

**A SCOPING REVIEW ON THE UTILISATION OF
MOTIVATIONAL INTERVIEWING FOR
ADOLESCENTS AND ADULTS WITH
ATTENTION DEFICIT HYPERACTIVITY
DISORDER**

BY

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CERTIFICATION

This dissertation by Ekaeze Godday is accepted in its present form as satisfying the dissertation requirement of the degree of Bachelor of Physiotherapy of the School of Basic Medical Sciences, College of Medical Sciences, University of Benin.

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DEDICATION

I dedicate this work to Almighty God, my source of life, strength, and peace. To my parents, Mr. and Mrs. Okwunwa, my siblings, family, and friends, for their love, prayers, and unwavering support throughout this journey.

ABSTRACT

Background/Aim: Attention-Deficit/Hyperactivity Disorder (ADHD) is a neurodevelopmental condition associated with inattention, hyperactivity, and impulsivity, often leading to academic, social, and occupational difficulties. While pharmacological treatments are widely used, challenges such as suboptimal adherence and limited access highlight the need for complementary psychosocial interventions. Motivational Interviewing (MI), a client-centred counselling approach, has shown potential in enhancing intrinsic motivation, improving treatment adherence, and supporting behavioural change. However, no scoping review has comprehensively synthesized evidence on the use of MI for adolescents and adults with ADHD. This review aimed to map and synthesise existing studies on MI in ADHD management, focusing on outcomes assessed, intervention formats, delivery modes, and providers.

Methods: A comprehensive literature search was conducted in databases including MEDLINE, EMBASE, PsycINFO, Cochrane Central, CINAHL, Web of Science Core Collections, and AJOL for studies published in English Language. Eligible studies included adolescents (10–19 years) and adults (≥ 19 years) diagnosed with ADHD and receiving MI as a stand-alone or adjunct intervention. Protocols, commentaries, abstracts, and non-English studies were excluded. Screening and data extraction were conducted independently by two reviewers, with discrepancies resolved by consensus. Results were summarised using descriptive tables and narrative synthesis, adhering to the PRISMA-ScR framework.

Results: From 390 records identified, 6 studies met the inclusion criteria. Five were randomized controlled trials and one was a follow-up study, primarily evaluating the Supporting Teens' Autonomy Daily (STAND) programme, which integrates MI with behavioural skills training. All studies include adolescents with none on adults and was carried out only in United States of America. Outcomes commonly assessed included ADHD symptom severity, treatment adherence, organization, and academic/ functional skills. Clinic-based trials demonstrated that MI enhanced symptom management, organizational skills, and medication adherence. Community-based studies showed mixed results, with improvements mainly in medication engagement and conduct problems rather than core ADHD symptoms.

Conclusion: This review highlights the emerging role of MI as a promising adjunctive intervention for adolescents with ADHD, particularly in enhancing medication adherence and functional skills. However, evidence remains limited, geographically narrow, and focused only on adolescents, leaving significant gaps regarding its application in adults. Future research should diversify populations and contexts, and further evaluate the long-term effectiveness of MI in ADHD management.

Keywords: Motivational interviewing, MI, Attention-Deficit/Hyperactivity Disorder, ADHD, Adolescents, Adults, Scoping review

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CHAPTER ONE

INTRODUCTION

1.1 Background of study

Attention Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder defined by persistent patterns of inattention and/or hyperactivity/impulsivity, which frequently results in functional impairment across multiple areas of life (Wolraich et al., 2019). It is often associated with psychiatric comorbidities such as depression, and anxiety (Piñeiro-Dieguez et al., 2016; Reale et al., 2017). The manifestation of ADHD symptoms can vary by age and gender, with research indicating a higher prevalence in males than females (Faheem et al., 2022; Rucklidge, 2008). A recent systematic review and meta-analysis revealed a prevalence of 7.6% among children aged 3 to 12 years and 5.6% among teenagers aged 1 to 18 years (Salari et al., 2023) while the prevalence of ADHD in adults has been shown to reach 2.5% (Simon et al., 2009). Beyond its cognitive and behavioural implications, ADHD has also been increasingly linked to physical health conditions. For instance, studies have shown that ADHD is linked to various physical health conditions such as increased risks of cardiovascular disease, obesity, type 2 diabetes, asthma, and chronic pain (Ai et al., 2022; Battison et al., 2023; Kaas et al., 2021; Nylander et al., 2015).

ADHD is typically diagnosed in childhood and often persistent into adulthood (Faraone & Biederman, 2016; Salari et al., 2023) and it is typically characterized by symptoms of inattention, hyperactivity, and impulsivity, which can continue

across the lifespan and contribute to significant functional impairment. These symptoms often persist into adulthood and are frequently associated with the development of other psychiatric disorders (Choi et al., 2022). Emerging evidence have shown that at least 80% of adults who presents with ADHD may initially present with psychiatric disorders such as substance use disorders, mood disorders, personality disorders and anxiety disorders (Choi et al., 2022; Katzman et al., 2017). Furthermore, overlapping symptoms with other mental health conditions often lead to misdiagnosis or delayed recognition among adults and studies consistently show that ADHD remains under-recognized and under-treated in the adult population, resulting in unmet healthcare needs (Katzman et al., 2016, 2017).

Various treatment options are available for the treatment of ADHD in adolescents and adults which include medications, behavioural and psychological interventions, lifestyle and supportive measures (Wolraich et al., 2019). However, according to practice standards by American Academy of Paediatrics (AAP) and the American Academy of Child and Adolescent Psychiatry (AACAP), medication is the firstline treatment for adolescent ADHD, with psychosocial interventions indicated as complementary therapy when appropriate (Wolraich et al., 2019). Early intervention and good management are critical for ADHD, which can have longterm repercussions such as negative vocational, educational, substance use, criminal, and sexual outcomes (Hechtman et al., 2016). ADHD should be viewed as the extreme end of a spectrum of symptoms among the general population, rather than a unique disorder (Faraone & Larsson, 2019). This viewpoint highlights the multidimensional characteristics of ADHD and the significance of understanding the whole range of symptoms and impairments in order to give tailored therapeutic intervention.

The American Academy of Paediatrics recommended medications and psychosocial interventions are the main stay of managing symptoms of ADHD (Wolraich et al., 2019). One of the promising psychological approaches used to managed symptoms of ADHD and associated poor health behaviour is motivational interviewing (Sibley et al., 2021). Motivational interviewing (MI) is a collaborative, person-centred counselling approach designed to help strengthen individuals motivation for change and helps make a positive decisions (Miller & Rollnick, 2012). It empowers individuals to make meaningful changes by helping them discover their own capacity for change. MI is guided by four core processes which include: engaging, focusing, evoking, and planning. Across the process, there are four essential skills: asking open-ended questions, offering affirmations, reflective listening, and summarizing (Miller & Rollnick, 2012).

Adolescents with ADHD often exhibit challenges such as poor treatment adherence, academic underachievement, and strained family dynamics (Wiener & Daniels, 2016). MI's client-centred methodology, which prioritizes empathy, autonomy, and the exploration of personal values, aligns well with the developmental needs of this population and it has been effectively integrated into interventions for adolescents with ADHD, particularly to enhance engagement and facilitate behaviour change (Meinzer et al., 2021; Sibley et al., 2016; Sibley et al., 2021). One notable programme is Supporting Teens' Autonomy Daily (STAND), which combines MI with behavioural therapy, there is evidence indicating that this intervention led to significant improvements in ADHD symptoms and related functional outcomes (Sibley et al 2016). Additionally, MI have been used in addressing psychiatric conditions such as substance use disorder (Pederson et al.,

2021), mood disorders (Romano & Peters, 2015), personality disorders and anxiety disorders (Baker et al., 2012).

1.2 Statement of the problem

Attention-Deficit/Hyperactivity Disorder (ADHD) is a multifaceted neurodevelopmental condition characterized by persistent patterns of inattention, hyperactivity, and impulsivity, which can severely impair social, academic, and occupational functioning across the lifespan (Sibley et al., 2016). Despite the effectiveness of pharmacological treatment as a first-line intervention, many adolescents with ADHD continue to experience functional impairments due to suboptimal treatment adherence, limited access to care, and psychosocial challenges (Hechtman et al., 2016; Wiener & Daniels, 2016). These issues are further complicated by the complex and heterogeneous nature of ADHD, as well as the presence of comorbid psychiatric conditions that may influence treatment outcomes (Piñeiro-Dieguez et al., 2016; Reale et al., 2017). Motivational Interviewing (MI), a client-centred, evidence-based counselling technique, has shown promise as an adjunctive intervention to address these limitations by enhancing intrinsic motivation, improving engagement, and supporting behavioural change (Barrett et al., 2018; Sibley et al., 2021). However, to the best of the researcher's knowledge, there is currently no comprehensive synthesis that clarifies the outcomes most frequently assessed, the ways in MI interventions are delivered to adolescents and adults with ADHD, or the formats, delivery modes, and providers involved. Therefore, a scoping review is warranted to synthesise the existing evidence on the use and application of MI in the management of ADHD among adolescents and adults.

1.3 Research questions

- i. What were the outcomes commonly assessed for the management of ADHD with motivational interviewing in adults and adolescents?
- ii. What were the formats, delivery modes, providers, and settings of MI interventions for adolescents and adults with ADHD?
- iii. How is MI utilised in the management of ADHD among adolescents and adults?

1.4 Aim of study

To map and synthesize the existing evidence on the use of motivational interviewing (MI) for the management of adolescents and adults with attentiondeficit/hyperactivity disorder (ADHD).

1.4.1 Specific objectives

- i. To identify and map the types of outcomes commonly assessed in studies of motivational interviewing interventions for adolescents and adults with ADHD.
- ii. To describe the characteristics of motivational interviewing interventions for adolescents and adults with ADHD, including their format, delivery modes, providers, and settings.
- iii. To describe how MI is used in the management of ADHD among adolescents and adults.

1.5 Significance of study

- i. To the Public: By evaluating the use and application of Motivational

Interviewing (MI), the study had the potential to inform families, caregivers, and individuals with ADHD about evidence-based, non-pharmacological approaches that could complement or enhance medication.

- ii. To Policy Makers: The findings from this scoping review could inform mental health policy and funding priorities by highlighting the utility of MI as a potentially cost-effective, scalable intervention for ADHD. Also, by mapping how Motivational Interviewing (MI) was used for adolescents and adults with ADHD, the review could provide evidence to support inclusion of MI in ADHD management guidelines and national mental health strategies.
- iii. To Research: This study would identify existing gaps in the literature on MI for ADHD management and provided a synthesis of the current evidence base.
- iv. To Clinical Practice: The review would collate information on how MI had been delivered (session length, integration with medication management, telehealth vs in-person), helping clinicians choose or adapt protocols.

1.6 Delimitation

- i. Studies that included adolescents (10-19) and adults (age 19 years and older) with attention deficit hyperactivity disorder (ADHD) based on Diagnostic and Statistical Manual of Mental Disorders V (DSM-V) diagnostic criteria and included motivational interviewing alone or combined with other behavioural interventions.
- ii. Commentaries, protocols, and abstracts or studies not published in English was excluded.
- iii. Specific databases such as Cochrane Central (Ovid), EMBASE, Medline via

OVID, Cumulative Index to Nursing and Allied Health Literature CINAHL (EBSCOhost), African Journal Online (AJOL), PsycINFO, and Scopus were searched.

1.7 Limitations

- i. The review was limited to published peer-reviewed articles in English, so relevant studies in other languages or grey literature might have been missed.
- ii. Existing studies were conducted only in the United States and by one research group, limiting diversity in populations, settings, and cultural contexts.
- iii. Evidence was restricted to adolescents; no studies assessed the use of motivational interviewing (MI) for adults with ADHD, limiting applicability across the lifespan.

1.8 Definition of terms

- i. Attention Deficit Hyperactivity Disorder (ADHD):
ADHD is a neurodevelopmental disorder defined by persistent patterns of inattention and/or hyperactivity-impulsivity, which frequently results in functional impairment across multiple areas of life.
- ii. Motivational Interviewing (MI) is a client-centred, directive counselling approach designed to enhance an individual's motivation to change by helping them explore and resolve ambivalence. It was grounded in principles of empathy, collaboration, and respect for the individual's autonomy.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This literature review explores the conceptual framework of Motivational Interviewing, its principles and practical applications, its potential role in the management of ADHD and pathophysiology and clinical presentation of ADHD across different age groups, with an emphasis on understanding the rationale for employing MI as a complementary approach in ADHD treatment strategies.

2.1 Conceptual Framework

2.1.1 Motivational interviewing

Motivational Interview (MI) is a directive, patient-centred counselling approach that aims to assist individuals in examining and resolving their ambivalence (they want to change and they don't want to, all at the same time) regarding changing their behaviour (Miller & Rollnick, 2012). It may aid individuals in their attempts to successfully quit smoking, but it was created as a treatment for alcohol abuse (Miller & Rollnick, 2012). Motivational Interviewing is a client-centred, goaloriented method of communication designed to enhance intrinsic motivation for change by exploring and resolving ambivalence. Rooted in the principles of empathy, collaboration, and respect for autonomy, MI has been widely applied in various behavioural and mental health contexts (Meinzer et al., 2021). MI is designed to find a constructive way through the challenges that often arise when a helper ventures into someone else's motivation for change. In particular, MI is

about arranging conversations so that people talk themselves into change, based on their own values and interests. Attitudes are not only reflected in but are actively shaped by speech (Miller & Rollnick, 2012). The strategies used in MI are intended to be persuasive rather than coercive, and supportive rather than confrontational. The central goal is to enhance the individual's intrinsic motivation, fostering change that emerges from within rather than being driven by external pressure (Rubak et al., 2005). MI emphasizes attentiveness to the natural language people use when discussing change (Rollnick et al., 2008). This focus has important implications for conducting more effective conversations, especially in settings where one individual is serving in a supportive or professional helping role to another.

2.1.2 Principles of Motivational interviewing

Motivational Interviewing (MI) rests on four inter-locking principles that together orient the practitioner toward a conversational style that elicits, rather than imposes, motivation for change (Miller & Rollnick, 2012). Although they are typically described separately, the principles operate synergistically and are best understood as mutually reinforcing dimensions of an overarching person-centred character.

1. Expressing Empathy

Empathy in MI is more than a warm interpersonal stance; it is an active effort to inhabit the client's phenomenological world and to communicate that understanding back to them. The counsellor uses skilful reflective listening, accurate summaries, and an attitude of non-judgement to convey a sense of being

“heard” (Hettema et al., 2005). When clients come to believe that the practitioner genuinely perceives their experience—seeing with their eyes, thinking with their thoughts, and feeling with their feelings, they become markedly more willing to disclose ambivalence and to explore sensitive material in depth. The empathic stance therefore provides the relational foundation upon which subsequent changefocused dialogue is built (Rollnick et al., 2008)

2. Supporting Self-Efficacy

MI is explicitly strengths-based, proceeding from the assumption that people possess, or can acquire, the resources needed for change (Bandura & Wessels, 1997). Practitioners underscore prior successes, transferable skills, and personal qualities that the client may overlook, thereby cultivating a realistic sense of competence. This emphasis on self-efficacy is especially critical for individuals who have a history of stalled or unsuccessful attempts to change; by reframing these experiences as partial successes or sources of learning, the counsellor helps convert discouragement into hope. Empirical work has repeatedly shown that heightened self-efficacy predicts treatment adherence and long-term maintenance across a variety of health behaviours (Rollnick & Miller, 1995)

3. Rolling with Resistance

Resistance whether expressed as defensiveness, minimisation, or outright disagreement is treated in MI not as defiance to be overcome but as information signalling misaligned perspectives or threatened autonomy (Miller & Rollnick, 2012). Rather than confronting resistance head-on, the practitioner “rolls” with it, reframing discord, inviting new viewpoints, or shifting the focus toward less

contentious territory. This dance-rather-than-wrestle posture disrupts the escalation that typically follows argumentative exchanges and preserves the collaborative spirit of the interview. Equally important, it guards against the “righting reflex,” the understandable but counter-productive urge to correct, persuade, or solve the problem on the client’s behalf, an urge that often intensifies resistance rather than dissolving it.

4. Developing Discrepancy

Motivation becomes a reality when individuals perceive a meaningful gap between their present behaviour and their cherished goals or values. MI guides clients toward articulating that gap in their own words, a process that transforms vague dissatisfaction into a concrete motivation for change (Rollnick & Miller, 1995). The practitioner employs evocative questions, double-sided reflections, and selective summaries to highlight how current actions may be steering the client away from, rather than toward, desired futures. Crucially, this exploration is conducted gently and incrementally so as not to undermine the empathic alliance or trigger defensiveness. When discrepancy is experienced as self-discovered rather than externally imposed, it functions as an intrinsic, sustainable driver of change.

2.1.3 Skills for Motivational Interviewing

At the core of MI is a set of foundational communication skills known by the acronym OARS: Open-ended questions, Affirmations, Reflective listening, and summarizing (Miller & Rollnick, 2012). These skills operationalize MI’s guiding principles and facilitate a collaborative, empathetic, and goal-oriented

conversation. Rather than directing or advising clients, OARS helps practitioners evoke the client's own motivations and strengthen their commitment to change (Rollnick & Miller, 1995). Each component of OARS plays a unique role in advancing the therapeutic dialogue and they are explained below:

1. Open-Ended Questions

Open-ended questions are designed to elicit more than a simple “yes” or “no” response. They invite the client to explore their thoughts, feelings, experiences, and motivations in depth. Unlike closed questions, which can shut down conversation, open-ended questions encourage elaboration and allow the client to direct the flow of discussion. Unlike closed questions that often lead to short or predetermined answers, open-ended questioning enhances engagement by inviting clients to express their perspectives freely. This approach aligns with the MI principle of respecting client autonomy and reinforces the collaborative nature of the interaction. By allowing the client to take the conversational lead, open-ended questions help uncover the personal relevance and emotional drivers behind their ambivalence or desire for change.

2. Affirmations

Affirmations are statements that intentionally recognize and reinforce a client's strengths, efforts, and values. They contribute significantly to building rapport and enhancing the client's self-perception, enabling them to view themselves in a more capable and positive light. Crucially, affirmations must be genuine and congruent to have a meaningful impact.

3. Reflective Listening

Reflective listening represents one of the most critical and defining skills within the MI framework. It serves a dual purpose: first, to convey a deep understanding of the client's perspective thereby enacting the principle of Expressing Empathy and second, to strategically steer the conversation in a direction that supports behaviour change. Through skilful reflection, the practitioner captures both the content and emotional tone of the client's statements, validating their experiences while also encouraging further exploration. More than a passive technique, reflective listening becomes an active instrument of change when used to subtly highlight discrepancies between current behaviours and future goals. It facilitates the resolution of ambivalence by focusing attention on the drawbacks of the status quo and the potential benefits of change.

4. Summarizing

Summarizing is a specialized form of reflection that consolidates key points discussed during a session or over multiple sessions. Summaries function as both organizational tools and strategic interventions, helping to focus attention, reinforce client insights, and maintain the momentum of the conversation. They signal active listening and engagement while also facilitating transitions or shifts in direction. Importantly, summaries can be used to draw attention to both sides of a client's ambivalence acknowledging conflicting feelings or ideas while strategically emphasizing those aspects that support positive change. This selective emphasis aids in the development of discrepancy, a core motivational process in MI, by contrasting current behaviours with the client's stated values

and goals. Effective summaries contribute not only to coherence and clarity but also to the deepening of insight and the reinforcement of motivation (Miller & Rollnick, 2012).

2.1.4 Applications of Motivational Interviewing

MI has evolved from its initial use in the treatment of substance use disorders to become a widely applicable approach across a range of health and behavioural contexts. Its adaptable, client centred nature makes it especially effective in addressing ambivalence and fostering intrinsic motivation for change in both clinical and non-clinical settings. Below are some of the applications of MI in the clinical and non-clinical settings:

i. Substance Use and Addiction

Originally developed for use with individuals struggling with alcohol dependency, MI has demonstrated consistent effectiveness in treating various forms of substance use disorders, including alcohol, tobacco, and illicit drugs. By enhancing individuals' readiness to change and reducing resistance, MI serves as a powerful tool in substance abuse counselling. Meta-analyses have shown MI to significantly reduce substance use and improve treatment adherence (Apodaca et al., 2014; Lundahl et al., 2013).

ii. Health Behaviour Change

MI has been widely used to promote healthier lifestyles and improve selfmanagement in chronic conditions. This includes interventions aimed at improving diet, increasing physical activity, enhancing medication adherence, and

managing chronic diseases such as diabetes and hypertension (Akinrolie et al., 2024, 2025;

Alperstein & Sharpe, 2016). The technique has shown significant promise in facilitating behaviour change by aligning health goals with patients' personal values and increasing their confidence to act

iii. Mental Health and Psychological Disorders

MI has been incorporated into treatment protocols for various mental health conditions, including depression, anxiety, and eating disorders (Apodaca et al., 2014; Chen et al., 2012). Its non-confrontational style supports therapeutic alliance and helps clients explore the impact of their behaviours on mental well-being. Studies suggest that when combined with cognitive-behavioural therapy (CBT), MI can enhance treatment outcomes by increasing engagement and readiness for change (Barrett et al., 2018).

iv. Education and Youth Interventions

In educational and youth-focused settings, MI has been used to address issues such as school dropout, academic motivation, and behavioural challenges. It fosters open dialogue between educators or counsellors and students, encouraging reflection and self-directed change. MI has shown success in promoting motivation for academic achievement and reducing problem behaviours in adolescents (Snape & Atkinson, 2016; Terry et al., 2021).

2.2 Attention Deficit Hyperactivity Disorder (ADHD)

2.2.1 Overview of ADHD

Attention Deficit Hyperactivity Disorder (ADHD) is a neurodevelopmental disorder defined by persistent patterns of inattention and/or hyperactivity/impulsivity, which frequently results in functional impairment across multiple areas of life (Wolraich et al., 2019). ADHD is a heterogeneous neurodevelopmental condition characterized by persistent symptoms of inattention, hyperactivity, and impulsivity that are developmentally inappropriate and interfere with functioning or development (American Psychiatric Association, 2013).

2.2.2 Types of ADHD

ADHD presents in multiple forms, and to better capture the variability in symptom expression, the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) classifies the disorder into three primary types or presentations which are described below:

- i. **Predominantly Inattentive Presentation:** Individuals with the predominantly inattentive presentation exhibit significant difficulties in maintaining attention, sustaining focus, organizing tasks, and following through on instructions. They may appear forgetful, easily distracted, and prone to careless mistakes. These individuals are often less overtly disruptive and may go undiagnosed, particularly in school environments where their struggles are mistaken for low motivation or disinterest. This type is more commonly diagnosed in females and older adolescents and is associated with academic underachievement and internalizing symptoms such as anxiety and low self-esteem (Barkley & Barkley, 1998).
- ii. **Predominantly Hyperactive-Impulsive Presentation:** The predominantly hyperactive-impulsive presentation is marked by excessive physical activity, restlessness, impulsive decision-making, and difficulty in

remaining seated or still. Individuals with this presentation often act without considering consequences, interrupt others frequently, and have trouble waiting their turn. It is more easily recognized due to the visible nature of the symptoms, especially in younger children. This presentation is frequently associated with increased risk

for injury, disciplinary problems, and externalizing behaviours (Barkley & Barkley, 1998).

iii. **Combined Presentation:** The combined presentation of ADHD is diagnosed when an individual meets the diagnostic criteria for both inattention and hyperactivity-impulsivity over a six-month period. This type is the most commonly diagnosed presentation and is typically associated with more severe impairments across multiple life domains, including academic performance, social functioning, and emotional regulation (Wolraich et al., 2019). Children and adolescents with the combined type often exhibit a broader range of symptoms, making this presentation more recognizable and more likely to result in clinical referral.

2.2.3 Risk factors of ADHD

Genetic and Hereditary Factors: ADHD is highly heritable, with family and twin studies estimating heritability rates of approximately 70–80% (Faraone & Larsson, 2019). Children with first-degree relatives diagnosed with ADHD are significantly more likely to develop the disorder themselves. Several genes associated with dopamine regulation particularly those involving the dopamine transporter gene (DAT1) and dopamine receptor D4 gene (DRD4) have been implicated in the disorder's pathophysiology (Kian et al., 2022). These findings support the view that genetic susceptibility plays a foundational role in the development of ADHD.

Neurobiological and Brain Development Factors: Neuroimaging studies have identified structural and functional differences in the brains of individuals with ADHD, particularly in regions associated with executive functioning, attention regulation, and impulse control. Abnormalities in the prefrontal cortex, basal ganglia, and cerebellum as well as reduced cortical volume have been consistently reported (Sciberras et al., 2017). Dysregulation of catecholaminergic neurotransmitters such as dopamine and norepinephrine further support the neurobiological basis of ADHD symptoms.

Prenatal and Perinatal Factors: Exposure to risk factors during prenatal and perinatal periods has been associated with increased ADHD risk. Maternal smoking, alcohol consumption, and exposure to environmental toxins such as lead during pregnancy have all been linked to a higher incidence of ADHD in offspring (Sagiv et al., 2013). Additionally, complications such as low birth weight, premature birth, and birth trauma may contribute to altered neurodevelopment and increased ADHD susceptibility (Sagiv et al., 2013)

Environmental and Psychosocial Factors: Environmental stressors, including early exposure to adversity, family dysfunction, low socioeconomic status, and poor parental mental health, have been identified as potential contributing factors to ADHD. While these factors may not directly cause ADHD, they can exacerbate the severity of symptoms or affect the course of the disorder (Banerjee et al., 2007). Moreover, inconsistent parenting practices and early neglect have been associated with greater behavioural dysregulation among children with underlying vulnerabilities.

Diet and Lifestyle Influences: Emerging evidence suggests that certain dietary patterns and nutritional deficiencies may play a role in the manifestation or worsening of ADHD symptoms. Low levels of omega-3 fatty acids, iron, zinc, and magnesium have been observed in some individuals with ADHD, though findings are mixed and causality remains inconclusive (Sciberras et al., 2017). Likewise, high intake of artificial food colourings and preservatives has been linked to hyperactivity in some children, prompting dietary modification as a complementary strategy in ADHD management.

2.3 Pathophysiology of ADHD

The pathophysiology of ADHD involves complex interactions between neurochemical, neuroanatomical, and functional brain abnormalities, along with genetic and developmental factors (Sharma & Couture, 2014). A core aspect of ADHD is the dysregulation of neurotransmitters, particularly dopamine and norepinephrine, which impairs attention, motivation, and impulse control due to dysfunctions in the prefrontal cortex and related neural pathways (Faraone & Larsson, 2019). Neuroimaging studies consistently reveal structural abnormalities in regions like the prefrontal cortex, basal ganglia, and cerebellum, with delays in cortical maturation often observed in children with ADHD (Dresler et al., 2014). Functional brain connectivity is also disrupted, particularly within the default mode network, leading to difficulties maintaining attention and regulating goal-directed behaviour. These neurodevelopmental disruptions are often shaped by both genetic predispositions such as variations in dopamine-related genes and environmental or epigenetic factors, including prenatal stress and early-life adversity. Together, these neurobiological insights provide a foundation for

understanding the behavioural symptoms of ADHD and underscore the disorder's developmental and multifactorial nature.

2.3.1 ADHD in Adults and Adolescents

Although Attention-Deficit/Hyperactivity Disorder (ADHD) is typically diagnosed in childhood, a substantial number of individuals continue to experience symptoms into adolescence and adulthood. In adolescents, ADHD often presents with increased academic and social challenges due to greater demands for self-regulation and organizational skills. Symptoms may manifest as persistent inattention, impulsivity, restlessness, and difficulties in peer relationships, often co-occurring with emotional regulation problems and increased risk-taking behaviours (Barkley & Barkley, 1998). In adults, ADHD symptoms may appear less overt but still lead to significant functional impairments. These include challenges in maintaining employment, managing relationships, regulating emotions, and completing tasks. Adults may also struggle with time management, procrastination, and impulsive decision-making, and are more likely to experience comorbid conditions such as anxiety, depression, and substance use disorders (Barkley & Barkley, 1998; Barrett et al., 2018). Despite these impacts, ADHD in adults is often underdiagnosed or misdiagnosed, partly due to changes in symptom presentation over time and the lack of awareness that ADHD persists beyond childhood. Understanding ADHD across developmental stages is essential for timely diagnosis, targeted intervention, and improved outcomes throughout the lifespan.

2.3.2 Motivational Interviewing in ADHD Management

MI is a goal-oriented, client-centred method that looks at ambivalence and works to resolve it in order to induce behaviour change. Motivational Interviewing (MI) has emerged as a promising adjunctive approach in the management of Attention Deficit/Hyperactivity Disorder (ADHD), particularly among adolescents and adults. Rooted in a client-centred and directive counselling style, MI aims to enhance intrinsic motivation by helping individuals explore and resolve ambivalence toward behaviour change. This technique aligns well with the challenges faced by individuals with ADHD, such as difficulties with self-regulation, adherence to treatment, and sustained engagement in therapeutic processes. One notable application of MI in ADHD treatment is the Supporting Teens' Autonomy Daily (STAND) program, which integrates MI with cognitive-behavioural strategies in a parent-teen framework. Studies have demonstrated that

STAND effectively engages families and leads to significant improvements in ADHD symptoms, organizational skills, homework behaviour, and parent-teen relationships. For instance, Sibley et al. (2016) reported that adolescents participating in STAND showed marked reductions in ADHD symptom severity and enhancements in executive functioning skills, with many of these gains maintained at a six-month follow-up. Further research by Sibley et al. (2024) extended these findings, revealing that the benefits of MI-enhanced interventions like STAND can persist over a three-year period. The study highlighted sustained improvements in ADHD symptomatology and functional outcomes, emphasizing the long-term efficacy of incorporating MI into ADHD treatment plans.

In adult populations, MI has been utilized to address common comorbidities associated with ADHD, such as substance use disorders and difficulties with treatment adherence (Barrett et al., 2018). By fostering a collaborative therapeutic alliance, MI helps adults with ADHD to identify personal goals and values, thereby enhancing motivation to engage in and adhere to treatment regimens (Meinzer et al., 2021; Sibley et al., 2021). This approach is particularly beneficial in addressing the executive functioning deficits and motivational challenges that are prevalent in adult ADHD. The integration of MI into ADHD management also underscores the importance of psychoeducation. Educating individuals about their diagnosis and treatment options empowers them to make informed decisions and fosters a sense of autonomy. This empowerment is crucial in managing a chronic condition like ADHD, where long-term engagement and self-management are key to successful outcomes. MI emphasis is on enhancing intrinsic motivation, fostering collaborative relationships, and supporting autonomy aligns well with the needs of individuals with ADHD.

2.3.3 Rationale for using Motivational Interviewing in ADHD

MI is particularly suited for managing Attention-Deficit/Hyperactivity Disorder (ADHD) due to its emphasis on enhancing intrinsic motivation, fostering self-efficacy, and promoting collaborative dialogue which address the core challenges experienced by individuals with ADHD. ADHD is characterized by executive functioning deficits, impulsivity, and motivational difficulties, which can impair treatment adherence, goal-directed behavior, and sustained engagement in interventions (Barkley & Barkley, 1998). Traditional directive approaches may trigger resistance in individuals with ADHD, especially

adolescents and adults who struggle with autonomy or have had negative experiences with authority figures. MI, with its client-centred and non-confrontational approach, offers a psychologically safe environment that encourages individuals to explore ambivalence about change and take ownership of their treatment journey (Miller & Rollnick, 2013).

Research has shown that individuals with ADHD, particularly teens and adults, often present with co-occurring issues such as low self-esteem, substance use, or oppositional behaviours, which may further hinder their responsiveness to conventional behavioural or pharmacological interventions (Wolraich et al., 2019). In such contexts, MI is effective in building therapeutic rapport and activating selfreflective processes that can lead to more meaningful engagement with treatment. For example, the STAND program (Supporting Teens' Autonomy Daily), which incorporates MI into behavioural therapy for adolescents with ADHD, has demonstrated improvements in executive function, school performance, and parentadolescent communication (Sibley et al., 2016). These benefits stem from MI's ability to promote autonomy-supportive interactions that validate the individual's perspective and elicit personally relevant reasons for change.

Furthermore, MI can be an effective adjunct to medication-based treatment, especially for individuals hesitant about pharmacological options or those who struggle with consistent medication use (Meinzer et al., 2021). By helping clients articulate their values and reconcile these with treatment goals, MI increases adherence and long-term commitment (Akinrolie et al., 2020). It also reduces

oppositional dynamics and enhances perceived control over one's health, which is especially important for young adults transitioning out of paediatric care.

2.3.4 Strategies for Implementing Motivational Interviewing in ADHD

M) in the treatment of ADHD requires intentional adaptation to the unique cognitive, emotional, and behavioural challenges associated with the disorder. One key strategy involves establishing a strong therapeutic alliance (Miller & Rollnick, 2012). This begins with the clinician expressing empathy and practicing reflective listening to understand the individual's perspective. Many individuals with ADHD, particularly adolescents, may have had prior negative experiences with authority or mental health interventions. MI helps to reduce defensiveness by adopting a collaborative, non-judgmental stance (Miller & Rollnick, 2012). This alliance fosters trust and openness, essential for eliciting honest dialogue about ambivalence toward change.

Another essential strategy is the strategic use of the OARS technique Open-ended questions, Affirmations, Reflective listening, and Summarizing (Rollnick et al., 2008). These core skills help to guide conversations in a goal-directed way without provoking resistance. Open-ended questions explore the client's motivations, while affirmations highlight existing strengths, supporting the principle of self-efficacy. Reflective listening conveys understanding and reinforces the client's values, and summaries help organize the conversation and reinforce motivation (Mackenzie, 2017). Tailoring MI to cognitive needs is another vital strategy. Clients with ADHD may struggle with attention, memory, and task persistence. Thus, sessions may be shorter, more frequent, and highly

structured. Clinicians can use visual aids, goal tracking tools, and behaviour reinforcement systems to support attention and memory. Breaking down goals into small, manageable steps also enhances followthrough (Sibley et al., 2016).

2.3.5 Empirical Literature Review

To provide empirical evidence on the use of MI in adolescents and adults with ADHD, the researcher conducted a strategic and focused literature search, specifically targeting studies that evaluated the relevant variables.

Google Scholar was searched using the following terms: Motivational interviewing

AND neurological disorders OR autism OR mental health OR bipolar disorders OR schizophrenia OR anxiety OR psychosis AND scoping review. From the search, a total of 35,300 results was retrieved and the first 10 pages of the result were searched for review articles on the use of MI on different neurological conditions.

Table 1: Summary of empirical literature review on Motivational Interview in neurological and psychological Disorders

S/N	Title	Study ID	Study characteristics	Study design/ Databases searched	Outcomes	Results and conclusion
1	Interventions to Improve Medication Adherence in Patients with Schizophrenia or bipolar disorders: A Systematic Review and Meta-Analysis	(Loots et al., 2021)	This systematic review and meta-analysis aimed to compare the effectiveness of various interventions designed to improve medication adherence in individuals with schizophrenia or bipolar disorder. The review focused on studies published in the past decade that evaluated adherenceenhancing strategies for these patient populations.	Systematic Review / PubMed and Web of Science were systematically reviewed for relevant intervention studies published between 2009 and 2019.	The outcome was medication adherence.	The intervention, which utilized motivational interviewing across eight sessions over a four-month period, led to a significantly greater improvement in medication adherence in the intervention group at the six-month followup.

2	Effectiveness of motivational interviewing interventions for adolescent substance use behaviour change: A meta-analytic review substance.	(Jensen et al., 2011)	This review seeks to provide the highest form of evidence on the effectiveness of MI in adolescent substance use behaviour change:	Systematic Review / PsycINFO, PUBMED/MEDLINE, and the Educational Resources Information Centre are among the databases that were searched. We found and examined 21 separate trials with a total of 5,471 individuals.	Reduction in substance use by adolescent	The meta-analysis found that Motivational Interviewing (MI) interventions for adolescent substance use produced a small but statistically significant effect immediately after treatment. This positive effect was maintained over time, as follow-up assessments also showed small but significant benefits. MI was effective across various types of substance use behaviours, different session lengths, diverse settings.
3	The efficacy of incorporating motivational	(Marker & Norton, 2018)	The study aimed to look at the effectiveness of MI in treating anxiety disorders and filling up	Systematic Review / PsychInfo, PubMed, the Cochrane Library, and ProQuest were the electronic resources	The following assessment tools were used: Anxiety Sensitivity Index (ASI); Brief Fear of	In every study examined, MI+CBT performed better than normal CBT in terms of reducing anxiety

<p>interviewing to cognitive behaviour therapy for anxiety disorders: A review and meta-analysis</p>		<p>some of these gaps in the research were the goals of the metaanalysis.</p>	<p>that were thoroughly searched in order to find the articles.</p>	<p>Negative Evaluation Scale (BFNE); Penn State Worry Questionnaire (PSWQ); Beck Depression Inventory – II (BDI-II); Anxiety Disorders Interview Schedule for DSMIV Severity Scale (ADIS-S); Clinical Global Impressions Severity Scale (CGI-S); YaleBrown ObsessiveCompulsive Scale (Y-BOCS); Outcomes Questionnaire-45 (OQ45); Hospital Anxiety and Depression Scale (HADS); Depression, Anxiety, and Stress Scales (DASS); Clinician</p>	<p>symptoms overall. In contrast to CBT alone, the results of this meta-analysis indicate that MI, when used in conjunction with CBT, improves treatment outcomes for anxiety disorders. The study's limitations are examined, as are potential avenues for further research.</p>
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					Administered PTSD Scale (CAPS); State-Trait Anxiety Inventory–State form (STAI); Impact of Events Scale-Revised (IES-R); and Structured Clinical Interview for DSM-IV Severity Scale (SCID-S).	
4	Evaluating the mechanisms of change in motivational interviewing in the treatment of mental health problems: A review and meta-analysis	(Romano & Peters, 2015)	A systematic review and meta-analysis were conducted to investigate and the mechanisms of change in Motivational Interviewing (MI) among individuals with mood, anxiety, psychotic, eating disorders, and comorbid conditions. A total of twenty studies met the inclusion criteria, exploring various potential mechanisms of	Systematic Review/ An electronic database search of PsycINFO, Embase, Web of Science, Sage, Scopus, ProQuest Dissertations and Theses, and Google Scholar	The outcomes assessed across the listed studies encompass a wide range of psychological and clinical domains. Symptom severity and functioning were commonly measured using tools such as the Beck Depression Inventory (BDI), Hamilton	The review found that while MI did not significantly boost patient motivation, it positively influenced patient engagement, which may be a key mechanism of change in treating anxiety, mood, and psychotic disorders. However, results showed considerable variability across studies.

			MI, such as patient motivation, confidence, resistance, and engagement.		Depression Rating Scale (HAM-D), Hospital Anxiety and Depression Scale (HADS), Depression, Anxiety and Stress Scales (DASS), YaleBrown Obsessive–Compulsive Scale (Y-BOCS), Clinical Global Impression (CGI), and Global Assessment of Functioning (GAS).	
5	A meta-analytic review of cognitive behaviour therapy and motivational interviewing for adolescent and young	(Vrabec et al., 2025)	This study aimed to conduct the first metaanalysis of integrated CBT and motivational interviewing (MI) for AYA sleep concerns.	Meta analysis/ Following PRISMA guidelines, PsycINFO, PubMed, and Google Scholar were searched through January 2024.	Daytime sleepiness and sleep duration	According to the results, adolescents and young adults’ daytime sleepiness and sleep duration benefit better from integrated CBT and MI than from CBT alone or other control groups.
	adult sleep concerns					

6	Efficacy of Motivational Interviewing in Treating Co-occurring Psychosis and Substance Use Disorder: A Systematic Review and Meta-Analysis	(Wang et al., 2021)	This review seeks to summarize the evidence on the efficacy of MI therapies (either as a stand-alone intervention or in combination with other psychological interventions) in reducing substance use and psychotic symptoms.	Systematic Review / A comprehensive search of MEDLINE, PsycINFO, EMBASE, CENTRAL, and CINAHL was conducted using to identify Englishlanguage studies published between 1984 and May 2021.	reduction in the severity of substance use or psychotic symptoms	MI-pure interventions did not produce a significant reduction in the severity of substance use or psychotic symptoms. In contrast, MI-mixed interventions showed a statistically significant but small effect in reducing substance use, while their impact on improving psychotic symptoms was not significant.
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2.4 Gaps in literature

From the above studies, there is indication that MI has been used in reducing symptoms associated with neurological and mental conditions common among adolescents and young adults such as substance use, bipolar disorders, sleep disorders, anxiety, and psychosis. However, to the best of the researcher's knowledge, no scoping review has synthesized evidence on the use of MI in adolescents and adults with ADHD. This gap is significant because ADHD is one of the most common neurodevelopmental disorders, with an estimated global prevalence of around 5–7% in children and approximately 2–5% in adults. Importantly, research shows that ADHD often persists into adulthood, yet it remains underrecognized and frequently misdiagnosed in adults, leading to unmet treatment needs and poor functional outcomes in education, employment, and mental health. Given the evidence that MI can enhance motivation, treatment adherence, and behavior change in other psychiatric and behavioral conditions, it is critical to examine whether similar benefits exist for ADHD. Conducting this review will therefore provide a comprehensive understanding of the utilisation of MI in ADHD populations, address an important gap in the literature, and inform clinical practice and future research.

CHAPTER THREE

MATERIALS AND METHODS

3.1 Review

This scoping review was reported using the Preferred Reporting Items for Systematic Reviews and Meta-analyses extension for Scoping Reviews (PRISMA - ScR) (Page & Moher, 2017). Also, the methodological frameworks by Levac and colleagues, and Arksey and O'Malley was used as a guide for this review (Levac et al., 2010; Arksey & O'Malley, 2005).

3.2 Study Criteria and Selection

3.2.1 Framework

In this scoping review, the PCC framework was used to structure the inclusion and exclusion criteria for study selection ensuring that the review process was guided by the research question.

3.2.2 Inclusion criteria

Population: Studies that included adolescents (10-19 years) and adults (19 years and older) with attention deficit hyperactivity disorder (ADHD) – (Diagnostic and Statistical Manual of Mental Disorders V (DSM-V) diagnostic criteria, screening tools for adults, history of using ADHD medications, or physician diagnosed).

Concept: Motivational interviewing alone or combined with other behavioural interventions, or brief MI, and MI delivered digitally or face-to-face.

Context: Any setting (community, clinics, schools, telehealth).

3.2.3 Exclusion criteria

Studies were excluded if they involved the use of MI on children with ADHD below the age of 10 and studies that did not primarily focus on motivational interviewing as the main intervention were excluded. Protocols, opinion pieces, commentaries, and abstracts or studies not published in English were also excluded.

3.3 Search Strategy

The following electronic databases were searched: Cochrane Central (Ovid), EMBASE, Medline via OVID, Cumulative Index to Nursing and Allied Health Literature CINAHL (EBSCOhost), African Journal Online (AJOL), APA PsycINFO, and Web of Science Core Collections. The selection of electronic databases for this scoping review was based on the need to ensure a comprehensive, multidisciplinary, and inclusive search strategy, in line with best practices for scoping reviews of interventions. The search strategy was conducted by an experienced researcher in scoping reviews and reviewed by a researcher who had experience in MI research. The following keywords were used for the search: "Attention Deficit Disorder with Hyperactivity" OR "attention deficit hyperactivity disorder" OR "ADHD" OR "hyperkinetic disorder" AND "Motivational Interviewing" OR "Motivational interview*" OR "Motivational counselling" OR "MI" AND "adolescent" OR "adolescents" OR "teen" OR "teenager" OR "adult" OR "adults". To enhance specificity, a combination of MESH terms, proximity operators (e.g., adj3), truncations ("Motivational interview*") or Boolean operators (AND or OR) was applied as appropriate. The reference lists of all the included studies were also hand searched for additional eligible studies.

3.4 Study Selection

All the articles found from the databases was exported into the COVIDENCE, a scoping review software where duplicates were removed. Two reviewers Godday Ekaeze (GE) and PT Uyi Osaosemwen (UO) independently screened the titles and abstracts of all identified studies to assess their eligibility based on the inclusion criteria. Full-text articles screening was conducted independently by both reviewers. Any disagreements that arose during the screening process was resolved through discussion and consensus. Whenever a consensus could not be reached, a third reviewer, Rev Sr. Henrietta Fawole (HF), GE's project supervisor or Dr Olayinka Akinrolie (OA) were consulted for final decision.

3.6 Data Extraction

Data extraction was conducted independently by two reviewers (GE and UO) using a standardized and piloted data extraction form. Information extracted from each included study included study characteristics (author, year, country, study design, and setting); participant details (sample size, age group, gender); intervention characteristics (description of the motivational interviewing intervention, delivery method, duration, frequency); comparison group details (e.g., standard care, no intervention, or other behavioural therapies); outcomes measured (such as ADHD symptom severity and treatment adherence); and study implications. Conflicts were resolved with either Rev Sr. Henrietta Fawole (HF) or PT Francis Kolawole (FK).

3.7 Collating, summarizing and reporting results

The results of this scoping review were summarized using descriptive numerical tables to mapped study designs, participant characteristics, outcomes, and formats of motivational interviewing (MI) interventions. A narrative synthesis was also used to report the result of the review. Reporting was adhered to the PRISMA-ScR checklist, and the study selection process was illustrated using a PRISMA flowchart.

3.8 Ethical Approval

Ethical approval was sought and obtained from the Research and Ethics Committee of the College of Basic Medical Sciences, University of Benin.

CHAPTER 4

RESULTS

4.1 Study Selection

A literature search across multiple databases identified 390 studies. A total of 163 duplicates were removed automatically by COVIDENCE, leaving a total of 227 articles. Titles and abstracts of these 227 records were screened against the inclusion and exclusion criteria, resulting in the exclusion of 207 records. 20 articles were retrieved for full-text screening; all were identified through the database search 15 articles were further moved from full text screening with the following reasons: wrong outcome (n=1), wrong objectives (n=4), wrong study design (n=3), protocols and abstracts (n=2), not motivational interviewing (n=3), and the use of MI with other interventions for both groups (n=2). An additional study (Sibley et al., 2013) was identified through reference searching, bringing the total number of included articles to six as shown in Figure 1.

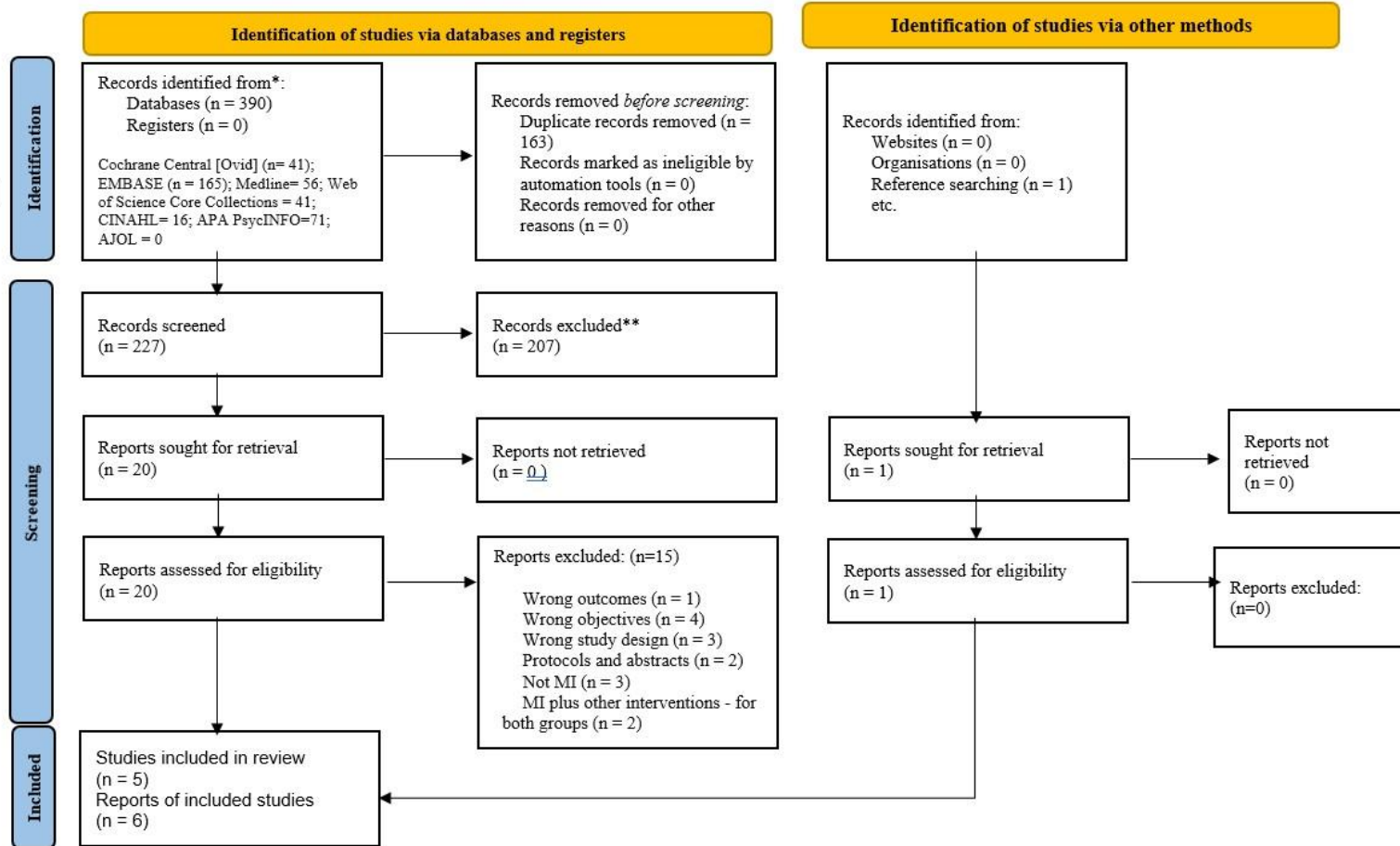


Figure 1: Prisma flow chart

4.2 Participants

A total of 843 adolescents aged 11–17 years were included in this review, with sample sizes across studies ranging from 36 (Sibley et al., 2013) to 278 participants (Sibley et al., 2020; Sibley et al., 2023; Sibley et al., 2024). Two studies (Sibley et al., 2013; Sibley et al., 2019) recruited clinic-based samples, one study (Sibley et al., 2016) was conducted in home and school settings while the remaining three (Sibley et al., 2020; Sibley et al., 2023; Sibley et al., 2024) were conducted in community mental health settings. All participants met formal diagnostic criteria for ADHD using structured interviews and standardised parent and teacher rating scales such as DSM-IV (Sibley et al., 2013; Sibley et al., 2016) and DSM-5 criteria (Sibley et al., 2019; Sibley et al., 2020; Sibley et al., 2023; Sibley et al., 2024). The mean ages range from 12.2 to 14.1 years and all of the participants were all adolescents and they were recruited from the one country (United States of America) as shown in Table 1.

Table 1: Characteristics of all Included Studies

Authors / Country/Study design	Aim of the study	Population details (total sample size, Age [mean/SD])	Mean of screening or diagnosis of ADHD	Intervention	Mode of delivery of MI / Frequency and duration of MI sessions	Interventionist/ Study settings	Primary outcome	Implications, strengths and Limitations
Sibley et al, 2013/ USA RCT	Evaluate feasibility, acceptability & preliminary efficacy of STAND for adolescents with ADHD targeting academic impairment	36 adolescent ages 11-15/ IG = 18, CG = 18 <u>Mean/SD</u> IG: 12.22 (0.94); CG:12.56 (1.10)	The screening process involved two stages. First, parents completed a brief telephone interview that included questions on DSM-IV-TR ADHD symptoms and academic functioning. Families who met preliminary criteria were then invited to an in-person intake assessment, which comprised structured diagnostic interviews, standardized rating scales, and relevant tests to confirm an ADHD diagnosis and determine study eligibility.	STAND is a parent-adolescent collaborative behavioural intervention targeting academic impairment in adolescents with ADHD. It includes: Clinicbased training in academic, organizational, and behavioural parenting skills, motivational Interviewing (MI) to enhance engagement, use of web-based grade portals for monitoring, homeschool communication systems, and individualized skillbuilding modules	<u>Mode of delivery</u> Face-to-face family and group sessions <u>Frequency and duration</u> 8 weekly sessions, 60 minutes each	Clinicians included a postdoctoral trainee, two advanced clinical psychology doctoral students, and a first-year counselling master's student, supervised by a doctoral level licensed clinical psychologist/ Clinic based setting	ADHD Symptom severity: Each participant's level of inattention, hyperactivity/impulsivity, and oppositional defiant disorder (ODD) symptom severity were measured at each assessment using the Disruptive Behavior Disorder Rating Scale (DBD)	Implications: STAND is feasible, acceptable, and shows preliminary efficacy in improving academic habits and reducing symptoms. It may improve access to behavioural interventions for adolescents with ADHD. Strengths: 1. STAND was implemented by even novice clinicians with high fidelity. 2. STAND was well received by families as evidenced by high levels of treatment engagement and completion, treatment credibility, therapeutic bond, and satisfaction with the intervention. 3. STAND was implemented at home by most parents after regular contact with clinicians ceased, and associated with acute parentreported and objective improvement in academic and symptom domains compared to the TAU group. Limitations: 1. Small sample size 2. Low teacher rating return rate

								(72.2%) 3. No fidelity data on MI implementation 4. Poor parent-adolescent agreement on adherence
RCT	Sibley et al., 2016/USA To evaluate a parent-teen skills-based therapy for attention deficit/hyperactivity disorder (ADHD) blended with motivational interviewing (MI) to enhance family engagement.	128 adolescents (11-15 years)/ IG: 67; CG: 61 <u>Mean/SD</u> IG: 12.65 (0.85) CG: 12.85 (0.87)	Participants were required to meet DSM-IV criteria for ADHD. A brief phone screen containing the DSM-IV-TR ADHD symptoms and questions about impairment was administered to the primary caretaker. Families were invited to an intake assessment if the parent endorsed on the phone screen four or more symptoms of either Inattention or Hyperactivity/Impulsivity and clinically significant problems at home and school.	STAND consists of ten 50-min manualized family therapy sessions attended by the parent and teen. It consists of seven modular sessions in which a skill is introduced in each session and MI is used in a blended manner to increase family's openness to trying a new strategy and empower lasting changes at home.	<u>Mode of delivery</u> Face-to-face individual family therapy sessions. <u>Frequency and duration</u> Ten weekly sessions, 50 minutes each	Clinicians (supervised weekly by a licensed clinical psychologist)/ Home and School setting	ADHD symptom severity: Measured using the Disruptive Behavior Disorder Rating Scale (DBD).	Implications: The study found that STAND statistically significant effects on outcomes relative to TAU. Over the course of a single year, STAND was associated with a half standard deviation reduction in parent-rated ADHD symptoms relative to the TAU group. Therefore, it offers promise of a parent-teen skills-based therapy blended with MI to engage families in treatment and improve the symptoms and impairments of adolescents with ADHD—largely in the home setting. Another important implication of this study is the need to evaluate treatments for teens with ADHD that integrate care across home and school settings to enhance crosscontextual effects. Strengths: 1.) RCT 2.) Implementation of MI engagement components with high integrity that led to high completion rate of treatment. Limitations:

								<p>1.) The study was conducted with early to middle adolescents, and findings may not generalize to older adolescents.</p> <p>2.) The sample size limited ability to detect small effects.</p> <p>3.) Cultural factors that undermine or enhance treatment engagement were not evaluated.</p> <p>4.) Most clinicians represented well-supervised trainees with a lower caseload than most community providers and so the extent to which STAND is generalizable in professional settings is yet to be determined.</p> <p>5.) Collection of outcome data was mostly subjective leading to inconsistency in findings among raters.</p>
<p>Sibley et al., 2019/USA</p> <p>RCT</p>	<p>To evaluate the comparative efficacy of two clinic based psychosocial treatment (dyadic motivational interviewing blended with STAND vs parent-teen group STAND) modalities for adolescent ADHD</p>	<p>123 adolescents (ages 11–17)/ IG: 63 adolescents CG: 60 adolescents</p> <p>Mean/SD</p> <p>IG=13.63(1.49) CG =13.59(1.78)</p>	<p>Participants were required to meet all DSM-5 ADHD criteria.</p>	<p>Dyadic STAND: It is manualized and consists of ten 60-min weekly sessions attended by the adolescent and parent. Sessions move through three phases. In the engagement phase, MI increases awareness of personal values and goals, identifies personal strengths, and recognizes ways to</p>	<p>Mode of delivery</p> <p>Face-to-face individual family therapy sessions.</p> <p>Frequency and duration</p> <p>10 weekly sessions, 60 minutes each</p>	<p>Therapists (a mix of predoctoral trainees and licensed professionals), supervised by a licensed clinical psychologist/ Clinic-based setting.</p>	<p>ADHD symptoms: Inattention and H/I were measured using a DSM-5 ADHD rating scale completed by parents and teachers. Respondents rated symptoms of ADHD as 0 (not at all) to 3 (very much). Symptom severity was the mean level (0–3)</p>	<p>Implications:</p> <p>The primary finding of this study was that dyadic and group STAND were equally efficacious. However, the study results also suggest that when intaking adolescents with ADHD, clinics should screen for parent–teen conflict and parental psychopathology because elevations on these measures may signal a need for a more personalized treatment plan that integrates an MI approach like dyadic STAND.</p> <p>Strengths:</p>

				achieve personal goals and act consistently with values.			of ADHD subscale items. Treatment adherence (MI Fidelity): Measured by the motivational interviewing treatment integrity (MITI) code, which was used to objectively rate the quality and adherence of MI delivery in the dyadic sessions.	1) It is a randomized controlled trial. 2.) It appears to be the first study to compare the efficacy of group versus individualized approaches to clinic-based ADHD treatment. Limitations: 1. It is expensive. 2. Inability to mask interventionist and participants to treatment modality. 3. Trainee's status of most clinicians.
Sibley et al., 2020/USA Sibley et al., 2024 (Three year - Follow up) RCT	i. To test the effectiveness of parent-teen psychotherapy for adolescent ADHD (Supporting Teens' Autonomy Daily; STAND) versus Usual Care (UC) in four community clinics. ii. To report 3 year effects of a parent-teen cognitive/behavioral treatment for adolescent	278 adolescents (11-17 years)/ IG: 138 adolescents CG: 140 adolescents Mean/SD IG=13.63(1.49) CG = 13.59(1.78)	Participants took part in an eligibility screen by phone that queried ADHD symptoms, impairment, exclusionary criteria, and treatment priority. Students with at least four inattention (IN) or hyperactivity/impulsivity (H/I) symptoms according to the screen then attended a full diagnostic assessment using DSM-5 ADHD	STAND is a manualized engagement-focused psychosocial treatment for adolescent ADHD. It consists of 10 weekly 60-minute sessions attended by the adolescent and parent. Skill instruction is blended with MI and guided parent-teen behavioural contracting. Treatment targets family, behavioural, and academic	Mode of delivery Face-to-face individual family therapy sessions. Frequency and duration 10 weekly sessions, 60 minutes each	Therapists (mental health professionals)/ Community mental health clinic	ADHD symptoms: measured on the Conners 3 Parent Short Form Rating Scale (C3RS)35 and parent and teacher DSM-5 ADHD checklist. Treatment Adherence (MI fidelity): The motivational interviewing treatment integrity was used to code therapy tapes for MI	Implications: Overall, community-based STAND did not outperform UC on any primary outcome. Also, significant improvements in ADHD symptom severity and academic impairment were demonstrated for both STAND and UC. However, STAND outperformed UC on concurrent medication engagement, including both sustainment of ongoing medication, resuming stopped medication, and initiating new medication. At follow up, the study found that the STAND group no longer demonstrated superior medication use at 3-year follow-up unlike in

	attention-						adherence.	
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	<p>deficit/hyperactivity disorder (ADHD), blended with Motivational Interviewing (Supporting Teens' Autonomy Daily [STAND]), vs Usual Care (UC) in 4 community clinics.</p>		<p>criteria to evaluate inclusion criteria.</p>	<p>impairment. Treatment is modular to promote flexibility and treatment tailoring. In the engagement phase, MI increases awareness of personal values and goals, identifies strengths, and recognizes ways to achieve personal goals and act consistently with values.</p>				<p>the original trial. STAND's largest long-term effect was to parent-reported OTP skills. Also, the initially large impact of STAND vs UC on medication use dissipated by 3-year follow-up. In summary, the study suggests that STAND, delivered by a licensed practitioner in community mental health contexts, has moderate long-term effects on adolescent hyperactivity/impulsivity severity, parent-teen conflict, and organization, time management, and planning (OTP) skills.</p> <p>Strengths:</p> <ol style="list-style-type: none"> 1.) RCT 2.) Large sample size 3.) High retention rates and hybrid design (Effectiveness + implementation) <p>Limitations:</p> <ol style="list-style-type: none"> 1.) Therapist participation was voluntary so there was possibility of oversampling therapists with openness to new interventions. 2.) Therapist to client ratio was low. 3.) It is not clear which therapies were administered in UC.
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Sibley et al., 2023/USA	To gain broader understanding of the potential secondary effects	278 adolescents (11-17 years)/ IG: 138; CG: 140	Adolescents were diagnosed with full DSM-5 ADHD criteria using a	STAND is a manualized engagementfocused	Mode of delivery	Therapists (mental health professionals)/ Community	ADHD symptoms: NA	Implications: The results of this study suggest that both STAND and UC
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RCT	of communitydelivered STAND, on non-targeted patient outcomes.		structured diagnostic interview and parent and teacher rating scales.	psychosocial treatment for adolescent ADHD, consisting of 10 weekly 60-minute sessions attended by the adolescent and parent. Skill instruction is blended with MI and guided parent teen behavioral contracting.	Face-to-face individual family therapy sessions. Frequency and duration 10 weekly sessions, 60 minutes each	mental health clinic	Others: Social problems, Sluggish cognitive tempo (SCT), Oppositional defiant problems (ODD), Conduct problems: Measured using The Child Behavior Checklist (CBCL)- Ages 6-18. Depressive and anxiety problems: Measured using The Youth Self Report (YSR), Ages 11-18.	improved on all secondary outcomes over time. However, it was found that STAND delivered by a licensed therapist was associated with significantly greater reductions in conduct problems compared to UC. It was also found that overall, conduct problems benefitted most from the intervention. Strengths: It is the first RCT to demonstrate that a clinic-based intervention for adolescent ADHD reduces conduct problems. Limitations: 1.) Low therapist to client ratio 2.) Underrepresentation of licensed therapists
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4.3 Study characteristics

All included studies were randomized controlled trials (Sibley et al., 2013; Sibley et al., 2016; Sibley et al., 2019; Sibley et al., 2020; Sibley et al., 2023; Sibley et al., 2024). All studies evaluated the Supporting Teens' Autonomy Daily (STAND) programme, which integrates motivational interviewing with behavioural strategies. Additionally, Sibley et al. (2024) is a direct three year follow up on Sibley et al. (2020) study.

4.3.1 Outcomes commonly assessed for the management of ADHD with motivational interview

Across the six included studies (five trials), the most commonly assessed outcomes were ADHD symptom severity (hyperactivity, inattention and impulsivity), academic functioning, and organization or time-management skills. ADHD symptoms were consistently measured using validated parent and teacher rating scales, such as the Disruptive Behavior Disorders Rating Scale (DBD) (Sibley et al., 2013; Sibley et al., 2016), DSM-5 ADHD symptom checklists (Sibley et al., 2019; Sibley et al., 2020; Sibley et al., 2024), and the Conners-3 Parent Short Form (Sibley et al., 2020). Several studies also examined academic and behavioural outcomes, such as grade monitoring, homework habits, and organisational/timemanagement/planning (OTP) skills (Sibley et al., 2013; Sibley et al., 2024). Medication use was tracked in two trials (Sibley et al., 2020; Sibley et al., 2024), while one study (Sibley et al., 2023) focused on secondary outcomes such as depression and anxiety. In addition, treatment adherence and fidelity were evaluated in some studies using the Motivational Interviewing Treatment Integrity

(MITI) coding system (Sibley et al., 2019; Sibley et al., 2024).

4.3.2 Formats, Delivery Modes, Providers, and Settings of MI

All included studies evaluated the Supporting Teens' Autonomy Daily (STAND) programme, which integrates motivational interviewing with behavioural approaches. The interventions were delivered in various formats, including dyadic sessions involving parent–adolescent pairs, group sessions, and individual one-to-one sessions. Dyadic and group delivery were directly compared in Sibley et al. (2019), while individual or community-delivered versions were examined in 5 studies (Sibley et al., 2013; Sibley et al., 2016; Sibley et al., 2020; Sibley et al., 2023; Sibley et al., 2024). All sessions were provided face-to-face. Sessions were facilitated by trained clinicians, including licensed clinical psychologists, supervised doctoral or master's trainees, and community mental health professionals.

4.3.3 Uses of MI among adolescents and adults with ADHD patients

Across the five randomized controlled trials (six studies), MI integrated into the Supporting Teens' Autonomy Daily (STAND) programme showed consistent positive effects on several ADHD-related outcomes. Early studies (Sibley et al., 2013; Sibley et al., 2016) showed that STAND (MI with behavioural skills training) was feasible, acceptable, and led to reductions in ADHD symptoms such as hyperactivity, inattention and impulsivity and improvements in academic habits compared with treatment as usual. Furthermore, Sibley et al. (2016) study compared dyadic MI-enhanced STAND and group-based STAND and showed that both formats equally effective in reducing symptoms, with dyadic sessions

potentially offering advantages for families with higher parental stress. In community settings,

STAND did not significantly outperform usual care on primary symptom or impairment outcomes (Sibley et al., 2020), but it enhanced medication engagement and maintained high retention rates. Another study in the community-based settings by Sibley et al. (2023) indicated that STAND delivered by licensed clinicians was associated with greater reductions in conduct problems, while the 3-year follow-up (Sibley et al., 2024) showed moderate long-term benefits for organisation, time management, planning (OTP) skills, and hyperactivity/impulsivity, though early gains in medication use diminished over time. Overall, MI-based interventions for adolescents with ADHD appear effective in improving symptoms such as hyperactivity, inattention and executive/academic skills.

CHAPTER FIVE

DISCUSSION, CONCLUSION AND RECOMMENDATIONS

5.1 Discussion

This scoping review identified six studies but five randomized controlled trials evaluating the Supporting Teens' Autonomy Daily (STAND) programme, which integrates motivational interviewing (MI) with behavioural for adolescents with ADHD. The findings of this study revealed that MI is a potential effective psychological intervention for addressing symptoms such as hyperactivity, hyperactivity, inattention and executive/academic skills among adolescents with ADHD and enhanced medication engagement. Five randomized controlled trials with one follow up study showed that adding MI to the Supporting Teens' Autonomy Daily (STAND) program led to positive results for adolescents with ADHD, especially in clinic-based studies. Sibley et al. (2013) and Sibley et al. (2016) found that MI with behavioral skills training was practical, well-received, and linked to fewer symptoms and better academic and organizational skills than usual care. Furthermore, Sibley et al. (2019) reported that both dyadic and group versions of STAND improved symptoms to a similar degree, suggesting the program works well in different formats. Dyadic sessions may be especially helpful for families dealing with more conflict or parental stress. These findings align with evidence from other behavioural interventions suggesting that

enhancing intrinsic motivation may improve treatment engagement and self-regulation in ADHD

(Mackenzie 2017; Meizner et al., 2021).

In contrast to clinic-based studies, community-based trials (Sibley et al., 2020; Sibley et al., 2023; Sibley et al., 2024) showed more mixed results. STAND which integrate MI did not always do better than usual care for main symptoms or impairments in real-world settings (Sibley et al., 2020). However, those in the STAND program were more likely to start or keep using ADHD medication, showing that MI can help with treatment adherence. This is in agreement with a previous review who showed that MI is effective in improving medication adherence (Palacio et al., 2016). Furthermore, Hamrin & Lennaco (2017) showed that MI is an effective psychological intervention for improving medication adherence in adolescents. Regarding symptoms, Sibley et al. (2023) saw clear decrease in conduct problems, and Sibley et al. (2024) follow up study found moderate long-term improvements in organization, time management, planning, and hyperactivity or impulsivity, though the increase in medication use lessened over time.

ADHD symptom severity was the most commonly assessed outcome in the included studies, and it was mainly assessed using rating forms completed by parents and teachers, such as the Disruptive Behavior Disorders Rating Scale (DBD), the DSM-5 ADHD symptom checklists, and the Conners-3 Parent Short Form. These tools are reliable and often used to assess symptoms of inattention, hyperactivity, or impulsivity, making them suitable for evaluating the effectiveness of treatments in clinics and research settings (Neece et al., 2013; Izzo et al., 2019; Olagundoye et al., 2020). However, because these tools depend on what parents and teachers report, the results can be influenced by their

opinions, their relationship with the child, or whether they are aware of the treatment the child is receiving (Izzo et al., 2019). It is also common for parents and teachers to give different ratings, which shows that symptoms can look different at home and at school.

Furthermore, MI interventions were delivered in various formats, including dyadic sessions (parent–adolescent pairs), group sessions, and individual one-on-one sessions, with all studies conducted face-to-face. Fidelity to the MI approach was generally highest in studies led by licensed clinicians, whereas trials delivered primarily by supervised trainees achieved good levels of engagement and completion. Additionally, the use of MI has been shown to be delivered by trained clinicians, such as licensed clinical psychologists, supervised doctoral or master’s trainees, and community mental health professionals who have been trained and grounded in the principles of MI. These findings are broadly consistent with studies of MI in other clinical areas, such as substance use treatment and chronic disease self-management, where higher treatment fidelity and clinician experience have been linked to stronger effects on behaviour change (Osilla et al., 2018; Kao et al., 2023).

Notably, no studies have examined the use of motivational interviewing (MI) in adults with attention-deficit/hyperactivity disorder (ADHD). This gap is significant because ADHD symptoms frequently persist into adulthood and are commonly associated with other psychiatric disorders (Choi et al., 2022). In 2020, global estimates indicated that persistent adult ADHD, defined as beginning in childhood, affected approximately 2.58% of adults, while symptomatic adult ADHD, regardless of childhood diagnosis, affected about 6.76% of adults

worldwide. These figures correspond to roughly 140 million and 366 million individuals, respectively

(Song et al., 2021). This shows ADHD is still a significant disorder among adults that needs to be addressed as well. Furthermore, the result of this study revealed the use of MI on adolescents with MI is only used in one country (United States of America) and conducted by single research (Sibley et al., 2013; Sibley et al., 2016; Sibley et al., 2019; Sibley et al., 2020; Sibley et al., 2023; Sibley et al., 2024). This narrow geographical and research representation limits the diversity of participants, clinical settings, and implementation contexts, which may restrict the generalizability of findings to other countries, cultures, and healthcare systems. However, the strength of this review lies in its systematic approach and focus on MI-specific interventions for ADHD.

5.2 Conclusion

This scoping review highlights that MI, most commonly delivered through the STAND programme, shows promise as an adjunctive intervention for adolescents with ADHD. Across five randomized controlled trials, MI particularly when combined with behavioural strategies was associated with improvements in ADHD symptom severity, parent-teen conflicts, organisational and academic skills, and treatment adherence. Evidence remains limited to adolescents while no trials were identified for adults, and one study examined long-term outcomes which showed moderate long-term effects on adolescent hyperactivity/impulsivity severity, parent-teen conflict, and organization, time management, and planning (OTP) skills.

5.3 Recommendation

The identified gap in the literature concerning the application of Motivational Interviewing (MI) for adults with ADHD, and its limited geographical scope (confined to studies from a single research group in the USA), emphasizes a significant area for future research. Numerous studies have highlighted the efficacy of MI for adolescents with ADHD and in other clinical populations; nonetheless, the lack of research on adult populations and diverse cultural contexts underscores the need for focused investigation. The creation and assessment of MI interventions tailored to the specific needs and developmental challenges of adults with ADHD ought to be the top priority for future research. Furthermore, to ensure a more comprehensive and globally relevant understanding of MI's effectiveness, it is recommended to broaden the geographical and cultural scope of studies beyond the United States. Future reviews could also promote linguistic inclusivity by supporting the inclusion of studies published in languages other than English.

5.4 Implications for further study

- i. There is a need to broaden the geographical scope of research beyond the United States to assess the feasibility and effectiveness of MI across diverse cultural and healthcare contexts. Studies should include more heterogeneous samples, considering variations in age, gender, ethnicity, socioeconomic background, and comorbidities, to enhance external validity.
- ii. Research should investigate the application of MI for adults with ADHD, as no trials currently address this population.

- iii. Future studies could evaluate alternative delivery modes, such as telehealth, use of AI to deliver MI interventions to improve accessibility and scalability.
- iv. Future studies should also conduct study on long-term outcomes (e.g., persistence of symptom improvement, organisational skills, medication adherence) using both subjective and objective measures.

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APPENDIX I ETHICAL APPROVAL



RESEARCH ETHICS COMMITTEE
COLLEGE OF MEDICAL SCIENCES
UNIVERSITY OF BENIN, BENIN CITY, NIGERIA.



Chairman: Prof. F. A Imarhiagbe
MBChb, FMCP
Cert Clin Res and ethics (NIH), MD.
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Email: researchethics.cms@gmail.com

P.M.B 1154, BENIN CITY

Our Ref: CMS/REC/01/VOL.2/829

Date: 3rd November, 2025

Re: A SCOPING REVIEW OF MOTIVATIONAL INTERVIEWING FOR MANAGEMENT OF ADOLESCENT AND ADULTS WITH ATTENTION DEFICIT HYPERACTIVITY DISORDER

Name of Principal Investigator: **GODDAY EKAEZE**

Department Of Physiotherapy,
School of Basic Medical Science
College of Medical Sciences,
University of Benin

REC Approval No: CMS/REC/2025/829

This is to inform you that the research described in the submitted proposal, the Informed Consent Forms and other participant information materials have been reviewed and approved by the College Research Ethics Committee, University of Benin.

This approval dates from **3rd November, 2025 to 2nd November, 2026**. In multi-year research, Endeavour to submit your annual report to the REC early in order to obtain renewal of your approval and avoid disruption of your research.

The National Code of Health Research Ethics requires you to comply with all institutional guidelines, rules and regulations and with the tenets of the code including ensuring that all adverse events are reported promptly to the REC. No, changes are permitted in the research without prior approval by REC except in circumstances outlined in the code. REC reserves the right to conduct compliance visit to your research site without prior notice. Thank you.

PROF. F.A IMARHIAGBE
Chairman, REC

Promoting best ethical & scientific standard for research in Nigeria

APPENDIX II

Search strategy

Database/Date searched	Search Strategy	Results
EMBASE (14 July, 2025)	<p>1 = (“Attention Deficit Disorder with Hyperactivity” OR “attention deficit hyperactivity disorder” OR ADHD OR “hyperkinetic disorder”).mp = 98,116</p> <p>2 = (“motivat* interview*” OR “motivat* counsel*” OR MI OR “Motivational interview*”).mp = 138,063</p> <p>3 = (“adolescent” OR “adolescents” OR “teen” OR “teenager” OR “adult” OR “adults”).mp = 12,475,168</p> <p>4 = 1 AND 2 AND 3 = 176</p> <p>5 = Limit to humans & English = 165</p>	165
MEDLINE via OVID (14 July, 2025)	<p>1 = (“Attention Deficit Disorder with Hyperactivity” OR “attention deficit hyperactivity disorder” OR ADHD OR “hyperkinetic disorder”).mp = 53,894</p> <p>2 = (“motivat* interview*” OR “motivat* counsel*” OR MI OR “Motivational interview*”).mp = 74,200</p> <p>3 = (“adolescent” OR “adolescents” OR “teen” OR “teenager” OR “adult” OR “adults”).mp = 7,718,520</p> <p>4 = 1 AND 2 AND 3 = 71</p> <p>5 = Limit to English & humans = 56</p>	56

<p>Web of Science Core Collection (14 July 2025)</p>	<p>1 = (TI/AB = “Attention Deficit Disorder with Hyperactivity” OR “attention deficit hyperactivity disorder” OR ADHD OR “hyperkinetic disorder”) = 57,865</p> <p>2 = (TI/AB = “motivat* interview*” OR “motivat* counsel” OR MI OR “Motivational interview*”) = 110,995</p> <p>3 = (TI/AB = “adolescent” OR “adolescents” OR “teen” OR “teenager” OR “adult” OR</p>	<p>41</p>
	<p>“adults”) = 2,450,459</p> <p>4 = #1 AND #2 AND #3 = 46</p> <p>5 = English only = 41</p>	
<p>Cochrane Library (14 & 16 July 2025)</p>	<p>(“Attention Deficit Disorder with Hyperactivity” OR “attention deficit hyperactivity disorder” OR ADHD OR “hyperkinetic disorder”) AND (“motivat* interview*” OR “motivat* counsel*” OR MI OR “Motivational interview*”) AND (“adolescent” OR “adolescents” OR “teen” OR “teenager” OR “adult” OR “adults”) – word variations searched</p>	<p>41</p>
<p>APA PsycINFO (16 July, 2025)</p>	<p>1 = (“Attention Deficit Disorder with Hyperactivity” OR “attention deficit hyperactivity disorder” OR ADHD OR “hyperkinetic disorder”).mp = 48,559</p> <p>2 = (“motivat* interview*” OR “motivat* counsel*” OR MI OR “Motivational interview*”).mp = 11,697</p> <p>3 = (“adolescent” OR “adolescents” OR “teen” OR “teenager” OR “adult” OR “adults”).mp = 1,366,024</p> <p>4 = 1 AND 2 AND 3 = 77</p> <p>5 = Limit to English & humans = 71</p>	<p>71</p>

<p>CINAHL via EBSCOhost (16 July, 2025)</p>	<p>S1 = TI/AB (“Attention Deficit Disorder with Hyperactivity” OR “attention deficit hyperactivity disorder” OR ADHD OR “hyperkinetic disorder”) = 18,981</p> <p>S2 = TI/AB (“motivat* interview*” OR “motivat* counsel*” OR MI OR “Motivational interview*”) = 18,397</p> <p>S3 = TI/AB (“adolescent” OR “adolescents” OR “teen” OR “teenager” OR “adult” OR “adults”) = 644,562</p> <p>S4 = S1 AND S2 AND S3 = 16</p> <p>S5 = English only = 16</p>	<p>16</p>
<p>AJOL (20, July, 2025)</p>	<p>(“Attention Deficit Disorder with Hyperactivity” OR “attention deficit hyperactivity disorder” OR ADHD OR “hyperkinetic disorder”) AND (“Motivational Interviewing” OR “Motivational interview*” OR “Motivational counselling” OR MI) AND (“adolescent” OR “adolescents” OR “teen” OR “teenager” OR “adult” OR “adults”)</p>	<p>0</p>

APPENDIX III

Certificate of Participation in Systematic Review and Meta-Analysis Training



APPENDIX IV

Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR) Checklist

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
TITLE			
Title	1	Identify the report as a scoping review.	i
ABSTRACT			

Structured summary	2 v	Provide a structured summary that includes (as applicable): background, objectives, eligibility criteria, sources of evidence, charting methods, results, and conclusions that relate to the review questions and objectives.	
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INTRODUCTION

Rationale	3	Describe the rationale for the review in the context of what is already known. Explain why the review questions/objectives lend themselves to a scoping review approach.	1-3
Objectives	4	Provide an explicit statement of the questions and objectives being addressed with reference to their key elements (e.g., population or participants, concepts, and context) or other relevant key elements used to conceptualize the review questions and/or objectives.	4

METHODS

Protocol and registration	5	Indicate whether a review protocol exists; state if and where it can be accessed (e.g., a Web address); and if available, provide registration information, including the registration number.	29
Eligibility criteria	6	Specify characteristics of the sources of evidence used as eligibility criteria (e.g., years considered, language, and	29

SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
		publication status), and provide a rationale.	

Information sources*	7	Describe all information sources in the search (e.g., databases with dates of coverage and contact with authors to identify additional sources), as well as the date the most recent search was executed.	30
Search	8	Present the full electronic search strategy for at least 1 database, including any limits used, such that it could be repeated.	30
Selection of sources of evidence†	9	State the process for selecting sources of evidence (i.e., screening and eligibility) included in the scoping review.	30-31
Data charting process‡	10	Describe the methods of charting data from the included sources of evidence (e.g., calibrated forms or forms that have been tested by the team before their use, and whether data charting was done independently or in duplicate) and any processes for obtaining and confirming data from investigators.	31
Data items	11	List and define all variables for which data were sought and any assumptions and simplifications made.	31
Critical appraisal of individual sources of evidence§	12	If done, provide a rationale for conducting a critical appraisal of included sources of evidence; describe the methods used and how this information was used in any data synthesis (if appropriate).	nil
Synthesis of results	13	Describe the methods of handling and summarizing the data that were charted.	31
RESULTS			

Selection of sources of evidence	14	Give numbers of sources of evidence screened, assessed for eligibility, and included in the review, with reasons for exclusions at each stage, ideally using a flow diagram.	33
SECTION	ITEM	PRISMA-ScR CHECKLIST ITEM	REPORTED ON PAGE #
Characteristics of sources of evidence	15	For each source of evidence, present characteristics for which data were charted and provide the citations.	41
Critical appraisal within sources of evidence	16	If done, present data on critical appraisal of included sources of evidence (see item 12).	nil
Results of individual sources of evidence	17	For each included source of evidence, present the relevant data that were charted that relate to the review questions and objectives.	41-43
Synthesis of results	18	Summarize and/or present the charting results as they relate to the review questions and objectives.	43
DISCUSSION			
Summary of evidence	19	Summarize the main results (including an overview of concepts, themes, and types of evidence available), link to the review questions and objectives, and consider the relevance to key groups.	44-46
Limitations	20	Discuss the limitations of the scoping review process.	6
Conclusions	21	Provide a general interpretation of the results with respect to the review questions and objectives, as well as potential implications and/or next steps.	46
FUNDING			

Funding	22	Describe sources of funding for the included sources of evidence, as well as sources of funding for the scoping review. Describe the role of the funders of the scoping review.	nil
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JBI = Joanna Briggs Institute; PRISMA-ScR = Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews. * Where *sources of evidence* (see second footnote) are compiled from, such as bibliographic databases, social media platforms, and Web sites.

二 A more inclusive/heterogeneous term used to account for the different types of evidence or data sources (e.g., quantitative and/or qualitative research, expert opinion, and policy documents) that may be eligible in a scoping review as opposed to only studies. This is not to be confused with *information sources* (see first footnote).

三 The frameworks by Arksey and O'Malley (6) and Levac and colleagues (7) and the JBI guidance (4, 5) refer to the process of data extraction in a scoping review as data charting.

四 The process of systematically examining research evidence to assess its validity, results, and relevance before using it to inform a decision. This term is used for items 12 and 19 instead of "risk of bias" (which is more applicable to systematic reviews of interventions) to include and acknowledge the various sources of evidence that may be used in a scoping review (e.g., quantitative and/or qualitative research, expert opinion, and policy document).

From: Tricco AC, Lillie E, Zarin W, O'Brien KK, Colquhoun H, Levac D, et al. PRISMA Extension for Scoping Reviews (PRISMA-ScR): Checklist and Explanation. *Ann Intern Med.* 2018;169:467–473. [doi: 10.7326/M18-0850](https://doi.org/10.7326/M18-0850)