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FOREWORD

The Department of Psychology, University of Lagos has continued to expand the frontiers of knowledge through the engagement of cutting edge research by her seasoned faculty members, and the publications of rigorously processed articles in her new journal. This new journal has been welcomed in the academia as a veritable tool for the dissemination of research findings in Nigeria and beyond. The first issue has continued to attract the interest of scholars and researchers and has guided enlightened conversations in the specific areas wherein the studies were conducted; In this edition we are presenting even more fascinating topical issues being addressed by different authors. We hereby invite you to savour these well researched articles. The edition is, as usual, a combination of thought-provoking analyses and discussions on different quests to understanding human behavior and mental processes for a sustainable world; it also highlights promising paths and directions for future intervention. It is hoped that findings from this edition of the journal will furnish the understanding of scholars on how to improve human behaviour for a sustainable society through effective use of modern therapy and intervention models. Finally, this edition has advanced the combined ideas of scholars and academics from different academic disciplines. For this reason, I want to thank everyone who is interested in promoting the boundaries of knowledge, transformation process and ultimately adding to the body of research in behavioural science.

Editor

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Exploring the Link between Cannabis Use and Early Onset Psychosis: A Literature Review.

Sabo Saleh Dagona (Ph.D)
Department of Sociology.
Faculty of Social and Management Sciences,
Yobe State University,
PMB 1144, Damaturu.
Yobe State, Nigeria.
Email: dagona24@gmail.com; ssalegdagona@yahoo.com

Abstract
The relationship between cannabis uses and mental health outcomes, particularly in the context of early onset psychosis, has gained global attention. This focus is fuelled by increasing cannabis consumption, evolving legal frameworks, and changing societal perspectives. As countries reconsider cannabis policies, understanding its potential impacts, especially on vulnerable groups like young people, is crucial. The study employed a structured protocol, searching databases like PubMed, PsycINFO, Web of Science, Google Scholar, and the Cochrane Library. Inclusion criteria targeted relevant studies published between 2000 and 2024, while exclusion criteria filtered out non-peer-reviewed sources and unrelated studies. Selected papers were categorized into thematic areas, analyzing neurobiological mechanisms, epidemiological trends, and vulnerability factors. Synthesizing key findings revealed common themes, controversies, and gaps in understanding the cannabis-psychosis link. The paper emphasizes the complex relationship between cannabis use and mental health, highlighting THC's impact on the brain's endocannabinoid system. Chronic cannabis use, especially during critical developmental phases, may disrupt neurodevelopment, increasing susceptibility to psychosis. The paper recommends that tailored interventions and public health strategies are crucial, alongside further research to address uncertainties. The review's implications for clinical practice, policy-making, and future research underscore the need for a clear understanding and targeted approaches to this complex issue.

Introduction:

The relationship between cannabis use and mental health outcomes, particularly in the context of early onset psychosis, has garnered significant attention from researchers, policymakers, and healthcare professionals worldwide (Arseneault, L., et al. 2012; Hawkins, E. H., et al. 2009). This focus stems from the growing prevalence of cannabis consumption, coupled with evolving legislative landscapes and shifting societal attitudes towards its use. As countries re-evaluate their cannabis policies, ranging from decriminalization to legalization for medical and recreational purposes, there is a pressing need to comprehend the potential impacts, especially on vulnerable populations like adolescents and young adults.

A plethora of studies has delved into the interaction between cannabis use and mental health, with a specific emphasis on psychosis. Psychosis, characterized by disturbances in thinking, perception, and behavior, represents a spectrum of disorders, including schizophrenia and bipolar disorder. Early onset psychosis refers to the manifestation of these symptoms during adolescence or early adulthood, often heralding the onset of severe mental health conditions that can significantly impair daily functioning and quality of life. Central to understanding the link between cannabis use and psychosis is the neurobiological impact of cannabis on the brain. Tetrahydrocannabinol (THC), the primary psychoactive compound in cannabis, interacts with the brain's endocannabinoid system, modulating neurotransmitter release and neuronal activity. Research suggests that chronic cannabis use, especially during critical developmental stages, may disrupt neurodevelopmental processes, leading to alterations in brain structure and function that predispose individuals to psychosis-related outcomes.

A seminal study by Di Forti et al. (2019) highlighted a dose-response relationship between high-potency cannabis use and the risk of psychosis. The study found that individuals consuming high-potency cannabis daily had a significantly increased risk of developing a psychotic disorder compared to non-users. This stresses the importance of considering cannabis potency and frequency of use in assessing mental health risks, particularly among young users. Moreover, genetic predispositions and individual vulnerabilities play a crucial role in determining susceptibility to cannabis-induced psychosis. Variations in genes related to dopamine metabolism, cannabinoid receptors, and synaptic plasticity have been implicated in the interplay between cannabis exposure and psychosis risk (Murray et al., 2017). Additionally, factors such as early life

stress, trauma, and comorbid mental health conditions may amplify the impact of cannabis use on mental health outcomes, highlighting the multifaceted nature of this relationship.

Epidemiological trends further illuminate the complex dynamics at play. Studies have documented an increase in cannabis use among adolescents and young adults, coinciding with shifts in societal norms and accessibility due to changing legal frameworks (Hasin et al., 2015). This trend raises concerns about the potential escalation of mental health issues, including early onset psychosis, among vulnerable populations with heightened cannabis exposure. The diagnosis and management of cannabis-related psychosis pose distinct challenges for healthcare providers. Distinguishing between cannabis-induced psychosis and primary psychotic disorders requires comprehensive assessments, including clinical interviews, neuroimaging studies, and substance use monitoring (Murray et al., 2017). Early intervention strategies, such as cognitive-behavioural therapy and motivational interviewing, show promise in addressing cannabis misuse and mitigating psychosis risk (Freeman et al., 2020). Gaps in knowledge persist, necessitating further research to elucidate the mechanisms underlying cannabis-induced psychosis and inform evidence-based interventions. Longitudinal studies tracking cannabis users from adolescence to adulthood are crucial for understanding the trajectory of psychosis risk and identifying protective factors that may mitigate adverse outcomes. Furthermore, interdisciplinary collaborations between psychiatry, neuroscience, addiction medicine, and public health are essential for developing holistic approaches to cannabis regulation, education, and harm reduction.

The Rise of Cannabis Use and its Changing Perception

Cannabis, colloquially known as cannabis, has traversed a complex historical trajectory, deeply intertwined with human culture and civilization. Its origins can be traced back thousands of years, where it was utilized for a myriad of purposes, including recreational, medicinal, and spiritual endeavours. Ancient civilizations, such as the Chinese, Egyptians, and Indians, revered cannabis for its therapeutic properties, using it to alleviate various ailments and induce altered states of consciousness during religious rituals (Mercuri et al., 2012). The modern era, however, has witnessed a shift in the perception and regulation of cannabis. The past few decades, in particular, have seen the evolution in its social acceptance and legal status across different regions and countries. Historically demonized and stigmatized due to misguided propaganda and prohibitionist policies, cannabis is now undergoing a renaissance of sorts, with growing recognition of its

potential benefits and relatively benign nature compared to other substances. One of the most significant developments in recent years has been the global trend towards decriminalization or outright legalization of cannabis (Hall & Degenhardt, 2018). Countries like Canada, Uruguay, and several U.S. states have taken bold steps towards regulating cannabis production, distribution, and consumption, challenging long-standing taboos and fostering more open discussions about drug policy reform (Hall & Degenhardt, 2018). These legislative changes have not only expanded access to cannabis for medical and recreational purposes but have also spurred economic opportunities, job creation, and tax revenues in burgeoning cannabis industries.

The shift in legal paradigms surrounding cannabis has led to increased accessibility and prevalence of its use among diverse demographics. While historically marginalized communities and subcultures have long embraced cannabis as part of their social fabric, its mainstream acceptance has transcended age, gender, socioeconomic status, and cultural backgrounds. Surveys and studies indicate a rising trend in cannabis consumption, with both medicinal and recreational users seeking out cannabis products for a variety of reasons, from pain management and stress relief to creative inspiration and social bonding (National Institute on Drug Abuse, 2020). The medicalization of cannabis has been a driving force behind its shifting social and legal landscapes. Scientific research and anecdotal evidence have highlighted the therapeutic potential of cannabinoids, the active compounds in cannabis, in treating conditions such as chronic pain, epilepsy, nausea, and anxiety (National Academies of Sciences, Engineering, and Medicine, 2017). This growing body of evidence has influenced public perceptions and policymaking, leading to more compassionate approaches to cannabis regulation and patient access.

However, amidst the wave of legalization and normalization, challenges and controversies persist. Debates continue regarding the optimal regulatory frameworks for cannabis, including age restrictions, potency limits, advertising regulations, taxation schemes, and public health education initiatives (Caulkins et al., 2016). Concerns about potential adverse effects, especially among vulnerable populations like adolescents and pregnant women, underscore the importance of evidence-based policies and harm reduction strategies. The journey of cannabis from ancient botanical curiosity to modern-day legal and cultural phenomenon reflects broader societal shifts in attitudes towards drugs, health, and personal freedoms. The on-going discourse surrounding cannabis encompasses a spectrum of perspectives, from advocates championing its therapeutic

benefits and economic potential to sceptics cautioning against potential risks and unintended consequences. As the global cannabis landscape continues to evolve, informed dialogue, research, and policy innovation are essential to navigating the complexities of cannabis regulation and maximizing its potential benefits while minimizing potential harms.

Defining Early Onset:

Defining early onset psychosis is crucial for understanding its impact on individuals and society. Early onset psychosis encompasses a range of psychotic symptoms that emerge at a relatively young age, usually during adolescence or early adulthood. These symptoms can include hallucinations, where individuals perceive things that are not present in reality; delusions, which are false beliefs often resistant to rational argument; and disorganized thinking, leading to difficulties in coherent speech and logical reasoning (American Psychiatric Association, 2013).

The onset of psychotic symptoms during this developmental period is particularly concerning due to its potential association with severe mental health disorders such as schizophrenia or bipolar disorder. Schizophrenia is characterized by a combination of positive symptoms (e.g., hallucinations, delusions) and negative symptoms (e.g., social withdrawal, reduced emotional expression), often leading to significant impairment in social, occupational, and daily functioning (Perälä et al., 2007). Bipolar disorder, on the other hand, involves periods of manic episodes (elevated mood, increased activity) alternating with depressive episodes, impacting mood stability and overall well-being (Merikangas et al., 2007). The challenges posed by early onset psychosis extend beyond the individual experiencing symptoms to their families and broader societal implications. Families often face difficulties in understanding and coping with the sudden onset of psychotic symptoms in a young family member, navigating treatment options, and providing support during periods of crisis (Addington & Addington, 2015). Furthermore, early onset psychosis can disrupt educational attainment, social relationships, and future employment prospects, contributing to long-term socioeconomic burdens on affected individuals and society as a whole (Stahl et al., 2018).

Identifying and addressing early onset psychosis promptly is essential for mitigating its adverse effects and improving outcomes. Early intervention programs that combine pharmacological treatments with psychosocial interventions, such as cognitive-behavioural therapy and family

psychoeducation, have shown promise in reducing symptom severity, relapse rates, and functional impairments (Sikich et al., 2018). Collaborative care models involving multidisciplinary teams of psychiatrists, psychologists, social workers, and other mental health professionals play a crucial role in providing comprehensive, personalized care tailored to the needs of individuals with early onset psychosis (McGorry et al., 2018). Thus, early onset psychosis represents a significant clinical and public health concern, characterized by the emergence of psychotic symptoms during adolescence or early adulthood. Understanding its defining features, potential associations with serious mental health disorders, and broader impacts on individuals and society underscores the importance of early identification, intervention, and holistic care approaches to improve outcomes and enhance quality of life for affected individuals and their families**.**

The Complicated Connection between Cannabis and Psychosis

A significant body of research has delved into the potential linkages between cannabis use and the development or exacerbation of psychotic disorders. Central to this investigation is the psychoactive compound in cannabis, delta-9-tetrahydrocannabinol (THC), which interacts with the brain's endocannabinoid system. This system comprises cannabinoid receptors, endogenous cannabinoids, and enzymes involved in cannabinoid metabolism, playing a vital role in modulating various physiological processes, including mood regulation, cognition, pain perception, and immune function (Pertwee, 2018).

THC's interaction with the endocannabinoid system can lead to altered neural functioning and neurotransmitter imbalances, particularly in vulnerable individuals. The endocannabinoid system is complicatedly linked to other neurotransmitter systems, such as dopamine, glutamate, and serotonin, which are implicated in the pathophysiology of psychotic disorders like schizophrenia (Pisanti et al., 2017). Dysregulation of these neurotransmitter systems can contribute to the emergence of psychotic symptoms, such as hallucinations, delusions, and disorganized thinking, in susceptible individuals.

Neuroimaging studies have provided insights into the neural mechanisms underlying the link between cannabis use and psychosis. For example, functional magnetic resonance imaging (fMRI) studies have demonstrated altered patterns of brain activation and connectivity in cannabis users, particularly in regions implicated in psychosis, such as the prefrontal cortex, hippocampus, and

striatum (Bhattacharyya et al., 2009). These neurobiological changes may underlie the cognitive impairments and psychopathological features observed in individuals with cannabis-related psychosis. Furthermore, genetic factors play a crucial role in determining susceptibility to cannabis-induced psychosis. Variations in genes related to the endocannabinoid system, such as the cannabinoid receptor 1 (CB1) gene, have been associated with increased risk of psychosis and altered responses to THC (Di Forti et al., 2012). Additionally, gene-environment interactions, such as early-life stress or trauma combined with cannabis use, can further potentiate the risk of developing psychotic disorders (Henquet et al., 2008).

Longitudinal studies have provided compelling evidence for the temporal relationship between cannabis use and psychosis onset. The landmark study by Arseneault et al. (2002) found that cannabis use in adolescence was associated with a significantly increased risk of developing schizophrenia in adulthood, particularly among heavy and persistent users. Moreover, cannabis use during critical developmental periods, such as adolescence, may have a more pronounced impact on brain structure and function, increasing vulnerability to psychiatric disorders (Filbey et al., 2014). Thus, the potential linkages between cannabis use and psychotic disorders are multifaceted and involve complex interactions between genetic, neurobiological, and environmental factors. Understanding these mechanisms is essential for informing prevention, early intervention, and treatment strategies for individuals at risk of cannabis-induced psychosis. However, further research is needed to elucidate the causal pathways and identify personalized risk factors that can inform targeted interventions and mitigate adverse mental health outcomes associated with cannabis use.

Vulnerability and risk factors

Not every individual who uses cannabis will experience psychosis, highlighting the difficulty of vulnerability factors and risk profiles associated with cannabis use. Understanding these factors is crucial for elucidating why some individuals are more susceptible to developing psychosis-related outcomes than others. Several key factors contribute to this variability in vulnerability:

- **Genetic Predispositions:** Genetic factors play a significant role in shaping an individual's susceptibility to cannabis-induced psychosis. Variations in genes related to the endocannabinoid system, neurotransmitter receptors, and neurodevelopmental processes

can influence how the brain responds to THC and other cannabinoids present in cannabis (Caspi et al., 2005). For instance, polymorphisms in the COMT gene, which codes for an enzyme involved in dopamine metabolism, have been linked to altered responses to cannabis and increased risk of psychosis (Caspi et al., 2005).

- **Early Life Experiences:** Early life stressors, trauma, and adverse childhood experiences can contribute to vulnerability to psychosis-related outcomes following cannabis use. The impact of early-life adversity on brain development, stress response systems, and coping mechanisms can interact with cannabis exposure to increase the risk of psychiatric disorders, including psychosis (Fisher et al., 2013). Childhood trauma, such as abuse or neglect, has been associated with heightened sensitivity to the psychotomimetic effects of cannabis and increased risk of developing psychotic symptoms (Harley et al., 2010).

- **Co-Occurring Mental Health Conditions:** Individuals with pre-existing mental health conditions, such as mood disorders, anxiety disorders, or personality disorders, may be at heightened risk of cannabis-induced psychosis. The interaction between cannabis use and underlying psychiatric vulnerabilities can exacerbate symptoms and increase the likelihood of experiencing psychotic episodes (Marconi et al., 2016). Co-morbid substance use disorders, particularly with other psychoactive substances, can also contribute to the complexity of risk profiles and outcomes.

- **Potency and Frequency of Cannabis Use:** The potency and frequency of cannabis use are critical determinants of psychosis risk. High-potency cannabis products, such as those with elevated THC levels, have been associated with a greater risk of psychosis, especially among regular and heavy users (Di Forti et al., 2019). Additionally, early age of onset of cannabis use and persistent, heavy use patterns are linked to increased vulnerability to cannabis-related mental health issues (Di Forti et al., 2016).

The interaction between these vulnerability factors and risk profiles highlights the importance of personalized risk assessment and tailored interventions for individuals using cannabis. Identifying individuals at higher risk of psychosis-related outcomes can inform preventive strategies, harm reduction measures, and targeted interventions to mitigate adverse effects. Furthermore, addressing broader determinants of mental health, such as early intervention programs, trauma-

informed care, and integrated mental health services, can promote resilience and well-being among vulnerable populations.

Epidemiological Trends of cannabis use

- **Prevalence and Usage Patterns:** Epidemiological studies consistently report higher rates of cannabis use among individuals with early onset psychosis compared to the general population (Bhattacharyya et al., 2009). These studies often distinguish between occasional, moderate, and heavy cannabis users, with heavy users exhibiting a greater risk of psychosis-related outcomes. Patterns of cannabis use, such as age of initiation, frequency, duration, and potency of cannabis products consumed, are crucial factors influencing psychosis risk (Arseneault et al., 2002).

- **Associations with Psychotic Episodes:** Longitudinal studies have demonstrated associations between heavier or persistent cannabis use and an increased likelihood of experiencing psychotic episodes among vulnerable individuals (Di Forti et al., 2016). The dose-response relationship between cannabis exposure and psychosis risk underscores the importance of considering usage patterns when assessing mental health outcomes.

- **Transition to Diagnosed Psychotic Disorders:** Epidemiological data also suggest a link between cannabis use and the transition from subclinical psychotic symptoms to diagnosed psychotic disorders, such as schizophrenia or schizoaffective disorder (Di Forti et al., 2019). Heavy and persistent cannabis use during adolescence or early adulthood is associated with a higher risk of developing these serious mental health conditions.

- **Temporal Trends:** Temporal trends in cannabis use and psychosis incidence reveal dynamic shifts in consumption patterns and associated risks. Changes in cannabis potency, availability of high-potency products, legalization status, and cultural norms influence usage trends and may impact mental health outcomes over time (Hall & Degenhardt, 2009).

- **Risk Mitigation Strategies:** Epidemiological findings inform public health strategies aimed at mitigating cannabis-related harms, especially among vulnerable populations. Targeted interventions, education campaigns, early intervention programs, and substance

use screening protocols are designed based on epidemiological data to address specific risk factors and promote mental health resilience (Minozzi et al., 2010).

The above epidemiological trends and observations provide a comprehensive understanding of the complex relationship between cannabis use and early onset psychosis. These studies highlight the importance of considering usage patterns, risk factors, and population-level trends when assessing the impact of cannabis consumption on mental health outcomes. By integrating epidemiological insights into policy development, prevention strategies, and clinical interventions, stakeholders can work towards reducing the burden of cannabis-related psychosis and improving overall mental health outcomes in at-risk population

Clinical implications and public health concerns:

The clinical implications and public health concerns surrounding cannabis-related psychosis necessitate a multidimensional approach to address the complexities of this issue. The potential impact on public health and clinical practice emphasises the need for targeted interventions and evidence-based strategies to mitigate adverse outcomes and promote mental well-being.

- **Clinical Assessment and Management:** Mental health professionals play a pivotal role in assessing, diagnosing, and managing cannabis-related psychosis. Comprehensive clinical assessments should consider factors such as cannabis use patterns, co-occurring mental health conditions, genetic vulnerabilities, and psychosocial stressors (Moore et al., 2007). Tailored treatment plans may include pharmacological interventions, cognitive-behavioral therapy, family support, and psychoeducation to address symptoms, enhance coping strategies, and promote recovery (Kavanagh et al., 2017).

- **Early Intervention and Prevention:** Early intervention programs are crucial for identifying at-risk individuals and implementing targeted interventions to prevent the progression of psychosis-related symptoms. Screening protocols, outreach initiatives, and community-based services can facilitate early detection, timely intervention, and linkage to appropriate mental health resources (Singh et al., 2010). Psychoeducational programs aimed at adolescents, parents, and educators can raise awareness about the risks of cannabis use and promote healthy coping strategies (Hawkins et al., 2009).

- **Harm Reduction Strategies:** Harm reduction approaches focus on minimizing the negative consequences of substance use while acknowledging the realities of substance use behaviors. Harm reduction initiatives may include access to safer consumption practices, overdose prevention measures, naloxone distribution, and syringe exchange programs (Werb et al., 2016). In the context of cannabis-related psychosis, harm reduction strategies may involve education on responsible use, moderation techniques, and support for individuals seeking to reduce or quit cannabis use (McGinty et al., 2017).

- **Public Health Policies:** Policymakers play a critical role in shaping public health policies related to cannabis regulation, access to treatment services, prevention programs, and harm reduction interventions. Evidence-based policy decisions should consider the potential risks and benefits of cannabis legalization, potency regulations, taxation schemes, advertising restrictions, age limits, and public education campaigns (Hall & Lynskey, 2016). Collaborative efforts between policymakers, public health experts, law enforcement agencies, and community stakeholders are essential for developing comprehensive and effective policy frameworks.

- **Research and Knowledge Translation:** Continued research into the neurobiological mechanisms, risk factors, and treatment outcomes of cannabis-related psychosis is essential for advancing clinical practice and public health initiatives. Knowledge translation efforts, such as disseminating research findings, developing practice guidelines, and training healthcare professionals, can bridge the gap between research evidence and clinical implementation (Mason et al., 2015).

Addressing the clinical implications and public health concerns of cannabis-related psychosis requires a multifaceted approach that integrates clinical expertise, evidence-based interventions, policy advocacy, and community engagement. Collaborative efforts across multiple sectors are needed to develop holistic strategies that promote mental health, reduce harm, and support individuals affected by cannabis-related psychosis.

Knowledge gaps and future research directions:

In recent years, the connection of cannabis use and mental health outcomes, particularly the onset of psychosis, has gathered increasing attention from researchers and clinicians alike. While

significant progress has been made in separating the complexities of cannabis-induced psychosis, numerous knowledge gaps persist, hindering our comprehensive understanding and the development of effective interventions. This necessitates a focused research agenda that looks into longitudinal studies, neurobiological mechanisms, treatment modalities, and personalized risk assessment approaches discussed below.

- **Longitudinal Studies:** Investigate the long-term effects of cannabis use on mental health, including psychosis onset, duration, and recurrence patterns over time. This could involve cohort studies tracking individuals from adolescence to adulthood and assessing their cannabis use and mental health outcomes.

- **Neurobiological Mechanisms:** Explore the underlying neural mechanisms that link cannabis use to psychosis development. This may involve neuroimaging studies to identify brain changes associated with cannabis exposure, neurotransmitter system alterations, and genetic factors influencing vulnerability to cannabis-induced psychosis.

- **Treatment Modalities:** Evaluate the effectiveness of existing treatments for cannabis-induced psychosis, such as antipsychotic medications, psychotherapy, and behavioural interventions. Additionally, develop and test novel treatment approaches tailored to address the unique challenges posed by cannabis-related psychosis.

- **Personalized Risk Assessment Approaches:** Develop comprehensive risk assessment tools that consider individual factors such as genetics, cannabis consumption patterns, co-occurring mental health conditions, and environmental influences. This personalized approach can help identify individuals at higher risk for cannabis-induced psychosis and guide preventive strategies and early interventions.

By addressing these critical areas, we can advance our knowledge base, inform evidence-based practices, and ultimately improve outcomes for individuals impacted by cannabis-induced psychosis

Conclusion and summary

In conclusion, the relationship between cannabis use and early onset psychosis represents a multidimensional terrain encompassing biological, psychological, social, and public health dimensions. By delving deeper into longitudinal studies, researchers can track the trajectory of psychosis development over time, elucidating the interaction between cannabis exposure and mental health outcomes. Exploring neurobiological mechanisms is essential for understanding how cannabis alters brain function and contributes to psychosis susceptibility, guiding targeted interventions. Moreover, advancing treatment modalities tailored to cannabis-related psychosis can enhance therapeutic outcomes and quality of life for affected individuals. Additionally, personalized risk assessment approaches, integrating genetic, environmental, and behavioural factors, are crucial for identifying vulnerable populations and implementing preventive strategies. This comprehensive approach is imperative for directing the intricacies of cannabis-induced psychosis and developing evidence-based interventions that address its diverse dimensions effectively.

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