, emotional, and neurodevelopmental) and many others may be at risk (Danielson et al., 2018; Petts et al., 2021). Despite these concerns, many children often do not receive behavioral health treatment due to barriers including access to clinic appointments, cost of services, and mental health stigma (Chakawa et al., 2020; Petts et al., 2021). Further, marginalized groups including children from lower-socioeconomic status, racial/ethnic minorities, and families with English as a second language or limited English proficiency are at higher risk for encountering barriers (Chakawa et al., 2020; Irvin et al., 2018). There is a need to identify behavioral health concerns early and reduce barriers to receiving care.

Families often make first contact with primary care physicians (PCPs) when there are behavioral concerns for their children (Chakawa et al, 2020; Danielson et al., 2018). This uniquely positions PCPs to identify early needs of children and make referrals to appropriate providers. One of the most common pediatric behavioral concerns in primary care is ADHD (Shahidullah et al., 2018). The increased need in the diagnosis, treatment, and management of ADHD symptoms has led the American Academy of Pediatrics (AAP, 2019) to create guidelines to support PCPs. However, research has indicated PCPs have difficulty following guidelines for ADHD treatment due to not having enough time to complete these tasks. The amount of time PCPs spend with their patients is limited, and thus, it is difficult to obtain rating scales and monitor treatment outcome, communicate with other providers, and place outside referrals to appropriate mental

health providers (Epstein et al., 2010; Power et al., 2014). One way to address this issue is by incorporating behavioral health within primary care settings.

There has been a shift in improving primary care settings through the development of the patient-centered medical home model. In this primary care model, there are increased opportunities for collaboration across disciplines including behavioral health providers. Prior research has indicated integrated behavioral health increases access to mental health care for youth at risk for a variety of internalizing and externalizing outcomes (Asarnow et al., 2015). Integrated care supports PCPs in more readily identifying and co-managing behavioral health concerns in clinic including medication management (Asarnow, 2016; Burkhart et al., 2020). However, the methods of integrating behavioral health care into primary care settings vary, and there is limited research comparing integrated models and traditional models of care in primary care settings. Thus, this study aimed to compare a traditional – fee for service – model of healthcare and a patient-centered medical home model (PCMH) for the management of childhood ADHD. This study also investigated gender and ethnic group differences in the type of services received within a PCMH and traditional model.

CHAPTER II:

REVIEW OF LITERATURE

The following literature review provides a detailed overview of ADHD including diagnosis, etiology, prevalence, and outcomes within child and adolescent populations. Next, the review details the evidence-based treatments indicated for ADHD in pediatric populations. Additionally, the review examines current systems of pediatric primary care for managing symptoms of ADHD, specifically in the context of adhering to established treatment guidelines. This literature will introduce the advantages of the patient-centered medical home in management of childhood ADHD. Finally, the review details health disparities within access to ADHD treatment based on racial/ethnic and gender demographics.

Diagnosis

Attention-deficit/hyperactivity disorder (ADHD) is one of the most prevalent neurodevelopmental disorders outlined in the *Diagnostic and Statistical Manual for Mental Disorders – 5th Edition* (DSM-5) (American Psychiatric Association, 2013). ADHD is characterized by excessive levels of inattention, hyperactivity, and/or impulsivity. Behaviorally, inattention can be observed when the individual is wandering off task, not listening when spoken to, not completing tasks (e.g., chores), or is seemingly disorganized (e.g., losing materials). Additionally, the individual is forgetful in daily activities and avoids engaging in nonpreferred activities that require sustained attention (e.g., homework). Deficits in attention can be assessed with measures focused on executive functioning, across the domains of working memory, shifting attention, organization skills, and concept formation. Individuals diagnosed with ADHD often perform poorly on these assessments due to their impairments in memory, attention, and processing speed. Hyperactivity/impulsivity is defined as excessive fidgeting, such as a

child having difficulty remaining in their seat in the classroom. Further, a child with ADHD may have difficulty inhibiting automatic responses such as talking and interrupting others, difficulty with turn-taking, and difficulty thinking through consequences of behavior before acting. Symptoms of ADHD are due to deficits in inattention and/or inhibitory control and not a result of defiance or difficulty understanding the material (e.g., a child refusing to complete homework because they cannot focus compared to a child refusing to complete homework because they do not want to) (Barkley, 2015).

To meet criteria for ADHD, symptoms of inattention and/or hyperactivity/impulsivity must be present for at least six months before the age of 12 and occur across two or more settings (e.g., school, home, interpersonal relationships, or other activities). There are three different types of ADHD presentations. Diagnosis of ADHD, Combined Type occurs when six or more symptoms of inattention and six symptoms of hyperactivity/impulsivity are met. Diagnosis of ADHD, Predominantly Inattentive Type occurs when six symptoms of inattention are met and the individual displays fewer than six symptoms of hyperactivity/impulsivity. Finally, diagnosis of ADHD, Predominantly Hyperactive/Impulsive Type occurs when only six or more symptoms of hyperactivity/impulsivity are met (American Psychiatric Association, 2013).

Etiology

There is an accumulating body of evidence that suggests genetic, neurological, and environmental factors contribute to ADHD (Barkley, 2015). For example, family studies have implied that parents diagnosed with ADHD were two to eight times more likely to have children with ADHD (Biederman et al., 1990; Biederman et al., 1992). Additionally, fathers diagnosed with ADHD were more likely to pass down these genetic traits to their children (Macek et al., 2012). As such, siblings are at a higher risk of being

diagnosed with ADHD if one sibling has been diagnosed previously (Faraone et al., 1992; Levy & Hay, 2001). Finally, adoption studies have demonstrated no increased risk of ADHD in the parents of adopted children with ADHD, which further supports the genetic contribution to ADHD (Sprich et al., 2000). Twin studies suggest that heritability accounts for up to 75% of the variability in ADHD symptoms (Nikolas & Burt, 2010). Notably, monozygotic twins demonstrate higher agreement with regards to inattention and hyperactivity symptoms than dizygotic twins (Bradley & Golden, 2001). Research suggests ADHD is more likely to be present in monozygotic twins than dizygotic twins (Bradley & Golden, 2001).

Although the results from twin and adoption studies suggest a large heritability of ADHD (Gilger et al.,1992; Nikolas & Burt, 2010; Stevenson, 1994), recent studies have focused on the epigenetic effects of ADHD (Nigg & Barkley, 2014; Nigg, et al., 2010). Studies focused on epigenetic effects of ADHD report interactions between psychosocial distress and genotypes in predicting ADHD (Nigg & Barkley, 2014). Environmental effects such as low birth weight, maternal stress, parenting, and pollution are associated with dopamine transporter and serotonin transporter levels in individuals diagnosed with ADHD (Nikolas & Burt, 2010). Nonetheless, further research is needed in this area. For example, a particular interest in the field is to determine if specific psychosocial distress triggers different components of ADHD (e.g., hyperactivity, inattention) at different time points in an individual's development (Nigg et al., 2010). It is hypothesized that early distress (e.g., perinatal) alters genetic expression to influence hyperactivity and later distress (e.g., psychosocial factors) influences inattention; however, more research still needs to be conducted (Mick et al., 2002; Owens & Hinshaw, 2015).

Early neuroimaging studies demonstrated structural brain abnormalities in individuals diagnosed with ADHD (Castellanos et al., 1996). For example, studies using

magnetic resonance imaging (MRI) indicated that children diagnosed with ADHD had smaller brain sizes than the control group (Shaw et al., 2011); therefore, it was hypothesized that smaller brain size was associated with executive function deficits. Studies using functional magnetic resonance imaging (fMRI) have found differences in brain activity within the basal ganglia, frontal region, cerebellum, and anterior cingulate, among other regions (Cubillo & Rubia, 2010; Dussault & Weyandt, 2013; Sidhu et al., 2012; Sridhar et al., 2017). These regions are responsible for emotion regulation, motor skills, inhibitory behaviors, and other executive functioning skills which are implicated in ADHD (Sridhar et al., 2017). White matter connects brain regions together and facilitates neural communication between the right and left hemisphere (Qui, et al., 2011). Abnormalities in white matter have been associated with emotion dysregulation and motor skill problems and have been found in children with ADHD (Qui et al., 2011; Weyandt, Swentosky, & Gudmundsdottir, 2013).

Neuropsychological studies have also investigated deficits in children with ADHD (Barkley, 2015). For example, children with ADHD have been observed to have difficulty with executive function assessments testing working memory, inhibitory, attentional, and organizational skills (McConaughy et al., 2009; Rajendran et al., 2013; Weyandt, Willis, Swentosky et al., 2013). By and large, there is significant evidence for deficits in executive functioning which are mediated by the prefrontal cortex region (Coolidge et al., 2000). Finally, there is no conclusive evidence for which neurotransmitters are responsible for deficits in ADHD; however, molecular genetic studies have suggested dopamine (DA) and norepinephrine (NE) play a vital role in ADHD (Arnsten, 2009; Tripp & Wickens, 2008). For example, stimulants used to treat ADHD symptoms target DA reuptake inhibitors and agonists as well as NE reuptake inhibitors (Spencer et al., 2013; Swanson, et al., 2011; Volkow et al., 2012).

Prevalence

According to the National Health Interview Survey (NHIS) data, it is estimated that up to 8.8% of children ranging in age from 3 to 17 are diagnosed with ADHD in the United States (Centers for Disease Control and Prevention [CDC], 2019). Further, boys are approximately two to three times more likely to be diagnosed with ADHD than girls. More specifically, the male to female ratio is about four to one for predominantly hyperactive/impulsive type and two to one for predominantly inattentive type. Nonetheless, research has implied that girls are likely to be underdiagnosed for predominantly inattentive type because they are more likely than boys to overcompensate for their symptoms (Biederman, Petty, Evans et al., 2010). For example, girls were likely to spend more time studying and completing their assignments (Biederman, Petty, Monuteaux et al., 2010).

Outcomes

Longitudinal studies suggest childhood ADHD persists into adolescence in about 50-80% of cases and into adulthood in about 35-65% of those cases (Biederman et al., 2006; Eme, 2017; Owens et al. 2015). Persistent cases with greater impairment during follow-up studies were more likely to be associated with initial higher hyperactive/impulsive symptoms than inattentive symptoms (Biederman, Petty, Evans, et al., 2010).

There are several outcomes associated with lifetime ADHD. For example, outcomes associated with hyperactivity/impulsivity symptoms include antisocial behavior, substance use, accidental injuries, and other risky behaviors, whereas outcomes associated with inattentive symptoms include academic difficulties, and social skill problems (Jensen et al., 2001; Lahey et al., 2016; Newcorn et al., 2001). To some extent, these varied outcomes are also a result of comorbid disorders typically associated with

ADHD. Children diagnosed with ADHD are at an increased risk to develop oppositional defiant disorder (ODD), conduct disorder (CD), substance use disorder (SUD), specific learning disability (SLD), anxiety related disorders (ARD), and major depressive disorder (MDD). Specifically, 40% of children diagnosed with ADHD will eventually be diagnosed with ODD (Swanson et al., 2008). The development of ODD may increase the risk of later CD, depression, and anxiety (American Psychiatric Association, 2013). Childhood ADHD has also been linked to specific academic problems, including failing grades, referrals to special education, grade retention, high school dropouts, and difficulty completing higher education (Barkley et al., 2008). Additionally, CDC data from 2019 suggest that almost half of children ages 6-17 diagnosed with ADHD also have a diagnosis of a specific learning disability. Finally, studies indicate that about one in five children will develop anxiety, and one in seven will develop depression (Pliszka, 2016).

These difficulties in emotion regulation and disruptive behaviors are likely to influence interpersonal relationships. In fact, parent-reports demonstrated that children with ADHD are 10 times more likely to have peer conflicts as compared to children without ADHD (McQuade & Hoza, 2015). The negative outcomes associated with persistent ADHD have driven professionals to develop effective treatments for the management of ADHD symptoms.

Evidence-Based Treatment for Childhood ADHD

Treatment for ADHD symptoms continues to expand; however, the evidence-based treatments for ADHD are stimulant medications, behavioral interventions (e.g., parent training, classroom management, peer intervention, organizational skills training), and a combination of behavioral and medication treatment (Barkley, 2015). Much of the earlier research focused on examining the effectiveness of each treatment as its own intervention (Faraone & Buitelaar, 2010). For example, there are studies demonstrating

the short-term effectiveness of reducing ADHD symptoms by either medication (Greenhill et al., 2002) or behavioral intervention alone (Patterson & Chamberlain, 1994). Despite demonstrating effectiveness, consolidation of this literature is complicated because of varied operationalization of "long-term treatment outcome," type of medication/behavioral intervention, individual differences that were unaccounted for, and the setting in which treatment was delivered (Shahidullah, 2015). More recent research has focused on combining medication and behavioral treatment to address these limitations (Majewicz-Hefley & Carlson, 2007). Evidence for medication intervention, behavioral intervention, and their interaction are reviewed below.

Pharmacological Treatment

Stimulant medications [methylphenidate (MPH) and amphetamines (AMP)] are the most common treatment for ADHD in children (Greenhill et al., 2002). These medications enhance dopamine and norepinephrine neurotransmission in the central nervous system (Swanson et al., 2011). By enhancing these neurotransmitters, inattention, impulsive behavior, and hyperactivity become better controlled (Pliszka, 2007). Indeed, the American Academy of Pediatrics (AAP, 2019) recommends the use of stimulant medication along with parent-focused behavioral therapy and/or behavioral classroom intervention as the first line of treatment for children six years and older. Long-lasting stimulants are preferred because symptom relief can happen for longer periods of time (e.g., up to 24 hours) as opposed to short acting stimulants that work for three-to-six hours. Further, children aged six and older are in school and therefore benefit from medication that can help them focus during an eight-hour day. A three to four-week trial is recommended because children react to side effects differently and pediatricians need to monitor this in the initial phase of treatment. Although behavioral interventions (e.g., parent management, classroom interventions) should be the first line of treatment

for children younger than six years old, the AAP (2019) recommends MPH stimulants if behavioral interventions do not improve symptoms. MPH has relatively low risk in children in this age group and can be beneficial in cases where behavioral services are not available (Evans et al., 2018). Nonetheless, side effects from MPH can occur in pre-school aged children. For example, sleep and appetite problems as well as social withdrawal have been observed in preschool age children and can lead to problems regarding their cognitive development (Greenhill et al., 2006). The literature on stimulant medication for the treatment of ADHD in children six or older is robust and dates back to the 1970's (Kugel et al., 1975). Stimulant safety data and efficacy has expanded from the initial focus of school-aged children to include preschoolers, adolescents, and adults; however, fewer studies have investigated stimulant medication efficacy for girls and ethnic minorities (Adler et al., 2009; Biederman & Spencer, 2008; Kratochvil et al., 2004; Vaughan & Kratochvil, 2012).

Randomized controlled trials have demonstrated that stimulants are far superior to placebos in reducing ADHD symptoms (Connor & Steingard, 2004). The National Institutes of Mental Health funded the Multimodal Treatment Study for ADHD (MTA) to evaluate treatment effectiveness of stimulant medication, behavioral therapy, and combination of both treatments. This was a multisite study and multiple follow up studies were conducted by the MTA Cooperative Group (MTA Cooperative Group, 1999a, 1999b, 2004). These studies found that participants in the medication group and combined treatment groups yielded the largest reduction in ADHD symptoms when compared to behavioral interventions and the community treatment group. Of note, up to 67% of the community treatment group reported receiving stimulant medication. Although most participants in the study received stimulant medication, either from MTA Cooperative Group or independent community providers, differences emerged between

the groups. Medication titration appeared to be different between the MTA Cooperative Group and community providers group with regard to follow-up visits and appointment adherence. Participants who were provided medication from MTA Cooperative Group, received longer appointments and were more frequently followed by a provider (eight visits per year) compared to those in the community group. ADHD improvement was higher for MTA Cooperative Group participants; therefore, titration and follow-up visits are now critically important in the AAP (2019) ADHD treatment guidelines.

Meta-analyses have also indicated low to moderate effect sizes for AMP stimulants when compared to MPH stimulants and statistically significant differences between both types of stimulants and placebo groups (Crenshaw et al., 1999; Faraone & Buitelaar, 2010; Majewicz-Hefley & Carlson, 2007). For example, children with ADHD given AMP stimulant medication demonstrated a reduction of hyperactive symptoms (Cohen's d = .72) and aggressive behaviors (Cohen's d = .61) when compared to those who received MPH medication (Faraone & Buitelaar, 2010). Although there is a similar effect in adolescent samples, effect sizes tend to be lower when compared to studies of children (Faraone & Buitelaar, 2010).

There are clear benefits of these medications in targeting the core symptoms of ADHD (Connor & Steingard, 2004). The benefits can be observed at one-to-two years post-treatment; however, studies have indicated stimulants do not produce long-term (i.e., two or more years) benefits once medication has been discontinued (Molina et al., 2007; Swanson et al., 2007). As part of the eight-year MTA study follow-up, Molina et al. (2007) demonstrated no beneficial effects of stimulant medication were apparent after treatment was discontinued for any of the symptom subtypes. In fact, Swanson and colleagues (2007) found that the medication treatment effects in the MTA study appeared to dissipate completely soon after medication was discontinued. Further, medication has

not demonstrated effectiveness in addressing many important areas of functional impairment such as academic, social, and behavioral skills (Pelham & Smith, 2000). Data also suggests between 20 and 30% of children affected with ADHD may not respond to stimulant medication and/or may not be able to tolerate associated side effects (e.g., sleep disturbance, appetite suppression, mood difficulties, exacerbation of comorbid tic disorders; Schachter et al., 2001).

Nonstimulant medications are also recommended such as Atomoxetine, Clonidine, and Guanfacine if children have been unresponsive to stimulants or have significant adverse side effects (AAP, 2019). Although nonstimulant medication is recommended when stimulant medication fails, the literature on the effectiveness of nonstimulant medication for ADHD is scarce (Wu et al., 2012). A few studies have found nonstimulants have been associated with improvements in ADHD symptoms including hyperactivity, distractibility, and aggression (Vaughan & Kratochvil, (2012). Current ADHD treatment guidelines have included adjunctive behavioral interventions (e.g., parent management therapy, behavioral classroom interventions) to medication to address these concerns.

Behavioral Interventions: Parent Management Training & Classroom Management

Organizations such as the APA Division of Child and Adolescent Psychology, National Institute of Mental Health (NIMH), and American Academy of Pediatrics (AAP) all recommend having behavioral interventions as evidence-based treatment for ADHD (AAP, 2019). In fact, the AAP suggest behavioral intervention as first line treatment with adjunct medication, if needed for preschool age children. For school aged children, medication and behavioral interventions including parent management training and/or behavioral classroom management should be considered. For adolescents, medication, behavioral interventions, and an educational plan such as 504 plan or special

education services are recommended. Behavioral interventions target the externalizing symptoms associated with ADHD including oppositionality, aggression, hyperactivity, and conduct problems (Patterson & Chamberlain, 1994). Research recommends behavioral interventions include skills targeting parents, teachers, and children (Barkley, 2013; Eyberg & Funderburk, 2011; Webster-Stratton, 2006).

There is consensus that ineffective parenting practices including inconsistent discipline, poor supervision, and harsh parenting practices are predictive of negative outcomes for children with externalizing problems, including those related to ADHD (Patterson 1982; Patterson & Chamberlain, 1994); therefore, many of the behavioral programs incorporate parent management training. Parent management training (PMT) is presumed to alter child behavior through parenting behaviors such as positive reinforcement, supervision, and consistent limit-setting, as well as strong parent-child relationship (Kaminski et al., 2008). Within the context of ADHD, PMT teaches parents skills to manage disruptive behaviors that arise from underlying executive function and self-regulation deficits (Drugli et al., 2010; Eyberg et al., 2008). A few of these programs include *Parent-Child Interaction Therapy* (Eyberg & Funderburk, 2011; Eyberg et al., 2014), *Defiant Children* (Barkley, 2013), *Incredible Years* (Webster-Stratton, 2006) and *Helping the Noncompliant Child* (McMahon & Forehand, 2006). These programs have been effective in reducing behavioral problems (Shriver & Allen, 2008); however, some studies report these interventions are not feasible in certain settings due to the length of treatment (e.g., primary care; Elkin et al., 2017). Brief behavioral interventions have thus been developed to address this problem. An evidence-based example of brief intervention is *Primary Care Triple P* (Sanders, 2008). This program has fewer sessions than traditional therapy, typically three to six sessions. There is support to suggest a decrease

in problem behaviors as well as an increase in parenting skills after completing this brief intervention (Nowak & Heinrichs, 2008; Sanders, 2008).

The skills targeted by all behavioral programs include shaping behavior through principles of reinforcement and punishment, positive attention and planned ignoring, learning how to give clear commands, using effective time-out protocols, and utilizing contingency-based behavioral charts (Kazdin, 2005). Further, programs that include psychoeducation about parent-child relationship and parent training have demonstrated positive improvements in ADHD symptoms as well as parent-child interaction and parenting stress (Heath et al., 2015; Gerdes et al., 2012; Reiff & Stein, 2011). Barkley (2013) discusses the importance of addressing generalization and barriers early on in treatment to increase positive outcomes. For example, if parents are having difficulty implementing skills for a target behavior during the start of treatment, then their self-efficacy decreases, and it will be difficult to generalize the skills to other problem behaviors. By identifying barriers and problem solving when problem arise, parents are able to learn the skills and effectively use them (Barkley, 2013).

Studies utilizing behavioral interventions (e.g., parent management training, behavioral classroom management) yield moderate to large effect sizes when compared to waitlist control groups (Cohen's d = .47 to .70) (Pelham, 2012; Pelham & Fabiano, 2008; Patterson & Chamberlain, 1994; Pelham et al., 1998). Behavioral classroom management showed small to moderate effect sizes for group-design studies (Cohen's d = -.09 to .08) and within-group design and single-subject design studies (Cohen's d = .06 to .57) (Evans, et al., 2018). Overall, behavioral interventions have been shown to have positive outcomes for ADHD (Cohen's d = .39 to 1.25) (Evans, et al., 2018).

When compared to stimulant medication, the results tend to be equivocal. The MTA (1999a) study found behavioral interventions to be equivalent to community care

medication (Cohen's d = -.01) and MTA medication management was slightly better than behavioral intervention (Cohen's d = -0.24). However, other studies have indicated behavioral interventions to be superior to medication (Cohen's d = 2.56, Reitman et al., 2001). It appears medication improves inattention and hyperactivity/impulsivity whereas behavioral interventions target oppositionality, aggression, and conduct problems. For this reason, studies have examined the effectiveness in combining medication and behavioral interventions for the treatment of ADHD.

Combined Treatment: Behavioral Therapy and Medication

Literature on the effectiveness of combining medication and behavioral intervention has shown increased positive treatment outcomes as compared to using either treatment alone (Merrill et al., 2016; Pelham et al., 2016). For example, a meta-analysis demonstrated symptom reduction in a combined stimulant/behavioral intervention group (Majewicz-Hefley & Carlson, 2007). When compared to medication, combined treatment reduced inattention (Cohen's d = 1.97), impulsivity (Cohen's d = .91), and hyperactivity (Cohen's d = 1.27) (Majewicz-Hefley & Carlson, 2007). Another study assigned children into eight weeks of medication, behavioral intervention, or a combined treatment (Klein & Abikoff, 1997). The authors found improvement rates in self-reported parent, teacher, and psychiatrist measures for children who received the combined treatment. Specifically, rates in this treatment group were in the 90% range as compared to the other two groups who were in the 50-70% range (Klein & Abikoff, 1997).

Swanson et al. (2001) created a categorial measure to analyze treatment outcomes from the MTA data based on teacher and parent self-report measures. Results indicated symptom reduction at 68% for the combination group, 56% for the medication management group, 34% for the behavioral intervention group, and 25% for the

community care group. Conner et al. (2001) used composite measures to analyze the difference between the MTA groups. The authors found a small, but meaningful effect such that the combination group had better reduction in symptoms of ADHD than the medication management group (Cohen's d = .28). Whereas the MTA study yielded evidence in support of combining medication and behavioral interventions, these outcomes are short-term. If treatment is discontinued, the benefits of treatment to reduce ADHD symptoms is the same as community care after two years (Swanson et al., 2008; Swanson et al., 2001). However, this is not surprising as ADHD is a chronic disorder and needs to be treated effectively over time (Biederman, Petty, & Evans, et al., 2010).

There is robust evidence to support pharmacological and behavioral interventions for children diagnosed with ADHD (MTA Cooperative Group, 1999a, 1999b, 2004; Swanson et al., 2008); however, not all children receive treatment (Cummings et al., 2017). Psychiatrists, initially, were responsible for prescribing stimulants for ADHD; however, long wait times to receive treatment meant children were going without treatment (AAP, 2019). To address this issue, the AAP has encouraged pediatricians to treat ADHD. Further, pediatricians can follow a child throughout their development and adjust medication dosage and refer to behavioral interventions (Adler & Alperin, 2015).

Treatment of ADHD in Primary Care

Primary care physicians (PCPs) provide care across the lifespan and address numerous mental health problems; however, ADHD is one of the most common pediatric psychiatric disorders PCPs manage (Mark et al., 2009; Mojtabai, 2008). The AAP has set guidelines for PCPs in how to assess, manage, and treat ADHD within a primary care setting (AAP, 2019; Connor & Steingard, 2004). Specifically, these guidelines recommend PCPs initially evaluate ADHD by interviewing their patient and using the DSM-5 criteria in order to assess impairment, inform additional, standardized measures,

and rule out any other disorders (e.g., mental, organic) (AAP, 2019). Further, PCPs are recommended to prescribe stimulant medication as a first-line intervention (depending on child age) and have routine follow-up appointments with patients diagnosed with ADHD. It is also recommended that pediatricians refer parents of children with ADHD for behavioral therapy and referrals for school-based interventions (AAP, 2019).

Despite detailed guidelines regarding how PCPs should manage patients with ADHD, research has indicated that PCPs do not often follow them (Epstein et al., 2007; Wolraich et al., 2010). In fact, although one review suggested 81% of pediatricians used formal criteria to diagnose ADHD, of those pediatricians, only 26% used DSM Criteria. Further, although evidence-based assessment for ADHD is improving (e.g., assessing across multiple settings of child functioning), only 67% of pediatricians include teacher rating forms (Wolraich et al., 2010). This is not surprising given pediatricians often use their clinical judgement to assess for ADHD rather than parent and teacher informant rating scales of behavior (Chan et al., 2005). Another study found 33% to 44% of pediatricians completed follow-up visits after prescribing stimulant medication to patients with ADHD (Zima et al., 2010). It is likely that training and time are barriers to implementing these guidelines (Langberg et al., 2009). For example, communicating with school staff, family, and other medical providers takes time and resources outside of the primary care setting (Langberg et al., 2009). These visits also do not include a review of school records, behavioral observations, assess parenting skills to manage behavior, or analyze data from standardized measures (Moore et al., 2018). Other psychosocial factors such as family financial stress, recent family changes, comorbid psychiatric disorders, and academic problems could be influencing symptoms, but are often not effectively assessed during these visits (Langberg et al., 2009; Moore et al., 2018). Adequately

assessing these domains is essential for the development and implementation of appropriate and effective treatment of ADHD.

It is likely PCPs will continue to assess and diagnose ADHD given that families are more likely to seek services from their PCP rather than a mental health professional (Chan et al., 2005). Further, in some states, PCPs must provide input on school forms in order for children with ADHD to receive specialized school supports under IDEA (Individuals with Disabilities Education Act) (Schutte et al., 2017). For example, per the Texas Education Code (2001), a physician's input is required as part of the school evaluation process for determining Other Health Impairment eligibility due to ADHD. In addition, schools and parents often seek ADHD assessments from physicians as part of accessing Section 504 accommodations for students with ADHD. Thus, in some states it will be highly important for PCPs to be knowledgeable in assessing for ADHD. Having a behavioral health integrated model could help address the challenges associated with assessing ADHD in children within primary care settings (Moore et al., 2018). By having collaborative and interdisciplinary care for ADHD in primary care settings, children will be able to receive medication, behavioral interventions, and recommendations for school-based interventions (Mark et al., 2009; Mojtabai, 2008; Moore et al., 2018; Shahidullah, et al., 2018). Indeed, when a behavioral health consultant is included in the treatment plan of ADHD, PCPs are more likely to follow AAP guidelines. Further, parent satisfaction and adherence to treatment also increase when consultation with a behavioral health is included (Epstein et al., 2007).

Patient-Centered Medical Home

The majority of childhood disruptive behaviors are seen within primary care settings (Auxier, et al., 2013; Campo, et al., 2018; Robinson & Reiter, 2016). Traditional settings, such as outpatient therapy or pediatric offices, are more likely to deliver services

in a fragmented and uncoordinated way and patients have reported feeling dissatisfied with elements of their care (Enthoven, 2009). For instance, many patients have long wait periods before being able to see their PCP. If the presenting problems are outside of the scope of their provider, they are referred out to another provider, typically outside of the facility. Further, it is the patient's responsibility to find/determine the appropriate insurance coverage for their referral. The delivery of services is organized in an individual fashion rather than coordinating services or communicating with other providers (Robinson & Reiter, 2016). Communication among the patients' diverse providers is very limited or scarce (Epstein et al., 2007; Enthoven, 2009), which is problematic as a multidisciplinary unified treatment plan has not been developed (Auxier et al., 2013). Instead, patients are required to adhere to individual treatment plans from each provider, making it more difficult to manage care or integrate conflicting advice (Epstein et al., 2007).

The need to provide services for a broad range of problems has led primary care practices to integrate behavioral health services (Robinson & Reiter, 2016). In 2004, the American Academy of Family Physicians (AAFP) released the Future of Family Medicine report describing changes from a traditional model of family medicine into a new model that would enhance patients' access to care in a personal medical home (Robinson & Reiter, 2016). The AAFP envisioned care as preventative, collaborative, comprehensive, and patient-centered. In 2006, the American College of Physicians (ACP) highlighted the need for a medical home of patient care. Specifically, an advanced medical home would provide care longitudinally to patients and would focus on integrating services across medical, social, and psychological domains (Auxier et al., 2013). In that same year, the technology company IBM joined forces with other national employers to help create the Patient-Centered Primary Care Collaborative (PCPCC,

2011). The goal of PCPCC was to reach out to AAFP, ACP, and other primary care groups in order to facilitate better physician-patient relationships and create a more efficient model of primary care (Robinson & Reiter, 2016). The PCPCC created an open forum to discuss primary care in the country and find solutions to the current health care system. This led to the development of the Patient-Centered Medical Home (PCMH) model. Finally, the Patient Protection and Affordable Care Act (PPACA) further established the PCMH as the model for primary care (Goodson, 2010). The PCMH model includes multiple providers providing primary care and behavioral health services.

There are seven principles within the PCMH model including: 1) a strong physician-patient relationship in which the physician provides comprehensive and continuous care; 2) the physician leads an interdisciplinary team responsible for ongoing care of the patient; 3) a physician is responsible for providing acute or chronic care for all of the patient's needs or appropriately referring care to other qualified professionals within the same facility; 4) care is coordinated or integrated between the health care system and patient's community by securely communicating patient's health care information to ensure appropriate care; 5) safe and quality care is provided through evidence-based treatment; 6) access to care is expanded by assessing the needs of patients during well-child visits; 7) and cost of services are determined by the care provided from physicians (Goodson, 2010). PCMH is assessed and recognized by the National Committee for Quality Assurance (NCQA, 2017a, 2017b, & 2017c).

The NCQA (2017b) focuses on six areas of a health service organization's practice including: 1) team-based care helps structure leadership and partner with patients and families; 2) data collection helps inform evidence-based clinical decisions; 3) patients access to clinical advice helps with continuity of care; 4) utilize care management protocols in order to identify patients who need more closely managed care;

5) primary and specialty care clinicians communicate and coordinate effectively to ensure patient care is well managed; and 6) setting goals that will help increase quality improvement and measure performance. The goal of standard care also involves how much behavioral health is integrated within primary care settings.

In summary, the AAF and ACP highlighted the need to develop a care center to be able to increase services for patients experiencing problems across multiple domains including medical, social, and mental health. The resulting solution was the PCMH model of care. Within this model, providers are able to communicate with each other and develop a treatment plan for patients. Further, access to care increases for patients by having been assessed by a provider and referred to a provider within the system.

Integrated Behavioral Health

The terms coordination, co-located, and integrated care are often used interchangeably and can lead to confusion about behavioral health integration (BHI) within primary care models. Nonetheless, the goal of BHI is to provide mental health services to patients already receiving care at a primary care center. Behavioral health providers are able to bring expertise for addressing behavioral needs to patients. Further, PCPs are able to have immediate consultations or refer to a behavioral health provider within the same system when BHI is part of the primary care setting. The Health Resources and Services Administration (HRSA) and the Substance Abuse and Mental Health Services Administration's (SAMHSA) provide definitions to coordinated, co-located, and integrated care by noting these are three different categories with two levels of degree (SAMHSA-HRSA, 2013; SAMHSA-HRSA-CIHS, 2017).

The first category is coordinated care in which communication is the key and differentiates between Level 1 and Level 2. For example, Level 1 consists of minimal collaboration between providers. Providers do not work in the same facility and rarely

communicate with each other. When communication does occur, it is about specific information of a mutual patient. Level 2 consists of basic collaboration between providers. Behavioral health and primary care providers periodically discuss and share information about shared patients (SAMHSA-HRSA, 2013; SAMHSA-HRSA-CIHS, 2017).

The second category is co-located care and the difference between Level 3 and Level 4 is the proximity of providers. For example, Level 3 consists of providers being in the same facility and having basic collaboration more frequently via phone, email, or face-to-face meetings about shared patients. At this level, the team does not know how to operate effectively because their roles are not clearly defined, which leads to providers making decisions independently. At Level 4, there is a close collaboration with some system integration. The facility is embedded with a primary care provider and a behavioral health provider. These providers are able to access and enter notes within the same medical record. The providers will consult with each other face-to-face and work together on shared patients. As these providers are able to consult, they have a better understanding of their roles within the treatment team (SAMHSA-HRSA, 2013; SAMHSA-HRSA-CIHS, 2017).

The last category is integrated care and the difference between Level 5 and Level 6 is practice change. At Level 5, close collaboration is being practiced within primary care. The providers are functioning as a true team. The team actively seeks solutions as they recognize barriers to care for a broader range of patients. Providers understand the different roles team members need to play and they have started to change their practice and the structure of care to better achieve patient goals. At Level 6, the highest level of integration, full collaboration is being practiced. At this level, there is a fuller collaboration happening between providers. Providers and patients view the operation as

a single health system treating the whole person. The principle of treating the whole person is applied to all patients, not just targeted groups (SAMHSA-HRSA, 2013; SAMHSA-HRSA-CIHS, 2017).

Research on PCMH and BH Integration

Studies have indicated PCMH increases patient and staff satisfaction, increases access to care, helps better manage chronic conditions, and lowers health care cost (Friedberg et al., 2015; Langston et al., 2014; Rosenthal et al., 2015; Sinaiko et al., 2017; Van Hasselt et al., 2015). Furthermore, including BH integration into primary care settings has been associated with increased adherence to treatment, increased access to mental health services, lower health care cost, and improved patient satisfaction with health care (Aguirre et al., 2012; Asarnow et al., 2015; Kwan & Nease, 2013).

Research examining ADHD treatment within an integrated primary health care setting is scarce (Epstein et al., 2010; Power et al., 2014; Shahidullah et al., 2018). Nonetheless, research has indicated primary care providers acknowledge the importance of shared care between providers for the treatment of ADHD (Epstein et al., 2010; Guevara et al., 2005). In fact, one study found primary care providers felt more confident in providing ADHD care when collaborating with a mental health professional (Hassink-Franke et al., 2016). Further, when PCPs utilize self-report measures to track outcomes (e.g., Vanderbilts) they are more likely to adhere to AAP treatment guidelines (Epstein et al., 2010). Moore and colleagues (2018), investigated the treatment management of ADHD in a co-located or fully BH integrative primary care clinic. The authors found both groups produced higher levels of AAP ADHD treatment adherence when compared to practices without BH. Further, those in the fully integrated BH group had higher levels of medication follow-up than the co-located BH group. In addition to adherence, Shahidullah (2015) demonstrated that patients treated for ADHD in an integrated

community-based clinic which provided medication and behavioral therapy saw a reduction in externalizing ADHD symptoms (e.g., hyperactivity, aggression, conduct problems). These patients were followed by a primary physician and a behavioral health specialist for 12-weeks (Shahidullah, 2015). It appears the integration of behavioral health in primary care can facilitate ADHD treatment adherence and improve symptoms in the short-term; however, future research still needs to be conducted.

Health Disparities

The majority of the research investigating racial/ethnic health disparities has focused on adult populations (Mehta, et al., 2013). This is concerning noting that children are also affected by racial/ethnic disparities (Mehta et al., 2013; Shi & Stevens, 2005; Zur & Jones, 2015). Ethnic minority children face greater health challenges than White children (Mehta, et al., 2013; Simpson et al., 2005; Shi & Stevens, 2005; Zur & Jones, 2015). For example, ethnic minority children are more likely to develop asthma, allergies, obesity, and other conditions, including mental health problems (Butler, 2014; Mehta et al., 2013). Further, African-Americans tend to have higher prevalence of health problems when compared to other ethnicities (Butler, 2014; Mehta et al., 2013). Research regarding access to healthcare, however, has been mixed (Cummings et al, 2017; Mehta et al., 2013; Shi & Stevens, 2005; Zur & Jones, 2015). For example, Zur & Jones (2015) found no ethnic differences in receiving well-child visits or dental services; however, emergency department visits were higher for White children. The authors suggest their small sample size (N = 590) may have contributed to their results. On the other hand, Cummings and colleagues (2017) found that Asians, Hispanics, and African Americans were less likely than White individuals to have a care center in which they received regular care. Further, ethnic minorities were more likely to receive services from multiple providers across different locations (Shi & Stevens, 2005).

Community health care settings, such as primary care clinics, are associated with improvements in physical health functioning and a reduction in health care costs; however, many disadvantaged children do not have access to community health care (Mehta et al., 2013). Risk factors influencing access to care include SES, access to health insurance, cultural barriers, and convenience of services (Stevens et al., 2006). Studies have demonstrated that low income and lack of (or inadequate) health insurance coverage are associated with insufficient access to primary and preventive care (Flores et al., 2005; Simpson et al., 2005; Shi & Stevens, 2005;). Indeed, Visser and colleagues (2016) found that ADHD diagnosis is higher for children covered by Medicaid. Studies have suggested that children from low-income families are more likely to meet diagnostic criteria for ADHD; however, those children are less likely to receive treatment compared to children in higher socioeconomic status (SES) families (Froehlich et al., 2007). Further, convenience of services (e.g., travel time, transportation) and language and cultural barriers have also been found to hinder access to care (Butler, 2014; Shi & Stevens, 2005; Zur & Jones, 2015). In order to address these issues, there has been a move to include primary care settings in underserved communities (Shi et al., 2013). Routine care (e.g., well-child visits) utilization, dental visits, and other health care service utilizations tend to increase when primary care settings are established in underserved communities (Shi et al., 2013; Zur & Jones, 2015).

Racial/ethnic health disparities are also present when looking at specific chronic illnesses such as ADHD. Hispanic youth are less likely to be diagnosed with ADHD when compared to White youth (Coker et al., 2016). For example, the prevalence of ADHD in the United States is highly represented in minority and marginalized groups (12.8% African-American, 12% White, 6.1% Hispanic, and 7.7% other; NHIS, 2019). Prevalence rates indicate ethnic minorities are being underdiagnosed as opposed to White

children who are often overdiagnosed (Coker et al., 2016). Although there are no ethnic differences in the initiation of ADHD medication once diagnosed (Coker et al., 2016), treatment adherence for ADHD medication is lower for ethnic minority children as well as children with lower SES (Ji et al., 2018). Cummings and colleagues (2017) found discontinuation of ADHD medication was much higher for ethnic minority children than White children. The authors posit that cultural health beliefs or concerns about ADHD medication treatment could have affected treatment adherence. Follow-up visits to titrate medication or monitor side effects is less likely to occur among African-American than Hispanic and White children, suggesting medication discontinuation could be a result of inadequate PCP visits (Coker et al., 2016; Cummings et al., 2017).

Little is known with regards to whether there is a racial/ethnic difference in receiving behavioral therapy for the management of ADHD. Nonetheless, children with ADHD living in low-income communities who belong to ethnic minority groups are at an increased risk of not receiving adequate care (Power et al., 2014), and this may relate to problems with accessing or maintaining care. In terms of access, research suggests parents' understanding of ADHD and mental health stigma, along with mistrust in medical providers, may contribute to whether or not they seek treatment for their children (Eiraldi et al., 2006). Additionally, Butler (2014) suggests that ineffective communication between providers and parents increases when the parent is an ethnic minority – creating further health disparities in the care received. Further, specific demands placed on parents during parent management training can decrease adherence to behavioral treatment, which may contribute to lower treatment dosage and behavioral outcomes (Eiraldi et al., 2006). For example, spending 10 minutes a day practicing special time or following through with a time out for a tantrum can be time consuming for parents (Butler & Eyberg, 2006). Further, Cummings and colleagues (2017) found that patients with

Medicaid insurance were more likely to disengage from treatment at the start of medication initiation, which in turn affected their continuation with behavioral therapy. In contrast, some studies suggest ethnic minorities are more likely to continue to receive behavioral therapy as opposed to medication (Wolraich et al., 2011). For example, African-American and Hispanic parents may prefer behavioral therapy over medication due to the belief that medication is ineffective or concern regarding side effects (Coker et al., 2016). Currently, research is mixed on racial disparities for behavioral treatment; however, focusing on reducing barriers to treatment for all families, including historically marginalized patients, is an area of interest in the field (Butler & Titus, 2015; Petts & Shahidullah, 2020).

Gender health disparities within ADHD diagnosis and treatment also exist (Owens et al., 2015). The development and core symptoms of ADHD are similar for both genders; however, research has suggested there are gender differences in the expression of ADHD symptoms (Hinshaw et al., 2012). For example, compared to girls, boys exhibit more hyperactivity-impulsivity symptoms and, thus, may display more disruptive behaviors (Elkins et al., 2011). On the other hand, girls tend to exhibit more inattentive symptoms as compared to boys (Elkins et al., 2011). Thus, girls may display greater difficulty focusing instead of engaging in disruptive behavior. These differences likely affect referral to ADHD treatment (Babinski et al., 2013). For example, boys are referred to ADHD treatment at a higher rate than girls (Bauermeister et al., 2007). It is possible that both parents and teachers are more motivated to seek help for disruptive behaviors compared to inattentive behaviors. Teachers tend to provide more corrective feedback to boys than girls due to boys generally being louder and more disruptive than girls (Babinski et al., 2013). Although boys are two to nine times more likely to be referred to treatment, (Babinski, et al., 2020) research has indicated that there are few gender

differences in treatment response (Biederman, Petty, Evans et al., 2010). Indeed, once a child is referred to treatment, both boys and girls benefit comparably from behavioral therapy and medication for ADHD (MTA Cooperative Group, 2004), though this may differ based on the treatment modality (e.g., boys have higher treatment response than girls in group treatment settings; Babinski et al., 2013). Thus, some studies have suggested modifying treatment based on gender because of differences in symptom presentation and comorbid disorders experienced by boys and girls (Babinski et al., 2013).

Girls with ADHD tend to experience higher levels of depression, anxiety, self-esteem, and body image concerns compared to their male peers with ADHD (Babinski et al., 2013). These difficulties tend to impact functioning in social relationships. For example, girls tend to engage in more relational aggression than boys, which increases risk for more severe social impairments (Babinski et al., 2013). Research has suggested that when left untreated, these difficulties tend to persist or worsen into adolescence and adulthood (Waxmonsky et al., 2016). Indeed, girls with ADHD are at a higher risk of developing a personality disorder, as adults, including borderline personality disorder (Babinski et al., 2020). It appears girls may have differing symptom severity that can persist into adulthood when compared to boys. Thus, specific gender treatment studies have been conducted to address these specific impairments experienced by girls (Babinski, et al., 2020; Babinski et al., 2013).

Historically, mixed-gender treatment has been the standard of care in group behavioral peer settings. However, girls tend to benefit less from these types of treatment compared to boys (Babinski et al., 2013; Chaplin et al., 2006; Savicki et al., 2002). For example, girls may feel less comfortable in asking and answering questions, less likely to interact with peers, and feel like they are unable to learn new skills (Babinski et al.,

2013). A possible reason that girls may feel this way is because boys tend to dominate group interactions (Babinski et al., 2013). In single gender group-based treatment, girls can receive peer feedback on their behavior and receive specific social skills training to address relational aggression (Babinski et al., 2020). Further, addressing identity and emotion regulation difficulties in ADHD treatment for girls is also recommended (Hinshaw et al., 2006; Waxmonsky et al., 2016). Babinski and colleagues (2020), reported improvement in girls' emotional difficulties, including social functioning and depression, during single gender group treatment. On the other hand, Babinski and colleagues (2013) demonstrated that boys tended to show improvement in prosocial behavior during mixed gender peer group treatment compared to single gender treatment. Despite these promising results from gender specific treatments, it is important to continue to investigate whether there are gender differences in diagnosis and treatment outcomes for children diagnosed with ADHD.

There are also different patterns of mental health service utilization by gender. Research suggests boys tend to use mental health services more frequently in childhood as compared to girls (Cuffe et al., 2001). One possible reason is that boys tend to exhibit more behavioral problems than girls in childhood and, thus, caregivers seek treatment at a higher rate (Dempsey & Freed, 2010). Hammerson and Ye (2021), suggest girls' rates of mental health service utilization increase in adolescence as compared to boys. This increase in healthcare utilization is believed to be because of girls needing gynecological care (Hammerson & Ye, 2021). Cuffe and colleagues (2001) found that boys tended to use mental health services in early adolescence in comparison to girls, but girls tended to use mental health services in late adolescence and early adulthood. There is limited research investigating gender rates of mental health utilization based on type of service setting (e.g., traditional community settings compared to primary care or PCMH

settings). These studies suggest small potential differences in utilization based on gender (e.g., greater male use of mental health services), and suggest that gender disparities may be reduced in PCMHs compared to traditional settings (Abu-Ghname et al., 2019). It is possible that if behavioral health services are more widely integrated into primary care, then screening during well child visits may impact rates of mental health service utilization by gender (Hammerson & Ye, 2021). Thus, integrated primary care settings are at a unique position to screen for mental health problems during well child visits and increase mental health services to youth.

Purpose and Hypothesis

Empirical literature indicates there is increased access to care (e.g., medication, behavioral therapy) for ethnic minorities when services are provided within a primary care setting (Mehta et al., 2013); however, this relationship has not been well-explored with children diagnosed with ADHD. Further, the relationship between gender and ADHD treatment in a primary care setting has not been well explored. Research on medication management for ADHD indicates that primary care physicians in a traditional healthcare setting often fall short in providing these services to children (Chan et al., 2005); however, limited studies have explored medication management in integrated primary care settings. Studies have demonstrated children are more likely to receive individual care for ADHD from a primary care physician (Langberg et al., 2009), but few studies have investigated multidisciplinary treatment plans for ADHD that incorporate a behavioral health specialist (e.g., psychologist, master's-level clinician). Therefore, the main research aims for this study are:

Aim 1: To demonstrate whether there is a difference in patient likelihood to receive ADHD medication management services based on PCMH setting versus a traditional healthcare setting. It is hypothesized that children will be more likely to

receive ADHD medication management services at a PCMH setting versus a traditional healthcare setting.

Aim 2: To demonstrate if there are ethnic and gender group differences in use of behavioral health services for ADHD treatment at a PCMH setting versus a traditional healthcare setting. Given that ethnic minorities and girls tend to experience lower levels of ADHD management in traditional settings, it is hypothesized there will be significant ethnic and gender group differences in the use of behavioral health services with a higher number of total encounters at a PCMH setting versus a traditional healthcare setting.

Aim 3: To explore whether there are ethnic and gender group differences in the type of provider seen at a PCMH setting versus traditional healthcare setting. Little research exists in understanding which type of behavioral health services are being used based on ethnicity and gender. However, given that a PCMH setting is integrated, it is hypothesized there will be significant ethnic and gender group differences in the type of provider seen, with a higher number of total encounters across provider specialties at a PCMH setting versus a traditional healthcare setting.

CHAPTER III:

METHOD

Participants

Data for this study was derived from an existing Medicaid database of patients seeking behavioral health services between January 2016 and December 2017 from a single service network in a major Southern city. The database was developed by individual health providers within the single-service network for the purposes of insurance reimbursement from Medicaid. This study was approved by the hospital's Institutional Review Board. Inclusion criteria included pediatric patients, aged 18 or younger, with an ADHD diagnosis who received services between January 2016 and December 2017 within the single-service network. Exclusion criteria were patients older than 18 and not diagnosed with ADHD. A total sample of 2,724 patients was analyzed for this study.

Measures

Data for utilization rate were collected according to standards of care set forth by the NCQA (2017a). The NCQA rates medical providers, PPOs and other healthcare organizations on their quality of healthcare using six performance domains: Effectiveness of Care, Access/Availability of Care, Utilization, Risk-Adjusted Utilization, and Measures Collected Using Electronic Clinical Data Systems. The present study emphasizes the Effectiveness of Care and Utilization domains as measures of performance.

Encounter Total.

Utilization rate was defined as the total number of outpatient encounter visits with a primary care provider, psychiatrist, psychologist, and master's-level behavioral health

specialist at the PCMH and traditional setting (comparison group). A Total Encounter score was calculated for each patient.

Provider Utilization Rate by Provider Type.

Utilization rate by provider was defined as the total number of outpatient encounters per provider specialty. Specialty categories included (1) primary care providers, (2) psychiatrists, (3) psychologists, and (4) master's-level behavioral health specialists. A total Provider Encounter Score by Provider was calculated for each patient.

ADHD Medication Management.

Effectiveness of care for ADHD medication management was defined as whether a patient is receiving prescription medication during the time of the encounter. A binary variable for medication prescription was coded for each patient as: 0 = No, and 1 = Yes.

Demographic Data.

Patients' ethnicity and gender data were collected on intake forms at the time services were initiated with their medical provider. The demographic variables of interest collected from the intake form included ethnicity, gender, and primary care setting type: PCMH versus traditional setting. Patients could self-describe as either male or female and had the following options for reporting their ethnicity: Hispanic, African American, White, Asian/Pacific Islander, Alaskan/American Indian, and Other. The type of setting was listed in the electronic medical record. The researcher transformed this variable to have two options, PCHM or traditional, with all settings that were not PCMH defined as traditional.

Data Analytic Plan

The original data included 23,970 cases of which 22,608 (95%) were from the comparison group. Due to the imbalance of the groups, the "Random Sample of Cases" function from IBM SPPS (2020) was utilized to equal sample sizes for both groups. A total of 2,724 cases were analyzed with PCMH (n = 1, 359) and Traditional (n = 1, 360). Demographic characteristics including ethnicity and gender are presented in Table 3.1

Table 3.1

Sample Descriptive Statistics (N = 2,724)

Behavioral Health Setting	PCMH (*n* = 1,362)	Traditional Setting (*n* = 1,362)
Gender		
Male	74.7% (*n* = 1018)	72.2% (*n* = 983)
Female	25% (*n* = 341)	27.7% (*n* = 377)
Other	.2% (*n* = 3)	.1% (*n* = 2)
Ethnicity		
Hispanic	42.5% (*n* = 579)	31.4% (*n* = 428)
African-American	32.7% (*n* = 445)	21.7% (*n* = 296)
White	8.7% (*n* = 118)	23.3% (*n* = 317)
Asian/Pacific Islander	0.9% (*n* = 12)	0.6% (*n* = 8)
Alaskan/American-Indian	0% (*n* = 0)	0.2% (*n* = 3)
Other	15.3% (*n* = 208)	22.8% (*n* = 310)

Note: PCMH (Patient-Centered Medical Home)

To analyze whether or not a patient is likely to receive prescription medication based on setting type, a logistic regression model was conducted after controlling/accounting for gender and ethnicity. The outcome variable of prescription medication is defined as having a prescription at the time of encounter (e.g., yes or no). A logistic regression is able to predict whether a patient is prescribed medication at the time of the encounter visit in a PCMH or traditional setting (Aim 1).

To analyze ethnic and gender differences in the use of behavioral health services, a 2 (Gender) X 4 (White, Black, Hispanic, Other) X 2 (PCMH vs. Traditional) factorial ANOVA was conducted, using Encounter Total as the DV. A factorial ANOVA is able to compare differences in ethnic and gender group means of encounter total across PCMH and traditional settings (Aim 2).

To analyze ethnic and gender differences in the type of provider seen (Aim 3), Chi-Squares were conducted to determine whether the difference between observed data and expected data is due to chance or to a relationship between the variables.

An a priori power analysis was conducted using G*power3 (Faul et al., 2007) to test the difference in total number of encounters based on gender, ethnicity, and treatment setting (e.g., PCMH or traditional). Using a power set at .80, number of groups set at 8, and alpha set a .05, 3 dependent variables, and 3 independent variables, it was anticipated that an overall sample size of 1551 would be needed to detect small effects.

CHAPTER IV:

RESULTS

Aim 1

The aim of the first hypothesis was to analyze whether there is a higher likelihood of receiving prescription medication for ADHD based on setting type. To test for this, a logistic regression was calculated to investigate if there is a relationship between receiving prescription medication for ADHD and setting type. There was a significant association of small effect between prescription medication and setting type X^2 (1, N = 2724) = 17.208, $p < .001$, *phi* = .079. Indeed, there was a 37.6% [Exp (B) = 1.376, 95% CI (1.183, 1.600)] increase in odds for receiving ADHD medication if the patient presented at PCMH compared to traditional healthcare setting.

Aim 2

The aim of the second hypothesis was to demonstrate if there are ethnic and gender group differences in use of behavioral health services for child ADHD treatment at a PCMH setting versus a traditional healthcare setting. To test for this, a factorial ANOVA was conducted to investigate if there are gender and ethnic differences in the use of behavioral health services. There was no statistically significant three-way interaction between gender, ethnicity, and location [$F(4, 2697) = .112$, $p = .978$, $\eta_p^2 = .000$]. Additionally, there was no main effect between gender and type of setting [$F(1, 2697) = .066$, $p = .798$, $\eta_p^2 = .000$]. Those who identify as boys had a higher number of encounters (M = 6.05, SD = 6.22) than those who identify as girls (M = 5.93, SD = 6.85), regardless of setting. However, a main effect was evidenced with regard to ethnicity [$F(5, 2697) = 2.26$, $p = .046$, $\eta_p^2 = .004$], suggesting that those who identify as Hispanic have more encounters (M = 6.31, SD = 6.49) than those who identify as African American (M = 5.66, SD = 5.44; d = 0.1) regardless of setting. Further, those who identify as White

have more encounters (M = 6.37, SD = 7.68) than Hispanic (d = .01) and African Americans (d = 0.1), regardless of setting. Finally, there was a main effect between number of encounters and setting type [$F(1, 2697) = 6.50$, $p = .011$, $\eta_p^2 = .002$] suggesting that those in an integrative primary care setting had more encounters (M = 6.81, SD = 6.39) than those in a traditional setting (M = 5.24, SD = 6.29).

Aim 3

The aim of the third hypothesis was to explore whether there are ethnic and gender group differences in the type of provider seen at a PCMH setting versus traditional healthcare setting. A Chi-Square group difference between type of provider seen and setting type indicated a significant association of large effect X^2 (4, N = 2724) = 209.56, $p < .001$ *phi* = .277. Results suggest behavioral health services increase when psychology is integrated into primary care as opposed to a traditional setting. For example, at the PCMH setting, psychology was seen 3.7%, psychiatry 23.9%, master's-level behavioral health specialist 28.2%, and pediatrician was seen 41.4% of the time. At the traditional setting, psychology was seen 3.5%, psychiatry 23.2%, master's-level behavioral health specialist 12.2%, and pediatrician was seen 45.6% of the time. This suggests that when behavioral health is integrated within a primary care center, the encounters with behavioral health specialists increase. Further, a Chi-Square indicated the relationship between ethnicity and provider seen was significant for both traditional setting X^2 (20, N = 1362) = 57.15, $p < .001$, *phi* = .205 and PCMH setting, X^2 (16, N = 1362) = 40.35, $p < .001$, *phi* = .172. Of note, master's-level behavioral health specialists were seen 33.2% of the time by Hispanic families and 26.3% of the time by African American families in the PCMH setting. In traditional healthcare settings, master's-level behavioral health specialists were not seen as often by African American (14.2%) and

Hispanic families (10.5%). Demographic characteristics including ethnicity and provider seen based on setting are provided in Table 4.1

Table 4.1

Demographic Characteristics

	Type of provider			
	Psychiatrist	Psychologist	Master's-level BH	Pediatrician
PCMH				
Ethnicity				
Hispanic	22.1%	4.8%	33.2%	37.5%
African American	22.5%	2.0%	26.3%	46.5%
White	33.1%	7.6%	16.1%	41.5%
Traditional Model				
Ethnicity				
Hispanic	20.8%	6.5%	10.5%	46.3%
African American	29.4%	2.4%	14.2%	41.9%
White	14.8%	2.2 %	11.7%	55.5%

Note: PCMH (Patient-Centered Medical Home)

CHAPTER V:

DISCUSSION

This study aimed to compare a traditional – fee for service – model of healthcare and a patient-centered medical home model (PCMH) for the management of childhood ADHD. Further, it examined demographic differences in behavioral health services utilized within a traditional model and an integrated model of healthcare. Overall, results from the current study suggest that PCMH settings had a higher number of overall encounters than a traditional setting. We found that the number of encounters with behavioral health services, including psychologists, psychiatrists, and master's-level specialists, are higher at a PCMH setting than a traditional setting. In both settings, boys tended to have more visits than girls regardless of setting. Further, we found White children had more visits than other ethnicities.

The first hypothesis that there would be a higher likelihood of receiving prescription medication management at a PCMH setting was supported. The logistic regression indicated that there was a 37.6% greater probability of receiving medication at a PCMH setting compared to traditional healthcare setting. Prior research indicates that a psychologist in a primary care setting can provide a comprehensive evaluation that can inform whether medication is warranted as an adjunct to behavioral therapy (Chakawa et al., 2020). It is possible that having behavioral health providers at a PCMH setting increases comprehensive evaluations of ADHD which can – in turn – inform a treatment plan including the initiation and management of ADHD medication. Further, research suggests that follow up appointments for ADHD medication often do not occur in a traditional setting (Moore et al., 2018). It is possible that at a PCMH setting, patients are being seen by multiple mental health providers (e.g., psychologist, master's-level

clinicians) in which monitoring for medication adherence and/or symptoms after initiating medication is happening more frequently.

The second hypothesis that there would be gender and ethnic group differences in the use of behavioral health services within the PCMH setting versus traditional setting was not fully supported. Overall, those who identify as White had more encounters than those who identify as African American and Hispanic. Further, those who identify as Hispanic had more encounters than those who identify as African American. This is consistent with prior research suggesting African Americans and Hispanic children have a lower number of visits with providers when compared to White children. For example, Chakawa and colleagues (2020), suggested that when looking at scheduled appointments, White children had more visits (63%) than other ethnicities (36%). It is possible that African American and Hispanic families discontinue services due to cultural beliefs about medication and behavioral therapy (Coker et al., 2016; Cummings et al., 2017). For example, both African American and Hispanic families tend to seek familial support for behavioral problems than continue with behavioral therapy (Myers et al., 2010; Olaniyan et al., 2007). Additionally, there is stigma surrounding medication for ADHD symptoms including having the belief that stimulant medication can be addictive (Olaniyan et al., 2007). Additionally, studies suggest Black, Indigenous, or People of Color (BIPOC) children face more barriers than White children including financial stressors, lack of transportation, food insecurities, language barriers, and other psychosocial stressors that can impact mental health (Herbst et al., 2016; Talmi et al., 2016). Due to these continued barriers, culturally informed treatments are being developed for minoritized patients and their families (Bernal, 2006; Bernal et al., 2009; Lau, 2006; Parra Cardona et al., 2012). Parent management training has been modified to include cultural beliefs and values for African American, Hispanic, and Asian populations (Butler & Titus, 2015). For example,

when parenting practices for Hispanic families include *familismo* and *respeto* then parents' acceptability in treatment has increased (Calzada et al., 2012). For African American families, incorporating racial socialization and identity in treatment has been helpful (Hill & Tyson, 2008). Both Hispanic and Asian families value interdependence and this should be considered when developing treatment plans (Calzada et al., 2012; Chao & Kanatsu, 2008). It is possible that integrated behavioral health settings are in a unique position to deliver such treatment.

There was no statistically significant three-way interaction between gender, ethnicity, and location. This finding suggested that ethnicity or gender does not influence the number of visits in an integrated primary care setting and traditional setting. Other systemic barriers can also be impacting the number of visits including transportation, mistrust in the medical team, family work schedule, and mental health stigma (Petts et al., 2021). Consistent with prior literature, there are no differences in the type of services received in a traditional setting and integrated setting based on gender (Shahidullah et al., 2018). However, boys tend to receive more behavioral health support when managing ADHD. Studies suggest boys exhibit more externalizing behaviors related to ADHD (e.g., hyperactivity, impulsivity) and thus are referred to ADHD evaluation and treatment more often than girls (Biederman, Petty, Evans et al., 2010). Further, literature suggests girls tend to overcompensate for difficulties in inattention and might not exhibit externalized behaviors as often as boys (Biederman, Petty, Monuteaux et al., 2010). Girls also tend to be underdiagnosed by medical providers compared to boys, and this affects their referrals to behavioral health services for ADHD (Bauermeister et al., 2007).

The third hypothesis was exploratory in that there would be group differences in the provider seen based on setting type. Overall, results suggested that Hispanic and African American children had more encounters with master's-level clinicians at a

PCMH setting when compared to a traditional setting. It is possible that PCPs at a traditional setting do not know when to refer to mental health services, or do not have a readily accessible network of evidence-based referral resources (Cunningham, 2009; Trude & Stoddard, 2003). Further, it is possible that families in traditional settings may experience greater barriers to following up with mental health referrals provided by a PCP compared to integrated settings, where collaborative care among providers is emphasized and patients view providers as part of a care team. At a PCMH setting, it is possible that "warm hand-offs" between PCPs and behavioral health providers are occurring more frequently, which may increase the number of visits (Asarnow et al., 2017). Similarly, when behavioral health specialists are integrated within the primary care setting, PCPs are more likely to refer to these services due to increased access to these providers (Connors et al., 2018). Recent research examining trends from integrated behavioral health encounters across a wide system of behavioral health programs indicates that significantly more children (> 90%) attend scheduled integrated behavioral health visits (particularly consultation visits) than those receiving traditional services in local behavioral health centers (Schlesinger, 2017). Finally, having integrated mental health services within primary care could lessen mental health stigma within BIPOC families (Petts et al., 2021). Indeed, previous studies have suggested that when behavioral health is integrated in primary care offices, families often see mental health as part of their physical health (Chakawa et al., 2020).

Limitations

Despite promising outcomes, there are a few limitations to the current study that are important to address. First, it is not known who diagnosed ADHD within this patient population. Understanding whether a PCP, psychiatrist, psychologist, or master's-level clinician made the diagnosis could help explain the feasibility and acceptability of having

mental health integrated within primary care settings. For example, if psychologists or master's-level clinicians within primary care are providing diagnostic clarity, then the evidence of integrated models of healthcare can be further supported. Another limitation is not knowing what type of an encounter visit (EM code/CPT code) occurred with each provider and if there were follow-up visits. This information could help determine whether PCPs are screening for ADHD and referring to behavioral health for further assessment and behavioral intervention. Analyzing follow-up visits would help monitor whether PCPs are managing prescription medication according to the AAP guidelines and whether patients are initiating and completing behavioral therapy.

Similarly, it is not known what type of intervention was provided by each professional. For example, it is not known whether a PCP or psychiatrist was managing the prescription medication or what type of service was provided by a psychologist or master's-level clinician. A psychologist might have assessed for ADHD but then referred parent management training to a master's-level clinician. Further, the effectiveness of services cannot be ascertained in the current sample because patients' ADHD symptoms were not being monitored by rating scales to demonstrate treatment effectiveness. It is recommended that primary care settings utilize measures to screen and monitor for internalizing and externalizing behaviors (Burkhart et al., 2020). Using measures (e.g., Vanderbilt) to assess and monitor ADHD symptoms would help determine whether these two models are effectively managing symptoms, and whether there are enhanced treatment outcomes for patients within a PMHC compared to those receiving care in traditional primary care models.

Another limitation is that families may have sought services outside of the system and this information was not available. However, it is important to note that all patients had Medicaid or CHIP insurance and the primary care centers in our database are the few

clinics that accept public insurance. This leads to another limitation regarding generalizability of the findings. This study did not include patients with private insurance; thus, the results from this study are only generalizable to a low socioeconomic patient population. However, these results add to the literature examining utilization of behavioral health services among low socioeconomic populations.

Future Directions

Future studies need to further investigate whether a PCMH setting helps reduce disparities in ADHD treatment management. Studies need to include Medicaid claim codes for each provider to indicate what services BIPOC patients are receiving as compared to White children. One way to improve health equity might be to investigate the demographics of the providers seen. For example, having providers who are from similar backgrounds might decrease mental health stigma and improve engagement in treatment. However, prior studies have demonstrated mixed results in the association between adherence to treatment and provider-patient ethnic matching (Meyer & Zane, 2013). Nonetheless, it might be beneficial to investigate this within primary care settings that are located in underserved communities. Additionally, language barriers are a factor contributing to the type of referrals made and number of visits within the Hispanic community (Herbst et al., 2016); thus, knowing whether a provider is bilingual or using language services might clarify this problem.

It is important for future studies to assess for symptom severity to better understand the variability in referrals and service utilization. Progress monitoring for ADHD symptoms with rating scales can also help track ADHD outcomes after receiving services in primary care settings. Further, the frequency of follow-up visits including stimulant medication refills will help determine whether clinics are following AAP guidelines for ADHD treatment.

Acceptability and satisfaction measurement of integrated behavioral health in primary care settings is also needed. As mentioned previously, developing culturally informed treatment could potentially increase patient satisfaction and acceptability to ADHD treatment including medication and behavioral therapy. It would be important to continue to investigate culturally informed treatment for behavioral therapy and assess patient outcomes. Measuring PCP satisfaction with behavioral health services will help us better understand if there could be workflow improvements to increase care expectations. Further, patient and family satisfaction measurements can help enhance family engagement goals to monitor progress and meet the goals of patients.

Finally, cost-effectiveness of ADHD treatment within a PCMH setting versus a traditional setting would be important. For example, there are studies investigating the cost-effectiveness of behavioral therapy, medication, and combined treatment for ADHD (Foster et al., 2007; Gilmore & Milne, 2001; Jensen et al., 2005); however, little is known about the financial benefits of ADHD treatment within primary care settings (Shahidullah, 2015). Prior studies investigated cost-effectiveness within primary care have mostly centered around depression (Schoenbaum et al., 2001; Simon et al., 2001; Williams et al., 2004) and anxiety outcomes (Chaffee, 2009; Katon et al., 2002;). However, these studies have focused on adult populations.

This study adds to the literature on how integrated primary care settings can be beneficial in managing pediatric psychiatric disorder. As mentioned previously, research demonstrating the benefits of integrated primary care services has predominantly investigated adult populations. Thus, future research can focus on other specific externalizing and internalizing problems. For example, this study might serve as framework to compare two models of healthcare for youth experiencing depression and anxiety. According to the CDC (2019), 9.4% of children ages 3-17 are experiencing

anxiety and 4.4% are experiencing depression. Access to psychological services for youth experiencing mental health concerns should be a priority and integrated primary care settings might serve as the solution.

Conclusion

The implications of this study add to the current literature about the benefits of integrating behavioral health into primary care settings. While prior studies have largely demonstrated an improvement in patient access and clinical outcomes for broad mental health concerns, few studies have investigated the impact of integrated primary care setting for externalizing behavioral problems including ADHD. A model that is collaborative such as a patient-centered medical home model would uniquely position providers to screen for behavioral concerns and make internal referrals to other providers. Behavioral health specialists including psychologists and master's-level clinicians who are integrated within these clinics can shed clarity on diagnosis and make treatment recommendations to the team. Further, psychologists and master's-level behavioral specialists can provide behavioral therapy as an adjunct to ADHD medication. Working collaboratively with an interdisciplinary team and developing a treatment plan that fits individual family needs may improve clinical outcomes and increase treatment adherence. Providing treatment options within the context of the on-site medical home may counter the demonstrated difficulty for families to access behavioral health services in a traditional model of healthcare.

REFERENCES

Abu-Ghname, A., Clementi, M., Marton, S.A., Schwarzwald, H., Giwa, E., Hollier, L., Chapman, S.G. (2019). Behavioral health service utilization: Trends in utilization within a patient-centered medical home for low-income children and women. *Journal of Family Medicine in Primary Care*, *8*(12), 3983-3989. https://doi.org/10.4103/jfmpc.jfmpc_412_19.

Adler, L. A., Spencer, T., McGough, J. J., Hai, J., & Muniz, R. (2009). Long-term effectiveness and safety of dexmethylphenidate extended-release capsules in adult ADHD. *Journal of Attention Disorders*, *12*(5), 449–459. https://doi.org/10.1177/1087054708320397.

Adler, L. A., and Alperin, S. (2015). Diagnosing ADHD in adults in the primary care setting. In R. A. Barkley (Ed.), *Attention-Deficit Hyperactivity Disorder: A Handbook for Diagnosis and Treatment*, 4th ed. (pp. 223-255). Guilford Press.

Aguirre, J., & Carrion, V. G. (2013). Integrated behavioral health services: a collaborative care model for pediatric patients in a low-income setting. *Clinical Pediatrics*, *52*(12), 1178–1180. https://doi.org/10.1177/0009922812470744.

American Academy of Pediatrics. (2019). Clinical practice guideline for the diagnosis, evaluation, and treatment of Attention-Deficit/Hyperactivity Disorder in children and adolescents. *Pediatrics*, *144*(4). https://doi.org/10.1542/peds.2019-2528.

American College of Physicians (2006). *The advanced medical home: A patient-centered, physician-guided model of health care.* Philadelphia: American College of Physicians. Retrieved from https://www.acponline.org/acp_policy/policies/adv_medicalhome_patient_centered_model_healthcare_2006.pdf

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental*

disorders (5th ed.). https://doi.org/10.1176/appi.books.9780890425596

Arnsten, A. F. (2009). Toward a new understanding of attention-deficit hyperactivity disorder pathophysiology: An important role for prefrontal cortex dysfunction. *CNS Drugs*, *23*(1), 33–41. https://doi.org/10.2165/00023210-200923000-00005.

Asarnow, J. R., Rozenman, M., Wiblin, J., & Zeltzer, L. (2015). Integrated medical behavioral care compared with usual primary care for child and adolescent behavioral health: A meta-analysis. *JAMA Pediatrics*, *169*(10), 929–937. https://doi.org/10.1001/jamapediatrics.2015.1141.

Asarnow, J. R., Kolko, D. J., Miranda, J., & Kazak, A. E. (2017). The pediatric patient-centered medical home: Innovative models for improving behavioral health. *American Psychologist, 72*(1), 13-27.

Auxier, A., Miller, B. F., & Rogers, J. (2013). Integrated behavioral health and the patient centered medical home. In Talen, M. R., and Valeras, A. B. *Integrated Behavioral Health in Primary Care*. Springer Publishing.

Babinski, D. E., Sibley, M. H., Ross, J. M., & Pelham, W. E. (2013). The effects of single versus mixed gender treatment for adolescent girls with ADHD. *Journal of Clinical Child and Adolescent Psychology*, *42*(2), 243–250. https://doi.org/10.1080/15374416.2012.756814.

Babinski, D. E., Huffnagle, S. M., Bansal, P. S., Breaux, R. P., & Waschbusch, D. A. (2020). Behavioral treatment for the social-emotional difficulties of preadolescent and adolescent girls with ADHD. *Evidence-Based Practice in Child and Adolescent Mental Health*, *5*(2), 173–188. https://doi.org/10.1080/23794925.2020.1759470.

Barkley, R. A. (1997). Inhibition, sustained attention, and executive functions: Constructing a unifying theory of ADHD. *Psychological Bulletin*, *121*(1), 65–94.

Barkley, R. A., Murphy, K. R., & Fischer, M. (2008). *ADHD in adults: What the science says.* Guilford Press.

Barkley, R.A. (2013). *Defiant Children: A clinician's manual for assessment and parent training* (3rd ed.). Guilford Press.

Barkley, R.A. (2015). *Attention-Deficit Hyperactivity Disorder: A handbook for diagnosis and treatment* (4th ed.). New York, NY: Guilford Press.

Bauermeister, J. J., Shrout, P. E., Chávez, L., Rubio-Stipec, M., Ramírez, R., Padilla, L., Anderson, A., García, P., & Canino, G. (2007). ADHD and gender: Are risks and sequela of ADHD the same for boys and girls? *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *48*(8), 831–839. https://doi.org/10.1111/j.1469-7610.2007.01750.x

Bernal, G. (2006). Intervention development and cultural adaptation research with diverse families. *Family Process*, *45*(1), 143-151. https://doi.org/10.1111/j.15455300.2006.00087.x.

Bernal, G., Jiménez-Chafey, M. I., & Domenech Rodríguez, M. M. (2009). Cultural adaptation of treatments: A resource for considering culture in evidence-based practice. *Professional Psychology: Research and Practice*, *40*(1), 361-368. https://doi.org/10.1037/a0016401.

Biederman, J., Keenan, K., & Faraone, S. V. (1990). Parent based diagnosis of Attention-Deficit Disorder predicts a diagnosis based on teacher report. *American Journal of Child and Adolescent Psychiatry*, *29*(1), 698–701.

Biederman, J., Faraone, S. V., & Lapey, K. (1992). Comorbidity of diagnosis in Attention-Deficit Hyperactivity Disorder. *Child and Adolescent Psychiatric Clinics of North America*, *1*(1), 335–360.

Biederman, J., Monuteaux, M. C., Mick, E., Spencer, T., Wilens, T. E., Silva, J. M.,

Snyder, L. E., & Faraone, S. V. (2006). Young adult outcome of attention deficit hyperactivity disorder: A controlled 10-year follow-up study. *Psychological Medicine, 36*(1), 167–179. https://doi.org/10.1017/S0033291705006410.

Biederman, J., & Spencer, T. J. (2008). Psychopharmacological interventions. *Child and Adolescent Psychiatric Clinics of North America*, *17*(2), 439–458. https://doi.org/10.1016/j.chc.2007.12.001.

Biederman, J., Petty, C. R., Evans, M., Small, J., & Faraone, S. V. (2010). How persistent is ADHD? A controlled 10-year follow-up study of boys with ADHD. *Psychiatry Research, 177*(1), 299–304. https://doi.org/10.1016/j.psychres.2009.12.010.

Biederman, J., Petty, C. R., Monuteaux, M. C., Fried, R., Byrne, D., Mirto, T., Spencer, T., Wilens, T. E., & Farone, S. V. (2010). Adult psychiatric outcomes of girls with attention deficit hyperactivity disorder: 11-year follow-up in a longitudinal case–control study. *American Journal of Psychiatry, 167*(1), 409–417. https://doi.org/10.1176/appi.ajp.2009.09050736.

Biederman, J., Fried, R., Petty, C., Mahoney, L., & Faraone, S. V. (2012). An examination of the impact of attention-deficit hyperactivity disorder on IQ: A large controlled family-based analysis. *Canadian Journal of Psychiatry, 57*(10), 608–616. https://doi.org/10.1177/070674371205701005.

Bradley, J. D., & Golden, C. J. (2001). Biological contributions to the presentation and understanding of attention-deficit/hyperactivity disorder: A review. *Clinical Psychology Review*, *21*(1), 907-29. https://doi.org/10.1016/S0272-7358(00)00073-8.

Burkhart, K., Asogwa, K., Muzaffar, N., & Gabriel, M. (2020). Pediatric integrated care models: A systematic review. *Clinical Pediatrics*, *59*(2), 148-153. https://doi.org/10.1177/0009922819890004.

Butler, A. M. & Eyberg, S. M. (2006) Parent–child interaction therapy and ethnic minority children. *Vulnerable Children and Youth Studies*, *1*(3), 246-255, https://doi.org/10.1080/17450120600973577.

Butler, A. M. (2014). Shared decision-making, stigma, and child mental health functioning among families referred for primary care–located mental health services. *Families, Systems, & Health*, *32*(1), 116-121. https://doi.org/10.1037/fsh0000004.

Butler, A. M., & Titus, C. (2015). Systematic review of engagement in culturally adapted parent training for disruptive behavior. *Journal of Early Intervention*, *37*(4), 300-318. https://doi.org/10.1177/1053815115620210.

Calzada, E. J., Huang, K. Y., Anicama, C., Fernandez, Y., & Brotman, L. M. (2012). Test of a cultural framework of parenting with Latino families of young children. *Cultural Diversity & Ethnic Minority Psychology*, *18*(1), 285-296. https://doi.org/10.1037/a0028694.

Campo, J. V., Geist, R., & Kolko, D. J. (2018). Integration of pediatric behavioral health services in primary care: Improving access and outcomes with collaborative care. *The Canadian Journal of Psychiatry, 63*(7), 432-438. https://doi.org/10.1177/0706743717751668.

Castellanos, F. X., Giedd, J. N., Marsh, W. L., Hamburger, S. D., Vaituzis, A. C., Dickstein, D. P., Sarfatti, S. E., Vauss, Y. C., Snell, J. W., Lange, N., Kaysen, D., Krain, A. L., Ritchie, G. F., Rajapakse, J. C., & Rapoport, J. L. (1996). Quantitative brain magnetic resonance imaging in attention- deficit hyperactivity disorder. *Archives of General Psychiatry*, *53*(1), 607–616. https://doi.org/10.1001/archpsyc.1996.01830070053009.

Centers for Disease Control and Prevention. (2019). Increasing prevalence of parent

reported Attention-Deficit/Hyperactivity Disorder among children−United States, 2003 and 2011. *Morbidity and Mortality Weekly Report*, *59*(1), 1439-1443.

Chaffee, B. (2009). Financial models for integrated behavioral health care. In L. C. James, W. T., O'Donohue (Eds.), *The Primary Care Toolkit*. Springer.

Chakawa, A. Belzer, L. T., Perez-Crawford, T., & Brei, N. (2020). Which model fits? Evaluating models of integrated behavioral health care in addressing unmet behavioral health needs among underserved sociodemographic groups. *Evidence-Based Practice in Child and Adolescent Mental Health, 5*(3), 251-270. https://doi.org/10.1080/23794925.2020.1796549.

Chan, E., Hopkins, M. R., Perrin, J. M., Herrerias, C., & Homer, C. J. (2005). Diagnostic practices for attention deficit hyperactivity disorder: A national survey of primary care pediatricians, *Ambulatory Pediatrics*, *5*(4), 201-208. https://doi.org/10.1367/A04-054R1.1.

Chao, R., & Kanatsu, A. (2008). Beyond socioeconomics: Explaining ethnic group differences in parenting through cultural and immigration processes. *Applied Developmental Science*, *12*(1), 181-187. https://doi.org/10.1080/10888690802388102.

Chaplin, T. M., Gillham, J. E., Reivich, K., Elkon, A. G. L., Samuels, B., Frères, D. R., Winder, B., & Seligman, M. E. P. (2006). Depression prevention for early adolescent girls: A pilot study of all-girls versus co-ed groups. *Journal of Early Adolescence*, *26*(1), 110-126. https://doi.org/10.1177/0272431605282655.

Coolidge, F. L., Thede, L. L., & Young, S. E. (2000). Heritability and the comorbidity of attention deficit hyperactivity disorder with behavioral disorders and executive function deficits: A preliminary investigation. *Developmental Neuropsychology*, *17*(1), 273–287. https://doi.org/10.1207/S15326942DN1703_1.

Coker, T. R., Elliot, M. N., Toomey, S. L., Phil, M., Schwebel, D. C., Cuccaro, P., Emery S. T., Davies, S. L., Visser, S. N., & Schuster, M. A. (2016). Racial and ethnic disparities in ADHD diagnosis and treatment. *Pediatrics*, *138*(3). https://doi.org/10.1542/peds.2016-0407.

Conners, C. K., Epstein, J. N., March, J. S. Angold, A., Wells, K. C., Klaric, J., Swanson, J. M., Arnold, L. E., Abikoff, H. B., Elliot, G. R., Greenhill, L. L., Hechtman, L., Hinshaw, S. P., Hoza, B., Jensen, P. S., Kraemer, H. C., Newcorn, J. H., Pelham, W. E.,…& Wigal, T. (2001). Multimodal treatment of ADHD in the MTA: An alternative outcome analysis. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*(1), 159-167. https://doi.org/0.1097/00004583-200102000-00010.

Connor, D. F., & Steingard, R. J. (2004). New formulations of stimulants for Attention Deficit Hyperactivity Disorder: Therapeutic potential. *CNS Drugs*, *18*(14), 1011–1030. https://doi.org/10.2165/00023210-200418140-00005.

Connors, E.H., Arora, P., Blizzard, A.M., Bower, K., Coble, K., Harrison, J., Pruitt, D., Steinberg, J., & Wissow, L. (2018). When behavioral health concerns present in pediatric primary care: Factors influencing provider decision-making. *Journal of Behavioral Health Services & Research*, *45*(1), 340-355. https://doi.org/ 10.1007/s11414-017-9580-9.

Crenshaw, T. M., Kavale, K. A., Forness, S. R., & Reeve, R. E. (1999). Attention Deficit Hyperactivity Disorder and the efficacy of stimulant medication: A meta-analysis. In Scruggs, T. & Mastropieri, M. (Eds.), *Advances in learning and behavioral disabilities*, (pp. 135-165). JAI Press.

Cubillo, A., & Rubia, K. (2010). Structural and functional brain imaging in adult

Attention-Deficit/Hyperactivity Disorder. *Expert Review of Neurotherapeutics*, *10*(1), 603–620. https://doi.org/10.1586/ern.10.4.

Cuffe, S. P., Waller, J. L. Addy, C. L., McKewon, R. E., Jackson, K. L., Moole, J., & Garrison, C. Z. (2001). A longitudinal study of adolescent mental health service use. *Journal of Behavioral Health Services and Research*, *28*(1), 1-11. https://doi.org/10.1007/BF02287230.

Cummings, J. R., Ji, X., Allen, L., Lally, C., & Druss, B. G. (2017). Racial and ethnic differences in ADHD treatment quality among Medicaid-enrolled youth. *Pediatrics*, *139*(6). https://doi.org/10.1542/peds.2016-2444.

Cunningham, P. J. (2009). Beyond parity: Primary care physicians' perspectives on access to mental health care. *Health Affairs*, *28*(1), 490-501. https://doi.org/10.1377/hlthaff.28.3.w490?casa_token=1JsfOUbRX10AAAAA:UX6k6qLcdLAS1K_HK609OzvJipH406GyhGAT4JSutKD5QaTCOeQdMUbv4BOBV9D_VCQlxE1ezis.

Danielson, M. L., Bitsko, R. H., Ghandour, R. M., Holbrook, J. R., Kogan, M. D., & Blumberg, S. J. (2018). Prevalence of parent-reported ADHD diagnosis and associated treatment among U.S. children and adolescents. *Journal of Clinical Child and Adolescent Psychology*, *47*(2), 199-212. https://doi.org/10.1080/15374416.2017.1417860.

Dempsey, A.F., & Freed, G.L., (2010). Health care utilization by adolescents on Medicaid: Implications for delivering vaccines. *Pediatrics*, *125*(1), 43–49. https://doi.org/10.1542/peds.2009-1044.

Drugli, M. B., Larsson, B., Fossum, S., & Mørch, W. T. (2010). Five- to six-year

outcome and its prediction for children with ODD/CD treated with parent training. *Journal of Child Psychology and Psychiatry, and Allied Disciplines*, *51*(5), 559–566. https://doi.org/10.1111/j.1469-7610.2009.02178.x.

Dussault, C. L., & Weyandt, L. L. (2013). An examination of prescription stimulant misuse and psychological variables among sorority and fraternity college populations. *Journal of Attention Disorders, 17*(2), 87–97. https://doi.org/10.1177/1087054711428740.

Eiraldi, R. B., Mazzuca, L. B., Clarke, A. T., & Power, T. J. (2006). Service utilization among ethnic minority children with ADHD: A model of help-seeking behavior. *Administration and Policy in Mental Health and Mental Health Services Research*, *33*(1), 607–622. https://doi.org/10.1007/s10488-006-0063-1.

Elkin, T. D., Sarver, D. E., Sarver, N. W, Young, J. & Buttross, S. (2017) Future directions for the implementation and dissemination of statewide developmental-behavioral pediatric integrated health care. *Journal of Clinical Child & Adolescent Psychology*, *46*(4), 619-630, https://doi.org/10.1080/15374416.2016.1152551.

Elkins, I. J., Malone, S., Keyes, M., Iacono, W.G., & McGue, M. (2011). The impact of Attention-Deficit/Hyperactivity Disorder on preadolescent adjustment may be greater for girls than for boys. *Journal of Clinical Child & Adolescent Psychology*, *40*(1), 532–545. https://doi.org/10.1080/15374416.2011.581621.

Eme, R. (2017). A review of the most recent longitudinal studies of ADHD. *Journal of Memory Disorders and Rehabilitation*, *2*(1), 2-4.

Enthoven, A. C. (2009). Integrated delivery systems: The cure for fragmentation. *American Journal of Managed Care*, *15*(10 Suppl), 284-290.

Epstein J. N., Rabiner, D., Johnson, D. E., Fitzgerald, D. P., Chrisman, A., Erkanli, A.,

Sullivan, K. K., March, J. S., Margolis, P., Norton, E. C., & Conners, K. (2007). Improving Attention Deficit/Hyperactivity Disorder treatment outcomes through use of a collaborative consultation treatment service by community-based pediatricians. *Archives of Pediatrics & Adolescent Medicine, 161*(9), 835–840. https://doi.org/10.1001/archpedi.161.9.835.

Epstein J. N., Langberg J. M., Lichtenstein P. K., Altaye, M., Brinkman, W. B., House, K., & Stark, L. J. (2010). Attention-Deficit/Hyperactivity Disorder outcomes for children treated in community-based pediatric settings. *Archives of Pediatrics & Adolescent Medicine, 164*(2), 160–165. https://doi.org/10.1001/archpediatrics.2009.263.

Evans, S. W., Owens, J. S., Wymbs, B. T., & Ray, A. R. (2018). Evidence-based psychosocial treatments for children and adolescents with Attention Deficit/Hyperactivity Disorder. *Journal of Clinical Child & Adolescent Psychology*, *47*(2), 157–198. https://doi.org/10.1080/15374416.2017.1390757.

Eyberg, S. M., Nelson, M. M., & Boggs, S. R. (2008) Evidence-based psychosocial treatments for children and adolescents with disruptive behavior. *Journal of Clinical Child and Adolescent Psychology*, *37*(1), 215-37. https://doi.org/10.1080/15374410701820117.

Eyberg, S. M., & Funderburk, B. (2011). *Parent-Child Interaction Therapy Protocol* (4th ed.). PCIT International.

Eyberg, S. M., Nelson, M. M., Duke, M., & Boggs, S. R. (2014). *Manual for the dyadic parent–child interaction coding system* (4th ed.). PCIT International.

Faraone, S. V., Biederman, J., Chen, W. J., Krifcher, B., Keenan, K., Moore, C., Sprich,

S., & Tsuang, M. T. (1992). Segregation analysis of Attention-Deficit Hyperactivity Disorder. *Psychiatric Genetics*, *2*(4), 257–275. https://doi.org/10.1097/00041444-199210000-00004.

Faraone, S. V., & Buitelaar, J. (2010). Comparing the efficacy of stimulants for ADHD in children and adolescents using meta-analysis. *European Child and Adolescent Psychiatry*, *19*(1), 353-364. https://doi.org/10.1007/s00787-009-0054-3.

Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: a flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*(2), 175–191. https://doi.org/10.3758/bf03193146.

Flores, G., Olson, L., & Tomany-Korman, S. C. (2005). Racial and ethnic disparities in early childhood health and health care. *Pediatrics*, *115*(1), 183-193. https://doi.org/10.1542/peds.2004-1474.

Foster, M. E., Jensen, P. S., Schlander, M. L., Pelham, W. E., Hechtman, L. Arnold, E. L., Swanson, J. M., & Wigal., T. (2007). Treatment for ADHD: Is more complex treatment cost-effective for more complex cases? *Health Research and Educational Trust*, *42*(1), 165-182. https://doi.org/10.1111/j.1475-6773.2006.00599.x.

Friedberg, M. W., Chen, P. G., White, C., Jung, O., Raaen, L., Hirshman, S., Hoch, E., Stevens, C., Ginsburg, P. B., Casalino, L. P., Tutty, M., Vargo, C., & Lipinski, L. (2015). Effects of health care payment models on physician practice in the United States. *Rand Health Quarterly*, *5*(1), 8.

Froehlich, T.E., Lanphear, B.P., Epstein, J.N., Barbaresi, W.J., Katusic S.K., & Kahn, R. S. (2007). Prevalence, recognition, and treatment of Attention Deficit/Hyperactivity Disorder in a national sample of US children. *Archives of*

Pediatrics & Adolescent Medicine, *161*(9), 857–864. https://doi.org/10.1001/archpedi.161.9.857.

Future of Family Medicine Project Leadership Committee. (2004). The future of family medicine: A collaborative project of the family medicine community. *The Annals of Family Medicine*, 2(1), S3– S32. https://doi.org/10.1370/afm.130.

Gerdes, A. C., Haack, L. M., & Schneider, B. W. (2012). Parental functioning in families of children with ADHD: Evidence for behavioral parent training and importance of clinically meaningful change. *Journal of Attention Disorders*, *16*(2),147–156. https://doi.org/10.1177/1087054710381482.

Gilger, J. W., Pennington, B. F., & DeFries, J. C. (1992). A twin study of the etiology of comorbidity: Attention-Deficit Hyperactivity Disorder and Dyslexia. *Journal of the American Academy of Child and Adolescent Psychiatry*, *31*(1), 343–348.

Gilmore, A., and Milne, R. (2001). Methylphenidate in children with hyperactivity: Review and cost-utility analysis. *Pharmacoepidemiology and Drug Safety*, *10*(1), 85-94. https://doi.org/10.1002/pds.564.

Goodson, J. D. (2010). Patient protection and affordable care act: Promise and peril for primary care. *Annals of Internal Medicine*, *152*(1), 742–744. https://doi.org/10.1059/0003-4819-152-11-201006010-00249.

Greenhill, L. L., Pliszka, S., Dulcan, M. K., Bernet, W., Arnold, V., Beitchman, J., Benson, R. S., Bukstein, O., Kinlan, J., McClellan, J., Rue, D., Shaw, J. A., & Stock, S (2002). Practice parameter for the use of stimulant medications in the treatment of children, adolescents, and adults. *Journal American Academy of Child and Adolescent Psychiatry*, *41*(2), 26S-49S. https://doi.org/10.1097/00004583-200202001-00003.

Greenhill, L., Kollins, S., Abikoff, H., McCracken, J., Riddle, M., Swanson, J.,

McGough, J., Wigal, T., Vitiello, B., Skrobala, A., Posner, K., Ghuman, J., Cunningham, C., Davies, M., Chuang, S., & Cooper, T. (2006). Efficacy and safety of immediate-release methylphenidate treatment for pre-schoolers with ADHD. *Journal of the American Academy of Child and Adolescent Psychiatry*, *45*(11), 1284–1293. https://doi.org/10.1097/01.chi.0000235077.32661.61.

Guevara, J. P., Feudtner, C., Romer, D., Power, T., Eiraldi, R., Nihtianova, S., Rosales, A., Ohene-Frempong, J., & Schwarz. D. F. (2005). Fragmented care for inner city minority children with attention-deficit/hyperactivity disorder. *Pediatrics*, *116*(4), e512–e517. https://doi.org/10.1542/peds.2005-0243.

Hammerson, S. & Ye, J. (2021). The effect of public health insurance expansions on the mental and behavioral health of girls and boys. *Social Science and Medicine*, *280*(1), 1-10. https://doi.org/10.1016/j.socscimed.2021.113998.

Hassink-Franke, L. J., Janssen, M. M., Oehlen, G., van Deurzen, P. A., Buitelaar, J. K., Wensing, M., & Lucassen, P. L. (2016). GPs' experiences with enhanced collaboration between psychiatry and general practice for children with ADHD. *European Journal of General Practice*, *22*(3),196– 202. https://doi.org/10.1080/13814788.2016.1177506.

Heath, C.L., Curtis, D.F., Fan, W., & McPherson, R. (2015). The association between parenting stress, parenting self-efficacy, and the clinical significance of child ADHD symptom change following behavior therapy. *Child Psychiatry and Human Development*, *46*(1), 118–129. https://doi.org/10.1007/s10578-014-0458-2.

Herbst, R. B., Margolis, K. L., Millar, A. M., Muther, E. F., & Talmi, A. (2016). Lost in

translation: Identifying behavioral health disparities in pediatric primary care. *Journal of Pediatric Psychology*, *41*(4), 481-491. https://doi.org/10.1093/jpepsy/jsv079.

Hill, N. E., & Tyson, D. F. (2008). Excavating culture: Ethnicity and context as predictors of parenting behavior. *Applied Developmental Science, 12*(1), 188-197. https://doi.org/10.1080/10888690802388110.

Hinshaw, S.P., Owens, E.B., Sami, N., & Fargeon, S. (2006). Prospective follow-up of girls with Attention-Deficit/ Hyperactivity Disorder into adolescence: Evidence for continuing cross-domain impairment. *Journal of Consulting and Clinical Psychology, 74*(1), 489–499. https://doi.org/10.1037/0022-006X.74.3.489.

Hinshaw, S.P., Owens, E.B., Zalecki, C., Huggins, S.P., Montenegro-Nevado, A., Schrodek, E., & Swanson, E.N. (2012). Prospective follow-up of girls with Attention-Deficit Hyperactivity Disorder into young adulthood: Continuing impairment includes elevated risk for suicide attempts and self-injury. *Journal of Consulting and Clinical Psychology*, *80*(1), 1041–1051. https://doi.org/10.1037/a0029451.

IBM Corp. Released 2020. IBM SPSS Statistics for Windows, Version 27.0. Armonk, IBM Corp.

Individuals with Disabilities Education Act, 20 U.S.C. § 1400 (2004).

Jensen, P. S., Hinshaw, S. P., Kraemer, H. C., Lenora, N., Newcorn, J. H., Abikoff, H. B., March, J. S., Arnold, L. E., Cantwell, D. P., Conners, C. K., Elliott, G. R., Greenhill, L. L., Hechtman, L., Hoza, B., Pelham, W. E., Severe, J. B., Swanson, J. M., Wells, K. C., Wigal, T., & Vitiello, B. (2001). ADHD comorbidity findings from the MTA study: comparing comorbid subgroups. *Journal of the American*

Academy of Child and Adolescent Psychiatry, *40*(2):147-58. https://doi.org/10.1097/00004583-200102000-00009.

Jensen, P. S., Garcia, J. A., Glied, S., Crowe, M., Foster, M., Schlander, M., Hinshaw, S., Vitiello, B., Arnold, E., Elliot, G., Hechtman, L., Newcorn, J. H., Pelham, W. E., Swanson, J., & Wells, K. (2005). Cost-effectiveness of ADHD treatments: Findings from the multimodal treatment study of children with ADHD. *American Journal of Psychiatry*, *162*(1), 1628-1636. https://doi.org/10.1176/appi.ajp.162.9.1628.

Ji, X., Druss, B. G., Lally, C., & Cummings, J. R. (2018). Racial-ethnic differences in patterns of discontinuous medication treatment among Medicaid-insured youths with ADHD. *Psychiatric Services*, *69*(3), 322-331. https://doi.org/10.1176/appi.ps.201600469.

Kaminski, J. W., Valle, L. A., Filene, J. H., & Boyle, C. L. (2008). A meta-analytic review of components associated with parent training program effectiveness. *Journal of Abnormal Child Psychology*, *36*(4), 567–589. https://doi.org/10.1007/s10802-007-9201-9.

Katon, W., Roy-Byrne, P., Russo, J., & Cowley, D. (2002). Cost-effectiveness and cost offset of a collaborative care intervention for primary care patients with panic disorder. *Archives of General Psychiatry*, *59*(1), 1098–1104. https://doi.org/10.1001/archpsyc.59.12.1098.

Kazdin, A. (2005). *Parent management training: Treatment for oppositional, aggressive, and antisocial behavior in children and adolescents*. Oxford University Press.

Klein, R. G., and Abikoff, H. (1997). Behavior therapy and methylphenidate in the treatment of children with ADHD. *Journal of Attention Disorders*, *2*(1), 89–114. https://doi.org/10.1177/108705479700200203.

Kratochvil, C. J., Greenhill, L. L., March, J. S., Burke, W. J., & Vaughan, B. S. (2004). The role of stimulants in the treatment of preschool children with Attention-Deficit Hyperactivity Disorder. *CNS Drugs*, *18*(14), 957–966. https://doi.org/10.2165/00023210-200418140-00001.

Kugel RB, Scherz RG, Seidel HM, McMahon, J. L., Rinker, A., Garell, D. C., Van Gelder, D. W., Ellis, E. O., Knutti, S. H., & Poncher, J. R. (1975). Medication for hyperkinetic children. *Pediatrics*, *55*(4), 560-562. https://doi.org/10.1542/peds.55.4.560.

Kwan, B. M. & Nease, D. R. (2013). The state of the evidence for integrated behavioral health in primary care. In Talen, M. R., and Valeras, A. B. *Integrated Behavioral Health in Primary Care*. Springer Publishing.

Lahey, B. B., Lee, S. S., Sibley, M. H., Applegate, B., Mollina, B. S. G., & Pelham, W. E. (2016). Predictors of adolescent outcomes among 4-6 year old children with Attention-Deficit/Hyperactivity Disorder. *Journal of Abnormal Psychology*, *125*(1), 168–181.

Langberg, J. M., Brinkman, W. B., Lichtenstein, P. K., & Epstein, J. N. (2009). Interventions to promote the evidence-based care of children with ADHD in primary-care settings. *Expert Review of Neurotherapeutics*, *9*(4), 477-490. https://doi.org/10.1586/ern.09.5.

Langston, C., Undem, T., & Dorr, D. (2014). Transforming primary care: What Medicare beneficiaries want and need from patient-centered medical homes to improve health and lower costs. *Hartford Foundation*. Retrieved from: https://www.johnahartford.org/images/uploads/resources/NCQA-Hartford_Langston_Slides.pdf

Lau, A. (2006). Making the case for selective and directed cultural adaptations of

evidence-based treatments: Examples from parent training. *Clinical Psychology: Science and Practice*, *13*(1), 295-310. https://doi.org/10.1111/j.1468-2850.2006.00042.x.

Levy, F., & Hay, D. (2001). *Attention, genes, and ADHD*. Brunner/Routledge.

Macek, J., Gosar, D., & Tomori, M. (2012). Is there a correlation between ADHD symptom expression between parents and children? *Neuroendocrinology Letters*, *33*(1), 201–206.

Majewicz-Hefley, A., & Carlson, J. S. (2007). A meta-analysis of combined treatments for children diagnosed with ADHD. *Journal of Attention Disorders*, *10*(1), 239-250. https://doi.org/10.1177/1087054706289934.

Mark, T. L., Levit, K. R., & Buck, J. A. (2009). Datapoints: Psychotropic drug prescriptions by medical specialty. *Psychiatric Services*, *60*(9), 1167. https://doi.org/10.1176/ps.2009.60.9.1167.

McConaughy, S. H., Ivanova, M. Y., Antshel, K., & Eiraldi, R. B. (2009). Standardized observational assessment of Attention Deficit Hyperactivity Disorder-Combined and Predominantly Inattentive Subtypes. I. Test session observations. *School Psychology Review*, *38*(1), 45–66.

McMahon, R. J., & Forehand, R. L., (2006). *Helping the Noncompliant Child: Family Based Treatment for Oppositional Behavior* (2nd ed.). Guildford Press.

McQuade, J. D., & Hoza, B. (2015). Peer relationships of children with ADHD. In R. A. Barkley (Ed.), *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment* (pp. 210–222). The Guilford Press.

Mehta, N. K., Lee, H., & Ylitalo, K. R. (2013). Child health in the United States: Recent trends in racial/ethnic disparities. *Social Science & Medicine*, *95*(1), 6-15. http://dx.doi.org/10.1016/j.socscimed.2012.09.011.

Merrill, B. M., Morrow, A. S., Altszuler, A. R., Macphee, F. L., Gnagy, E. M., Greiner, A. R., Coles, E. K., Raiker, J. S., Coxe, S., & Pelham, W. E. (2016). Improving homework performance among children with ADHD: A randomized clinical trial. *Journal of Consulting and Clinical Psychology*, *85*(2), 111-122. https://doi.org/10.1037/ ccp0000144.

Meyer, O. L., & Zane, N. (2013). The influence of race and ethnicity in clients' experiences of mental health treatment. *Journal of Community Psychology*, *41*(7), 884–901. https://doi.org/10.1002/jcop.21580.

Mick, E., Biederman, J., Faraone, S. V., Sayer, J., & Kleinman, S. (2002). Case–control study of Attention-Deficit Hyperactivity Disorder and maternal smoking, alcohol use, and drug use during pregnancy. *Journal of the American Academy of Child and Adolescent Psychiatry*, *41*(1), 378–385. https://doi.org/10.1097/00004583-200204000-00009.

Mojtabai, R. (2008). Increase in antidepressant medication in the US adult population between 1990 and 2003. *Psychotherapy and Psychosomatics*, *77*(2), 83–92. https://doi.org/10.1159/000112885.

Molina, B. S., Flory, K., Hinshaw, S. P., Greiner, A. R., Arnold, L. E., Swanson, J. M., Hechtman, L., Jensen, P. S., Vitiello, B., Hoza, B., Pelham, W. E., Elliott, G. R., Wells, K. C., Abikoff, H. B., Gibbons, R. D., Marcus, S., Conners, C. K., Epstein, J. N., Greenhill, L. L., March, J. S.,…Wigal, T. (2007). Delinquent behavior and emerging substance use in the MTA at 36 months: Prevalence, course, and treatment effects. Journal of the *American Academy of Child and Adolescent Psychiatry*, *46*(1), 1028–1040. https://doi.org/10.1097/chi.0b013e3180686d96.

Moore, J. A., Karch, K., Sherina, V,. Guiffre, A., Jee, S., & Garfunkel, L. C. (2018).

Practice procedures in models of primary care collaboration for children with ADHD. *Families, Systems, & Health*, *36*(1), 73-86. https://doi.org/10.1037/fsh0000314.

MTA Cooperative Group. (1999a). A 14-month randomized clinical trial of treatment strategies for Attention-Deficit/Hyperactivity Disorder. The MTA Cooperative Group. Multimodal Treatment Study of Children with ADHD. *Archives of General Psychiatry*, *56*(1), 1073-1086. https://doi.org/10.1001/archpsyc.56.12.1073.

MTA Cooperative Group. (1999b). Moderators and mediators of treatment response for children with Attention-Deficit/Hyperactivity Disorder. *Archives of General Psychiatry*, *56*(1), 1088-1096. https://doi.org/10.1001/archpsyc.56.12.1088.

MTA Cooperative Group. (2004). National Institute of Mental Health multimodal treatment study of ADHD follow-up: 24-month outcomes of treatment strategies for Attention- Deficit/Hyperactivity Disorder. *Pediatrics*, *113*(1), 754- 761. https://doi.org/10.1542/peds.113.4.754.

Myers, K., Stoep, A. V., Thompson, K., Zhou, C., & Unützer, J. (2010). Collaborative care for the treatment of Hispanic children diagnosed with Attention-Deficit Hyperactivity Disorder. *General Hospital Psychiatry*, *32*(6), 612-614. https://doi.org/10.1016/j.genhosppsych.2010.08.004

National Committee for Quality Assurance [NCQA]. (2017a). *Accreditation levels*. Retrieved from http://www.ncqa.org/programs/accreditation/accountable-care-organization-aco/aco-accreditation-levels.

National Committee for Quality Assurance [NCQA]. (2017b). *NCQA PCMH*

Recognition:Concepts. Retrieved from http://www.ncqa.org/programs/recognition/practices/patient-centered-medical-home-pcmh/why-pcmh/overview-of-pcmh/ncqa-pcmh-recognition-concepts.

National Committee for Quality Assurance [NCQA]. (2017c). *Patient-Centered Specialty Practice Frequently Asked Questions*. Retrieved from http://www.ncqa.org/programs/recognition/practices/patient-centered-specialty-practice-pcsp/patient-centered-specialty-practice-faqs.

National Institutes of Mental Health. (2013). *Attention Deficit Hyperactivity Disorder in Children and Adolescents Fact Shee*t. Retrieved from http://www.nimh.nih.gov/health/publications/attention-deficit-hyperactivity-disorder-in- children-and-adolescents/index.shtml

Newcorn, J. H., Halperin, J. M., Jensen, P. S., Abikoff, H. B., Arnold, L. E., Cantwell, D. P., Conners, C. K., Elliott, G. R., Epstein, J. N., Greenhill, L. L., Hechtman, L., Hinshaw, S. P., Hoza, B., Kraemer, H. C., Pelham, W. E., Severe, J. B., Swanson, J. M., Wells, K. C., Wigal, T., & Vitiello, B. (2001). Symptom profiles in children with ADHD: effects of comorbidity and gender. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*(2),137-46. https://doi.org/10.1097/00004583-200102000-00008.

Nigg, J. T., Nikolas, M., & Burt, A. (2010). Measured gene-by- environment interaction in relation to Attention-Deficit/ Hyperactivity Disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *49*(1), 863–873. https://doi.org/10.1016/j.jaac.2010.01.025.

Nigg, J. T., & Barkley, R. A. (2014). Attention-deficit/hyperactivity disorder. In E. J. Mash & R. A. Barkley (Eds.), *Child psychopathology* (4th ed.). Guilford Press.

Nikolas, M. A., & Burt, S. A. (2010). Genetic and environmental influences on ADHD

symptom dimensions of inattention and hyperactivity: A meta-analysis. *Journal of Abnormal Psychology*, *119*(1), 1-17. https://doi.org/10.1037/a0018010.

Nowak, C., & Heinrichs, N. (2008). A comprehensive meta-analysis of Triple P-Positive Parenting Program using hierarchical linear modeling: Effectiveness and moderating variables. *Clinical Child Family Psychology Review*, *11*(3), 114-44. https://doi.org/10.1007/s10567-008-0033-0.

Olaniyan, O., dosReis, S., Garriett, V., Mychailyszyn, M. P., Anixt, J., Rowe, P. C., & Cheng, T. L. (2007). Community perspectives of childhood behavioral problems and ADHD among African American parents. *Ambulatory Pediatrics*, *7*(3), 226–231. https://doi.org/10.1016/j.ambp.2007.02.002.

Owens, E., Cardoos, S. L., & Hinshaw, S. P. (2015). Developmental progression and gender differences among individuals with ADHD. In R. A. Barkley (Ed.), *Attention-deficit hyperactivity disorder: A handbook for diagnosis and treatment*, 4th ed. (pp. 223-255). Guilford Press.

Parra Cardona, J. R., Domenech-Rodriguez, M., Forgatch, M., Sullivan, C., Bybee, D., Holtrop, K., Escobar-Chew, A. R., Tams, L., Dates, B., & Bernal, G. (2012). Culturally adapting an evidence-based parenting intervention for Latino immigrants: The need to integrate fidelity and cultural relevance. *Family Process, 51*(1), 56-72. https://doi.org/10.1111/j.1545- 5300.2012.01386.x.

Patterson, G. R. (1982). *Coercive Family Process*. Castalia.

Patterson, G. R., & Chamberlain, P. (1994). A functional analysis of resistance during parent training therapy. *Clinical Psychology: Science and Practice, 1*(1), 53-70. https://doi.org/10.1111/j.1468-2850.1994.tb00006.x

Patient-Centered Primary Care Collaborative, PCPCC. (2011). *History of the collaborative*. Retrieved from

http://www.pcpcc.net/content/history-collaborative.

Pelham, W. E., Wheeler, T., & Chronis, A. (1998). Empirically supported psychosocial treatments for attention deficit hyperactivity disorder. *Journal of Clinical Child Psychology, 27*(1), 190–205. https://doi.org/10.1207/s15374424jccp2702_6.

Pelham, W. E., & Smith, B. H. (2000). Prediction and measurement of individual responses to Ritalin by children and adolescents with ADHD. In L. Greenhill & B. P. Osman (Eds.), *Ritalin: Theory and practice* (2nd ed., pp. 193–217). Mary Ann Liebert.

Pelham, W. E., & Fabiano, G. A. (2008). Evidence-based psychosocial treatment for ADHD: An update. *Journal of Clinical Child and Adolescent Psychology, 37*(1), 184– 214. https://doi.org/10.1080/15374410701818681.

Pelham, W. E. (2012). Overmedicating America's children: Medication and alternatives to treating ADHD. In N. A. Cummings & W. O'Donohue (Eds.). *Restoring psychotherapy as the first line intervention in behavioral care*. (pp. 297-325). Ithaca Press.

Pelham, W. E., Jr., Fabiano, G. A., Waxmonsky, J. G., Greiner, A. R., Gnagy, E. M., Pelham, W. E., III, Karch, K. Konijnendijk, E., Tresco, K., Nahum-Shani, I., & Murphy, S. A. (2016). Treatment sequencing for childhood ADHD: A multiple-randomization study of adaptive medication and behavioral interventions. *Journal of Clinical Child & Adolescent Psychology, 45*(4), 396–415. https://doi.org/10.1080/ 15374416.2015.110513.

Petts, R. A., & Shahidullah, J. D. (2020). Engagement interventions delivered in primary care to improve off-site pediatric mental health service initiation: A systematic review. *Families, Systems, & Health, 38*(3), 310–322. https://doi.org/10.1037/fsh0000521.

Petts, R. A., McClain, M. B., Azad, G., & Shahidullah, J. D. (2021). System navigation models to facilitate engagement in pediatric behavioral health services: A systematic review. *Families, Systems, and Health, 39*(4), 618-631. https://doi.org/10.1037/fsh0000643.

Pliszka, S. (2007). Practice parameter for the assessment and treatment of children and adolescents with Attention-Deficit/Hyperactivity Disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *46*(7), 894–921. https://doi.org/10.1097/chi.0b013e318054e724.

Pliszka S. R. (2016). Attention-Deficit Hyperactivity Disorder across the lifespan. *Focus American Psychiatric Publishing*, *14*(1), 46–53. https://doi.org/10.1176/appi.focus.20150022.

Power, T. J., Mautone, J. A., Marshall, S. A., Jones, H. A., Cacia, J., Tresco, K., Cassano, M. C., Jawad, A. F., Guevara, J. P., & Blum, N. J. (2014). Feasibility and potential effectiveness of integrated services for children with ADHD in urban primary care practices. *Clinical Practice in Pediatric Psychology*, *2*(4), 412–426. https://doi.org/10.1037/cpp0000056.

Qui, M., Ye, Z., Li, Q., Liu, G., Xie, B., & Wang, J. (2011). Changes of brain structure and function in ADHD children. *Brain Topography, 24*(1), 243-252. https://doi.org/10.1007/s10548-010- 0168-4.

Rajendran, K., Trampush, J. W., Rindskopf, D., Marks, D. J., O'Neill, S., & Halperin, J. M. (2013). Association between variation in neuropsychological development and trajectory of ADHD severity in early childhood. *American Journal of Psychiatry, 170*(10), 1205–1211. https://doi.org/10.1176/appi.ajp.2012.12101360.

Reiff, M. I., & Stein, M. T. (2011). Attention-Deficit/Hyperactivity Disorder. In R. R.

Voight & S. M. Myers (Eds.) *Developmental and Behavioral Pediatrics*, (pp. 327-348). American Academy of Pediatrics.

Reitman, D., Hupp, S. D. A., O'Callaghan, P. M., Gulley, V., & Northup, J. (2001). The influence of a token economy and methylphenidate on attentive and disruptive behavior during sports with ADHD-diagnosed children. *Behavior Modification*, *25*(1), 305–323. https://doi.org/10.1177/0145445501252007.

Robinson, P.J., & Reiter, J.T. (2016). *Behavioral consultation and primary care: A guide to integrating services*, (2nd ed). Springer Publishing.

Rosenthal, M. B., Sinaiko, A. D., Eastman, D., Chapman, B., & Partridge, G. (2015). Impact of the Rochester Medical Home Initiative on primary care practices, quality, utilization, and costs. *Medical Care*, *53*(11), 967–973. https://doi.org/10.1097/MLR.0000000000000424.

SAMHSA-HRSA (2013). A Standard Framework for Levels of Integrated Health Care. Retrieved from http://www.integration.samhsa.gov/integrated-care-models/A_Standard_Framework_for_Levels_of_Integrated_Healthcare.pdf

SAMHSA-HRSA Center for Integrated Health Solutions [SAMHSA-HRSA-CIHS]. (2017). Six Levels of Collaboration/Integration (Core Descriptions). Retrieved from https://www.integration.samhsa.gov/integrated-care-models/CIHS_Framework_Final_charts.pdf

Sanders, M. R. (2008). Triple P-Positive Parenting Program as a public health approach to strengthening parenting. *Journal of Family Psychology*, *22*(1), 506–517. https://doi.org/10.1037/0893-3200.22.3.506.

Savicki, V., Kdley, M., & Ammon, B. (2002). Effects of training on computer-mediated

communication in single or mixed gender small task groups. *Computers in Human Behavior*, *18*(1), 257-269. https://doi.org/10.1016/S0747-5632(01)00048-6.

Schachter, H. M., Pham, B., King, J., Langford, S., & Moher, D. (2001). How efficacious and safe is short acting methylphenidate for the treatment of Attention-Deficit Disorder in children and adolescents: A meta-analysis. *Canadian Medical Association Journal*, *165*(1), 1475-1488.

Schlesinger A. B. (2017). Behavioral health integration in large multi-group pediatric practice. *Current Psychiatry Reports*, *19*(3), 1-6. https://doi.org/10.1007/s11920-017-0770-1.

Schoenbaum, M., Unutzer, J., Sherbourne, C., Duan, N., Rubenstein, L., Miranda, J., & Meredith, L. S. (2001). Cost-effectiveness of practice initiated quality improvement for depression. *Journal of the American Medical Association*, *286*(1), 1325-1330. https://doi.org/10.1001/jama.286.11.1325.

Schutte, K., Piselli, K., Schmitt, A. J., Migilioretti, M., Lorenzi-Quigley, L., Tiberi, A., & Krohner, N. (2017). Identification of ADHD and autism spectrum disorder: Responsibilities of school psychologists. *Communique*, *46*(1), 4-8.

Shahidullah, J. D. (2015). Integrated behavioral health treatment for ADHD referrals in pediatric primary care: clinical improvement, acceptability, adherence, and cost of care (Doctoral Dissertation). Available from ProQuest Dissertation Database. (UMI No. 3713633).

Shahidullah, J. D., Carlson, J. S., Haggerty, D., & Lancaster, B. M. (2018). Integrated care models for ADHD in children and adolescents: A systemic review. *Families, Systems, & Health*, *36*(2), 233-247. http://dx.doi.org/10.1037/fsh0000356.

Shaw, P., Gilliam, M., Liverpool, M., Weddle, C., Malek, M., Sharp, W., Greenstein, D.,

Evans, A., Rapoport, J. & Giedd, J. (2011). Cortical development in typically developing children with symptoms of hyperactivity and impulsivity: Support for a dimensional view of attention deficit hyperactivity disorder. *American Journal of Psychiatry*, *168*(1), 143–151. https://doi.org/10.1176/appi.ajp.2010.10030385.

Shi, L., & Stevens, G. D. (2005). Disparities in access to care and satisfaction among U.S. children: The roles of race/ethnicity and poverty status. *Public Health Reports*, *120*, 431-441. https://doi.org/10.1177/003335490512000410.

Shi, L., Lebrun-Harris, L. A., Daly, C. A., Sharma, R., Sripipatana, A., Hayashi, A. S., & Ngo-Metzger, Q. (2013). Reducing disparities in access to primary care and patient satisfaction with care: The role of health centers. *Journal of Health Care for the Poor and Underserved*, *24*(1), 56–66. https://doi.org/10.1353/hpu.2013.0022.

Shriver, M. D., & Allen, K. D. (2008) *Working with parents of noncompliant children: A guide to evidence-based parent training for practitioners and students*. American Psychological Association.

Sidhu, G. S., Asgarian, N., Greiner, R., & Brown, M. R., G. (2012). Kernel Principal Component Analysis for dimensionality reduction in fMRI-based diagnosis of ADHD. *Frontiers in Systems Neuroscience*, *6*(74), 1-16. https://doi.org/10.3389/fnsys.2012.00074.

Simon, G. E., Katon, W. J., VonKorff, M., Unutzer, J., Lin, E., Walker, E., Bush, T., Rutter, C., & Ludman, E. (2001). Cost-effectiveness of a collaborative care program for primary care patients with persistent depression. *American Journal of Psychiatry*, *158*(1), 1638– 1644. https://doi.org/10.1176/appi.ajp.158.10.1638.

Simpson, L., Owens, P. L., Zodet, M. W., Chevarley, F. M., Doughtry, D., Elixhauser, A.

& McCormick, M. C. (2005). Health care for children and youth in the United States: Annual report on patterns of coverage, utilization, quality, and expenditures by income. *Ambulatory Pediatrics*, *5*(1), 6-44. https://doi.org/10.1367/A04-119R.1.

Sinaiko, A. D., Landrum, M. B., Meyers, D. J., Alidina, S., Maeng, D. D., Friedberg, M. W., Kern, L. M., Edwards, A. M., Flieger, S. P., Houck, P. R., Peele, P., Reid, R. J., McGraves-Lloyd, K., Finison, K., & Rosenthal, M. B. (2017). Synthesis of research on patient-centered medical homes brings systematic differences into relief. *Health Affairs (Millwood)*, *36*(3), 500-508. https://doi.org/10.1377/hlthaff.2016.1235.

Spencer, T. J., Brown, A., Seidman, L. J., Valera, E. M., Makris, N., Lomedico, A., Farone, S. V., & Biederman, J. (2013). Effect of psychostimulants on brain structure and function in ADHD: A qualitative review of magnetic resonance imaging-based neuroimaging studies. *Journal of Clinical Psychiatry*, *74*(1), 902–917. https://doi.org/10.4088/JCP.12r08287.

Sprich, S., Biederman, J., Crawford, M. H., Mundy, E., & Faraone, S. V. (2000). Adoptive and biological families of children and adolescents with ADHD. *Journal of the American Academy of Child and Adolescent Psychiatry*, *39*(1), 1432–1437. https://doi.org/10.1097/00004583-200011000-00018.

Sridhar, C., Bhat, S., U. Rajendra Acharya, U., R., Hojjat Adeli, & Bairy, G. M. (2017). Diagnosis of attention deficit hyperactivity disorder using imaging and signal processing techniques. *Computers in Biology and Medicine, 88*(1), 93-99. http://dx.doi.org/10.1016/j.compbiomed.2017.07.009.

Stevens, G. D., Seid, M., Mistry, R. & Halfon, N. (2006), Disparities in primary care for

vulnerable children: The influence of multiple risk factors. *Health Services Research, 41*(1), 507-531. https://doi.org/10.1111/j.1475-6773.2005.00498.x.

Stevenson, J. (1994). *Genetics of ADHD*. Paper presented at the Professional Group for ADD and Related Disorders, London.

Swanson, J. M., Kraemer, H. C., Hinshaw, S. P., Arnold, E. L., Conners, C. K., Abikoff, H. Clevenger W., Davies, M., Elliott, G. R., Greenhill, L. L., Hechtman, L., Hoza, B., Jensen, P. S., March, J. S., Newcorn, J. H., Owens, E. B., Pelham, W. E., Schiller, E., Severe J. B., Simpson, S.,…& Wu, M. (2001). Clinical relevance of the primary findings of the MTA: Success rates based on severity of ADHD and ODD symptoms at the end of treatment. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*(1), 168-179. https://doi.org/10.1097/00004583-200102000-00011.

Swanson, J. M., Elliott, G. R., Greenhill, L. L., Wigal, T., Arnold, L. E., Vitiello, B., Hechtman, L., Epstein, J. N., Pelham, W. E., Abikoff, H. B., Newcorn, J. H., Molina, B. S. G., Hinshaw, S. P., Wells, K. C., Hoza, B., Jensen, P. S., Gibbons, R. D., Hur, K., Stehli, A., Davies, M.,…& Volkow, N. D. (2007). Effects of stimulant medication on growth rates across 3 years in the MTA follow-up. *Journal of the American Academy of Child and Adolescent Psychiatry*, *46*(1), 1015–1027. https://doi.org/10.1097/chi.0b013e3180686d7e.

Swanson, J., Arnold, L. E., Kraemer, H., Hechtman, L., Molina, B., Hinshaw, S., Vitiello, B., Jensen, P., Steinhoff, K., Lerner, M., Greenhill, L., Abikoff, H., Wells, K., Epstein, J., Elliott, G., Newcorn, J., Hoza, B., & Wigal, T. (2008). Evidence, interpretation, and qualification from multiple reports of long-term outcomes in the Multimodal Treatment Study of Children with ADHD (MTA): Part I.

Executive summary. *Journal of Attention Disorders*, *12*(1), 4–14. https://doi.org/10.1177/1087054708319345.

Swanson, J. M., Baler, R. D., & Volkow, N. D. (2011). Understanding the effects of stimulant medications on cognition in individuals with Attention-Deficit Hyperactivity Disorder: A decade of progress. *Neuropsychopharmacology*, *36*(1), 207–226.

Talmi, A., Muther, E. F., Margolis, K., Buccholz, M., Asherin, R., & Bunik, M. (2016). The scope of behavioral health integration in a pediatric primary care setting. *Journal of Pediatric Psychology*, *41*(10), 1120-1132. https://doi.org/10.1093/jpepsy/jsw065.

Texas Education Code, §29.003 (2001).

Tripp, G., & Wickens, J. R. (2008). Dopamine transfer deficit: A neurobiological theory of altered reinforcement mechanisms in ADHD. *Journal of Child Psychology and Psychiatry*, *49*(7), 691–704. https://doi.org/10.1111/j.1469-7610.2007.01851.x.

Trude, S., & Stoddard, J. J. (2003). Referral gridlock: Primary care physicians and mental health services. *Journal of General Internal Medicine, 18*(6), 442-449. https://doi.org/10.1046/j.1525-1497.2003.30216.x

Van Hasselt, M., McCall, N., Keyes, V., Wensky, S. G., & Smith, K. W. (2015). Total cost of care lower among Medicare fee-for-service beneficiaries receiving care from patient-centered medical homes. *Health Services Research, 50*(1), 253–272. https://doi.org/10.1111/1475-6773.12217.

Vaughan, B., & Kratochvil, C. J. (2012). Pharmacotherapy of pediatric Attention Deficit/Hyperactivity Disorder. *Child and Adolescent Psychiatric Clinics of North America*, *21*(4), 941–955. https://doi.org/10.1016/j.chc.2012.07.005.

Volkow, N. D., Wang, G. J., Tomasi, D., Kollins, S. H., Wigal, T. L., Newcorn, J. H.,

Telang, F. W., Fowler, J. S., Logan, J., Wong, C. T., & Swanson, J. M. (2012). Methylphenidate- elicited dopamine increases in ventral striatum are associated with long-term symptom improvement in adults with Attention Deficit/Hyperactivity Disorder. *Journal of Neuroscience*, *32*(3), 841–849. https://doi.org/10.1523/JNEUROSCI.4461-11.2012.

Visser, S. N., Danielson, M. L., Wolraich, M. L., Fox, M., Grosse, S. D., Valle, L. A., Holbrook, J. R., Claussen, A. H., & Peacock, P. (2016). Vital Signs: National and state-specific patterns of Attention Deficit/Hyperactivity Disorder treatment among insured children aged 2–5 Years — United States, 2008–2014, *Morbidity and Mortality Weekly Report*, *65*(1), 443–450. http://dx.doi.org/10.15585/mmwr.mm6517e1.

Waxmonsky, J. G., Waschbusch, D. A., Belin, P., Li, T., Babocsai, L., Humphery, H., Mazzant, J. R., Hoffman, M. T., Haak, J. L., Mazzant, J. R., Fabiano, G. A., Pettit, J. W., Fallahazad, N., Pelham, W. E., & Pariseau, M. E. (2016). A randomized clinical trial of an integrative group therapy for children with severe mood dysregulation. *Journal of the American Academy of Child & Adolescent Psychiatry*, *55*(3), 196–207. https://doi.org/10.1016/j.jaac.2015.12.011.

Webster-Stratton, C. (2006). *Incredible Years Parenting Program*. Incredible Years.

Weyandt, L., Swentosky, A., & Gyda Gudmundsdottir, B. (2013). Neuroimaging and ADHD: fMRI, PET, DTI findings and methodological limitations. *Developmental Neuropsychology*, *38*(1), 211-225. https://doi.org/10.1080/87565641.2013.783833.

Weyandt, L. L., Willis, W. G., Swentosky, A. J., Wilson, K., Janusis, G. M., & Chung, J.

(2013). A review of the use of executive function tasks in externalizing and internalizing disorders. In S. Goldstein & J. A. Naglieri (Eds.), *Handbook of executive functioning* (pp. 13–27). Springer.

Williams, J., Klinepeter, K., Palmes, G., Pulley, A., & Foy, J. M. (2004). Diagnosis and treatment of behavioral health disorders in pediatric practice. *Pediatrics, 114*(1), 601-606. https://doi.org/10.1542/peds.2004-0090.

Wolraich, M. L., Bard, D. E., Stein, M. T., Rushton, J. L., & O'Connor, K. G. (2010). Pediatricians' attitudes and practices on ADHD before and after the development of ADHD pediatric practice guidelines. *Journal of Attention Disorders*, *13*(6), 563–572. https://doi.org/10.1177/1087054709344194.

Wolraich, M., Brown, L., & Brown, R. T., (2011). Subcommittee on Attention-Deficit/ Hyperactivity Disorder; Steering Committee on Quality Improvement and Management. ADHD: Clinical practice guideline for the diagnosis, evaluation, and treatment of Attention-Deficit/Hyperactivity Disorder in children and adolescents. *Pediatrics*, *128*(5),1007–1022.

Wright, N., Moldavsky, M., Shneider, J., Chakrabarti, I., Coates, J., Daley, D., Kochhar, P., Mills, J., Sorour, W., & Sayal, K. (2015). Practitioner Review: Pathways to care for ADHD – A systematic review of barriers and facilitators. *Journal of Child and Adolescent Psychiatry*, *56*(6), 598-617. https://doi.org/10.1111/jcpp.12398.

Wu, E. Q., Hodgkins P., Ben-Hamadi R., Setyawan J., Xie J., Sikirica V., Du, E. X., Yan, S. Y., & Erder, M. H. (2012) Cost effectiveness of pharmacotherapies for Attention-Deficit Hyperactivity Disorder: A systematic literature review. *CNS Drugs*, *26*(1), 581–600. https://doi.org/10.2165/11633900-000000000-00000.

Zima, B. T., Bussing, R., Tang, L., Zhang, L., Ettner, S., Belin, T. R., & Wells, K. B.

(2010). Quality of care for childhood Attention-Deficit/Hyperactivity Disorder in a managed care Medicaid program. *Journal of the American Academy of Child and Adolescent Psychiatry*, *49*(12), 1225–123811. https://doi.org/10.1016/j.jaac.2010.08.012.

Zur, J., & Jones, E. (2015). Racial and ethnic disparities among pediatric patients at community health centers. *Journal of Pediatrics*, *174*(4), 845-850. http://dx.doi.org/10.1016/j.jpeds.2015.07.002.