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EDUCATION

PREVALENCE OF CANNABIS USE DISORDER AMONG ADOLESCENTS ATTENDING SELECTED PUBLIC SECONDARY SCHOOLS IN NAIROBI COUNTY, KENYA

[1*]Catherine W. Muriithi, [2]Preskilla Ochieng-Munda & [3]Niceta Ireri

[1]School of Education, Arts and Social Sciences, Africa International University

Cawamuri@gmail.com

[2]School of Education, Arts and Social Sciences, Africa International University

preskillamunda@gmail.com

[3]School of Education, Arts and Social Sciences, Africa International University

niceta.ireri@aiu.ac.ke

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ABSTRACT

Purpose of the Study: The purpose of this study was to evaluate the prevalence of Cannabis Use Disorder (CUD) among adolescents attending selected public secondary schools in Nairobi County, Kenya, and to assess the effectiveness of Motivational Interviewing (MI) as an intervention for reducing CUD among these adolescents.

Problem Statement: Cannabis use among adolescents is a growing global concern, with significant implications for their health, academic performance, and social well-being. The World Drug Report (2021) highlighted that cannabis is the most widely used illicit substance among adolescents worldwide, and early initiation is often linked to higher rates of addiction. In Kenya, cannabis use among secondary school students is also on the rise, with urban environments like Nairobi showing higher prevalence rates. The increasing prevalence of Cannabis Use Disorder (CUD) poses a significant challenge, as it contributes to psychological issues such as anxiety, depression, and impaired cognitive functions. Adolescents are particularly vulnerable to the negative effects of cannabis use, and without effective interventions, these issues are likely to worsen, impacting their development and future prospects.

Methodology: This study adopted a quasi-experimental design with a sample of adolescents aged 15-18 years from two selected public secondary schools in Nairobi County. The control group consisted of students from Dandora Mixed Day Sub-County Secondary School, while the experimental group was drawn from Kayole South Mixed Day Sub-County Secondary School. A

total sample of 80 participants was selected using random sampling. The study involved baseline, midline, and endline assessments using the Cannabis Use Disorder Identification Test-Revised (CUDIT-R). The experimental group underwent a six-week intervention using Motivational Interviewing (MI). Statistical analysis was carried out using paired-sample t-tests, MANOVA, and logistic regression to assess the effectiveness of MI and the changes in cannabis use severity and mental health outcomes across both groups.

Result: A significant proportion of adolescents in the sample exhibited symptoms of Cannabis Use Disorder, with both the experimental and control groups showing baseline mean scores above the CUDIT-R cutoff of 8. After the intervention, the experimental group showed a notable reduction in CUD severity, with improvements in cannabis use scores and a decrease in anxiety and depression levels, as measured by the BAI and BDI. In contrast, the control group showed no significant changes in cannabis use or mental health symptoms. These results suggest that Motivational Interviewing (MI) was effective in reducing cannabis use severity and improving mental health outcomes in adolescents with CUD.

Conclusion: Cannabis Use Disorder is highly prevalent among adolescents in Nairobi County, and that Motivational Interviewing (MI) is an effective intervention for addressing cannabis use and improving mental health outcomes in this population.

Recommendation: Schools implement MI-based programs for students with cannabis use problems, and that the Ministry of Education collaborate with mental health professionals to integrate such interventions into school counseling services. Furthermore, policy development should focus on early intervention strategies for adolescents, especially in urban areas, where cannabis use is more prevalent.

Keywords: *Prevalence, Cannabis Use Disorder, Adolescents, Motivational Interviewing, Intervention, Mental Health*

INTRODUCTION

Cannabis use in adolescents has been a growing concern globally, with significant implications for their health, academic performance, and overall well-being. Secondary school students are particularly vulnerable to substance abuse due to various factors, including peer-pressure, curiosity, and the desire to cope with stress or emotional challenges (Pacheco-Colón, et al.2019). The rise in Cannabis Use Disorder (CUD) among this demographic necessitates effective intervention strategies to curb the trend and promote healthier lifestyles.

According to Geoffrion (2024), those who smoke marijuana might develop a lasting problem which could affect their brain development. This problem affects the adolescents because they are at the brain development stage. Individuals who are addicted to cannabis have a disorder which is defined as Cannabis Use Disorder and this can lead to distress or public health implications. This condition could adversely affect cognitive functions, mental health, and social behaviors, potentially leading to long-term detrimental outcomes (DSM-5 - Diagnostic and Statistical Manual of Mental Disorders). The secondary school students are in a critical stage of development and so it is paramount to address cannabis use at this level.

According to Gomez et al. (2021), the treatment of Cannabis Use Disorder (CUD) does not have a gold standard. However, Motivational Interviewing (MI) has shown that it is effective in

reduction of Cannabis Use Disorder among the adults. A research synthesis which was conducted to assess the efficacy of MI on reduction of Cannabis Use Disorders revealed that it was effective in the treatment of adults. Out of the 16 studies which were carried out on adolescents and adults, MI showed that it was effective in the treatment of Cannabis Use Disorder among adults. The conclusion which was drawn from the assessment was that MI intervention is effective in the treatment of CUD. The assessors concluded that MI should not be omitted in the guidelines for the treatment of CUD as one of the best psychological interventions.

As a client-centered approach, MI is effective for people with mixed feelings in changing their behavior. Individuals are assisted in finding motivation to make positive behavior change through MI. William Miller and Stephen Rollnick are the original developers of MI and it was developed to be used in the treatment of alcohol addiction. It has been found to be a unique treatment which empowers people to take responsibility for their own recovery (Hartney, 2023)

Cannabis is the most common used drug in the world and it is mostly used by adolescents. However, as they progress into adulthood, the use of cannabis somehow declines (Patel & Marwaha, 2024). The main purpose of this study was to establish if MI is effective in the treatment of CUD in adolescents. The study employed quasi-experimental design. This design works with two groups which are the experimental group and the control group.

STATEMENT OF THE PROBLEM

Cannabis use in adolescents is a significant public health concern, with notable increasing rates. Cannabis Use Disorder (CUD) therefore poses serious risks to students' academic performance, mental health, and overall well-being. Despite the implementation of diverse intervention strategies such as self-driven, social support, law enforcement, and rehabilitation, because the prevalence CUD in adolescents is quite high, there is a great need for creation of more effective therapeutic approaches. For the last 25 years, heavy cannabis use in adolescents has tripled in prevalence (Scheyer, Laviolette, Pelissier & Manzoni, 2023). In the US 6.9% of senior school students use cannabis daily, and over 9% of those who experiment with cannabis end up developing Cannabis Use Disorder (Scheyer et al., 2023).

Motivational Interview Therapy (MI) is a therapeutic approach aimed at enhancing individuals' intrinsic motivation to change addictive behaviors and adopt healthier lifestyles. While MI has shown effectiveness in treating various substance use disorders in adults, it’s specific impact on reducing cannabis use among students who are in secondary schools has not been exhaustively researched on. Given the unique developmental and psychological characteristics of adolescents, this study will be set to investigate whether MI can be a viable and effective intervention for this age group. In familial, public health, education, medical care and criminal justice systems, other professionals have introduced Motivational Interviewing. (Gluber, 2023). This study therefore addressed the gap in knowledge by investigating the efficacy of Motivational Interview Therapy in reducing Cannabis Use Disorder in adolescents attending selected public secondary school. Understanding the potential benefits of MI in this context is essential for developing an effective intervention for CUD in adolescents, ultimately contributing to their health, academic success, and future prospects.

RESEARCH OBJECTIVE

To establish the prevalence of CUD in adolescents attending selected public secondary schools in Nairobi County, Kenya.

RESEARCH QUESTION

What is the prevalence of CUD among the adolescents attending selected public secondary school in Nairobi County, Kenya?

THEORETICAL FRAMEWORK

The theoretical framework for this study was based on two theories which are the Stages of Change Theory and the Social Learning Theory. Strengths and weaknesses of each theory was regarding the effectiveness of motivational therapy in reducing cannabis use in adolescents attending public secondary schools. The rationale for adopting these two theories is that Social Learning Theory and Motivational Interviewing can complement each other. The emphasis of Social Learning Theory is on role modeling and peer influence. A body of studies (Deressa & Azazh, 2011; Ndegwa, 2023; Nawi, et al., 2021; Tsvetkova & Antonova, 2013) established that role modeling from significant people including parents and peer influence are major contributors of CUD in adolescents while Motivational Interviewing therapy focuses on internal motivation and readiness to change. Together, they can complement each other by creating a comprehensive intervention strategy for reducing CUD in adolescents. On the other hand, relapse is a common part of the change process according to the Stages of Change Theory and provides strategies to cope with setbacks, which is crucial for maintaining the desired long-term change in adolescents.

Change Theory

Another name for this theory is the Trans-Theoretical Model (TTM), and it was developed by Carlo DiClemente and Prochaska (LaMorte, 2022) in the late 70s and is one of the most commonly applied theoretical and clinical frameworks in mental health. It has been discovered to be powerful in bringing change in an extensive variety of behavioral problems including smoking, alcohol abuse, substance use addiction which include CUD, school bullying as well as improvement on school attendance (Norcrosse et al., 2011). The Trans-Theoretical Model (TTM) asserts that change is a process that occurs in six stages: Precontemplation, Contemplation, Preparation (Determination), Action, Maintenance and Termination.

According to Krebs et al. (2018), the Trans-Theoretical Model (TTM) is a step towards change, providing one of the simplest frameworks for understanding human straightforward behavior. The initial aim of developing this theory was to help individuals to overcome problematic behaviors like alcohol or drug abuse, overeating, and smoking and addictions. At present it is the "standard-bearer" for change therapy and is now also relevant to problems such as school bullying (Raihan, 2023). In the Pre-contemplation stage, a person who is abusing cannabis is in denial and is not aware that he is having a behavioral problem that requires to be changed. However, those people around him like the teachers and other students, may know that this particular individual has a problem (Martinez, 2021). During this stage, the intervention strategies involve the clinician taking on the role of a nurturing parent, to listen actively, expressing empathy and giving unconditional acceptance. The client's resistance should not be opposed but accepted (Krebs et al., 2018). Additionally, intervention strategies included helping the client personalize by reconsidering their behavior through analyzing the risks of their actions and identifying the benefit of change (Norcross et al., 2011)

The second stage is Contemplation where an individual recognizes and acknowledges their problematic behavior with serious desire to change. This stage is characterized by uncertainty, conflicted emotions or ambivalence, with the client being uncertain about the change process

(Lassiter & Culbreth, 2018). The uncertainty and hesitation present at this level may also lead customers to remain trapped in a state of contemplation. Consequently, clinicians aim to engage with the client's beliefs to help them gain new insights regarding their behaviors. The clinician could also probe about the perceived barriers for change. In addition, help the client weigh the impact of the current behavior and what would be the advantages of the new behavior, thereby, spur the client into the change process (Krebs et al., 2018), include their statements expressing commitment to change and their willingness to develop a plan of action (Krebs et al., 2018).

During the third stage, Preparation, the clinicians serve as knowledgeable coaches, collaborating with the client to support their development of an attainable and realistic plan of action when the client is ready to change (Baker, 2023). Key tasks involved helping the client identify the resources, support-systems, and skills that the client can utilize, followed by helping them develop a strategy to obtain these requirements (Norcross et al., 2011). Additionally, the clinician supported the clients in realistically assessing the difficulties they may face as they start the process of change. Anticipating potential challenges and obstacles helped the clients in coming up with solutions and prepared them for difficulties in advance.

In the Action stage which is the fourth stage of the change model, change happens. For the next six months, total abstinence of the problematic behavior is expected (Raihan, 2023). In this stage, the clients were more proactive and the clinicians got a reduced role in the life of the clients. Intervention-strategies involved frequent reviews of the client's motivation, resources and progress. Also, the clinician offered enthusiastic praise for the successful steps. As clinicians build confidence and skills, they provided support, advice and guidance only when necessary.

The Stages of Change Theory, the last stage is the Maintenance stage. This is a very crucial stage because it is the period to prevent relapse. In this stage, the individual works hard to maintain the newly acquired behavior (Martinez, 2021). In the stage, the clinician took the role of a consultant, provided guidance, advice and support where it was needed. According to Raihan (2023), some clients may remain in this stage for up to 5 years as their assurance in maintaining their new way of life increases and the fear of relapse declines. Intervention in this stage may include helping clients realize how over-confidence can be a setback in their progress and can sometimes lead to falling back to old habits. Clinicians need to encourage the clients to have a mindset that a potential relapse is only a minor hindrance, and not a devastating catastrophe. The Change Theory stage is a common style for changing behavior while modeling is a style of deliberate transformation which concentrates on a person's process of decision-making (Hashmzadeh et al., 2019). This theory is acceptable in these circumstances because of its connection with the use of MI in this study. This study is addressing how adolescents attending secondary school learn the dysfunctional behavior of cannabis use and the managing skills which they will require for their behaviors to change.

Social Learning Theory

Social Learning Theory was developed by Albert Bandura in the 1960s, revolutionizing the understanding of how people learn new behaviors. Unlike traditional theories that emphasized direct reinforcement, Bandura proposed that learning can occur through observation and imitation of others (Fryling, et al., 2011). Central to this theory are the concepts of modeling, for instance where adolescents learn cannabis use by watching others like family members or peers and friends. The role of mental states is crucial in the learning process, recognizing that cognitive processes such as attention, retention, and motivation are essential and crucial for learning. Bandura had a famous Bobo Doll experiment that showed how new patterns of behaviors are acquired through

observing another person, highlighting the profound impact of observational learning (Nguyenet al., 2011). Social Learning Theory integrates psychological, behavioral, and environmental influences, making it a full framework for comprehending behavior acquisition and change (Cook & Artino, 2016). This theory has wide-ranging applications, from education and psychotherapy to media, politics and public health, offering valuable insights into the mechanisms of learning and behavior modification.

This study the Social Learning Theory was used to guide adolescents abusing drugs to identify role models who had a success story of overcoming drug use. This was based on Bandura's conviction that "most human behavior is learned by observation through role modeling. From observing others, one forms an idea of how new behaviors are performed, and on later occasions" (Bandura, 1977). Social Learning Theory, advanced by Albert Bandura, provides a comprehensive framework that describes how people learn behaviors through observation, copying, and modeling. This approach integrates cognitive, behavioral, and environmental factors, making it a holistic model of learning. Besides, the theory is well-supported by empirical research for instance Bandura's Bobo Doll experiment demonstrated that children can learn violent behaviors by observing adults, stressing the role of modeling in learning (Nguyen. 2011). A study by Ndegwa (2023) indicates that most adolescents learn how to use drugs from peer influence. The theory underscores the status of the social environment in influencing behavior.

In regard to the current study, Social Learning Theory and Motivational Interviewing therapy worked synergistically. Social Learning Theory's emphasis on role modeling and peer influence complemented Motivational Therapy's focus on internal motivation and readiness to change. Together, they created a comprehensive intervention strategy. Moreover, Social Learning Theory is versatile and can be employed to different populations and settings. It can be useful in appreciating a wide range of behaviors, from academic performance, to addictions and is useful in developing interventions tailored to specific social environments (Cook & Artino, 2016). Social Learning Theory underscores the status of observing and imitating positive role models (Bajcar & Bąbel, 2018). In Motivational Interviewing therapy, students were encouraged to identify and emulate peers or mentors who abstain from cannabis use, reinforcing the therapy's goals.

EMPIRICAL REVIEW

A study by the World Drug Report (2021) highlights the increasing prevalence of Cannabis Use Disorder (CUD) among adolescents, identifying it as a significant challenge to their health, academic performance, and social well-being. The report notes that during the critical developmental period of adolescence, drug abuse can lead to severe consequences, such as impaired cognitive function, an increased risk of addiction, and a range of psychosocial issues (Geoffrion, 2024). Recent studies also suggest a troubling rise in the rates of CUD in secondary school students, driven by factors such as peer pressure, stress, and the easy accessibility of cannabis (Libuy, Ibanze, & Mundt, 2020). While this body of work offers valuable insights into the prevalence and risk factors associated with CUD, several limitations must be considered to understand the depth of the issue and the potential avenues for intervention.

One key limitation of the World Drug Report (2021) is the lack of regional specificity in the findings. While the report provides a global overview, it does not sufficiently address the cultural, social, and economic factors that influence cannabis use in adolescents across different regions. For instance, in regions where cannabis has been legalized or decriminalized, such as parts of North America, adolescents might perceive the drug as less harmful, as noted by the United

Nations (2018) report. The study also fails to capture the long-term psychological and physiological effects of cannabis use in adolescents, particularly in areas where cannabis use is becoming more normalized.

Similarly, the United Nations (2018) and the World Drug Report (2023) discuss the increasing cannabis use worldwide, reporting that approximately 209 million people used cannabis in the past year, reflecting a 23% increase over the past decade. The report suggests that the increase in use can be largely attributed to sensational claims about cannabis's natural health benefits (Lau et al., 2021; Hasin & Walsh, 2021). However, a major limitation of this global report is the lack of detailed demographic data. The findings provide a general overview but fail to explore specific age groups or risk factors, such as the impact of peer pressure, mental health conditions, or socio-economic status, which can significantly influence cannabis use among adolescents. Additionally, the reliance on self-reported data in many of these studies introduces potential biases, as adolescents may either overestimate or underestimate their cannabis use due to social desirability or recall issues.

A similar gap is observed in studies from the United States, such as the survey conducted by the National Institute on Drug Abuse (NIDA, 2023). The survey, which included 22,318 students from 235 American schools, reported stable cannabis use among students, with 8.3% in grade 8, 17.8% in grade 10, and 29% in grade 12. While the study provides an important snapshot of cannabis use trends among U.S. adolescents, the cross-sectional design of the survey prevents any causal inferences from being made. The findings also fail to account for longitudinal changes, which are crucial in understanding how cannabis use evolves over time, particularly as adolescents transition into adulthood. Additionally, the study does not address regional variations within the U.S. or explore how state-specific cannabis legalization might influence adolescent perceptions and usage patterns.

In Canada, a report from 2021-2022 revealed that 27% of 16-19-year-olds used cannabis in the past 12 months, a slight increase from the previous year (Wang, Quin, Xing et al., 2024). This study emphasizes the role of cannabis legalization in influencing adolescent behavior, with higher usage rates observed in countries where cannabis is legalized. However, the main limitation of the Canadian study is its focus on general population data, which does not account for cultural or societal factors that may vary between different provinces or communities. The lack of attention to societal influences, such as media portrayal of cannabis use or community attitudes, limits the study's ability to identify the underlying causes of increased cannabis consumption among adolescents.

Research in low- and middle-income countries, such as the study by Wang & Wang (2023), reports varying cannabis use rates across regions, with significant variations in prevalence among countries like South Africa, Benin, and Jamaica. While these findings provide a glimpse into the global scope of cannabis use among adolescents, they are limited by the heterogeneity of the sample populations and the lack of uniformity in data collection methods. For instance, the studies conducted in South Africa and Benin may not accurately reflect the psychosocial impact of cannabis use, as they are often based on convenience samples or limited to specific regions within these countries. Furthermore, the data fails to address the intersectionality of factors like urban vs. rural living, economic status, and local drug policies, which can significantly influence adolescent cannabis use.

In sub-Saharan Africa, a meta-analysis study by Belete, Mekonen, and Espinosa et al. (2023) found that the lifetime prevalence of cannabis use among adolescents was 7.9%, with 5.2% reporting use in the past 12 months. While this study offers valuable insights into cannabis use trends in the region, the heterogeneous nature of the included studies, which covered multiple countries with different social, cultural, and economic contexts, limits the generalizability of the findings. Additionally, the cross-sectional nature of the studies included in the meta-analysis means that it is difficult to establish a clear causal relationship between cannabis use and its psychological or social effects on adolescents. The study also fails to explore how policy interventions in different countries may impact adolescent cannabis use, which is crucial for developing effective prevention strategies.

In Kenya, the NACADA (2022) report highlights that cannabis is one of the most commonly used drugs, with significant prevalence in the 15-24 age bracket. However, the report's findings are limited by its generalized data across the entire country and its failure to disaggregate data by specific regions or socioeconomic status. The urban-rural divide in cannabis use prevalence, with Nairobi showing the highest levels of use, suggests that local factors such as accessibility and community attitudes play a significant role. Furthermore, while the report highlights the rising prevalence of cannabis use, it does not adequately address the psychosocial impact on adolescents or the long-term consequences of cannabis use, such as addiction or mental health disorders. The report also lacks a clear exploration of interventions that can help reduce cannabis use among youth, despite recommendations for life-skill programs from the Ministry of Education.

METHODOLOGY

This study employed a quasi-experimental research design to assess the efficacy of Motivational Interviewing (MI) in reducing Cannabis Use Disorder (CUD) among adolescents attending selected public secondary schools in Nairobi County, Kenya. The quasi-experimental design was chosen because it allows for the evaluation of an intervention's impact without random assignment to treatment groups, making it suitable for real-world settings where randomization is not feasible. The study compared two groups: an experimental group that received MI therapy and a control group that did not. Both groups were assessed at three time points: baseline, midline, and endline, using established psychological and cannabis use screening tools. The research was grounded in the positivist research philosophy, which emphasizes objectivity and the use of measurable data. This philosophical approach was deemed appropriate for this study as it focuses on quantifiable outcomes, particularly the reduction in cannabis use severity. The researcher maintained a neutral stance throughout the study, ensuring that participants were not influenced by the researcher's views or behaviors, consistent with the tenets of positivism.

The study utilized a quasi-experimental design because it is effective in examining the impact of an intervention on a target population without requiring random assignment, which is not always feasible in natural settings. This design enabled the researcher to compare the effects of the MI intervention between the experimental group (Kayole South Mixed Day Sub-County Secondary School) and the control group (Dandora Mixed Day Sub-County Secondary School). Both schools were selected based on their proximity and similar characteristics, ensuring that the groups had comparable demographic profiles and cannabis use patterns at the outset. Data collection took place over a three-month period, during which both groups underwent baseline assessments using the Cannabis Use Disorder Identification Test-Revised (CUDIT-R), Beck Depression Inventory (BDI), and Beck Anxiety Inventory (BAI). The experimental group then received six weeks of

Motivational Interviewing (MI) therapy, which aimed to enhance intrinsic motivation for behavior change in relation to cannabis use. After this period, both groups were reassessed at midline and endline to track any changes in cannabis use severity, anxiety, and depression levels.

The target population for the study consisted of secondary school students aged 15-18 years from Njiru and Embakasi sub-counties in Nairobi County, Kenya. These sub-counties were chosen based on reports from school counselors indicating a high prevalence of cannabis use among students. The total population of students in these two sub-counties is 7,143, with 2,179 students in the two selected schools. A sample size of 80 students was selected using random sampling, ensuring that all participants had an equal chance of being included in the study. The sample was further stratified to account for gender, with a higher proportion of male participants, as cannabis use tends to be more prevalent among boys.

The study employed several research instruments to measure cannabis use and mental health symptoms. The CUDIT-R was the primary tool for assessing cannabis use severity, with scores of 8 or higher indicating hazardous use and scores of 12 or higher suggesting possible Cannabis Use Disorder. The BDI and BAI were used to assess symptoms of depression and anxiety, which are often comorbid with substance use disorders. Motivational Interviewing (MI) was the intervention applied to the experimental group. MI is a client-centered therapeutic approach that aims to increase motivation for change by resolving ambivalence about cannabis use. In terms of sampling techniques, the study used random sampling to ensure that the participants were representative of the population. This method is crucial for minimizing selection bias and ensuring that the results of the study can be generalized to the larger population of adolescents in Nairobi County. The total sample size was 80 students, with 40 in the experimental group and 40 in the control group. The sample size was calculated based on Cannabis Use Disorder Identification Test (CUDIT-R) scores and the expected prevalence of CUD among adolescents.

The data collection procedure involved administering the research instruments to the participants at the beginning of the study (baseline), after the intervention (midline), and at the end of the study (endline). The research assistants helped distribute the instruments, and the data was collected anonymously using identification numbers rather than participant names to ensure confidentiality. After the assessments, those identified with CUD were provided with MI therapy in groups of 10, ensuring a manageable group size for the intervention. The data analysis was conducted using SPSS version 23. The analysis involved descriptive statistics to summarize the data and inferential statistics such as paired sample t-tests and MANOVA to assess changes in cannabis use severity and mental health outcomes across the three time points. This allowed for a comprehensive evaluation of the impact of MI on the experimental group compared to the control group.

Ethical considerations were integral to the study. The researcher obtained approval from the Institutional Scientific and Ethical Review Committee (ISERC), the National Commission for Science, Technology, and Innovation (NACOSTI), and the Ministry of Education before starting the research. Informed consent was obtained from all participants, ensuring that they were fully aware of the study's purpose and their right to withdraw at any time. The study also ensured that confidentiality was maintained throughout the data collection and analysis process.

FINDINGS AND DISCUSSION

It was necessary to establish the socio-demographic characteristics of the adolescents who participated in the study at baseline. Understanding these characteristics provided important context for interpreting patterns of cannabis use disorder and evaluating the efficacy of

Motivational Interviewing. The study focused on adolescents drawn from two public secondary schools in Nairobi County, representing a school-based population exposed to similar educational and social environments. With regard to age, the findings showed that participants were aged between 15 and 19 years, indicating that the sample largely comprised mid to late adolescents. The most frequently reported age was 16 years, accounting for 55.0% (22) of the participants in each group. This was followed by those aged 17 years, who constituted 22.5% (9), and 18 years, who made up 12.5% (5) of the participants. The age distribution suggested that cannabis use disorder was most prevalent among learners in early to mid-secondary school years, a period often associated with increased experimentation and vulnerability to substance use.

In terms of sex, the majority of participants were male, representing 67.5% (27) of the sample in each group, while females accounted for 25.0% (10), and a small proportion, 7.5% (3), identified as other. This distribution indicated a higher representation of cannabis use disorder among male adolescents within the selected schools. Regarding class level, half of the participants, 50.0% (20), were in Form One, followed by Form Two students at 25.0% (10), Form Four at 22.5% (9), and a small proportion in Form Three. This pattern pointed to early secondary school exposure as a critical period for cannabis-related problems.

Most participants identified as Christian, accounting for 95.0% (38), while Muslims constituted 5.0% (2) of the sample. In relation to living arrangements, a majority, 70.0% (28), reported living with both parents, while 22.5% (9) lived with one parent, and smaller proportions lived with a guardian or alone. These living arrangements are relevant, as family structure often influences adolescent supervision, behavior, and substance use patterns. Other socio-demographic characteristics of the participants at baseline are presented in Table 4.1 and Table 4.2.

Table 1: Sociodemographic Characteristics of Participants

Characteristic	Category	Frequency (n)	Percent (%)
Age (years)	15	3	7.5
	16	22	55.0
	17	9	22.5
	18	5	12.5
	19	1	2.5
Sex	Male	27	67.5
	Female	10	25.0
	Other	3	7.5
	Form 2	30	75.0
	Form 3	1	2.5
	Form 4	9	22.5

Table 1 shows that 55.0% (22) of the participants in the experimental group were aged 16 years, followed by 22.5% (9) who were 17 years old. Males constituted 67.5% (27) of the participants, while females accounted for 25.0% (10). More than half of the participants, 75.0% (30), were in Form two, indicating early secondary school exposure to cannabis use disorder.

Table 2: Sociodemographic Characteristics of Participants in the Control Group

Characteristic	Category	Frequency (n)	Percent (%)
Age (years)	15	3	7.5
	16	22	55.0
	17	9	22.5
	18	5	12.5
	19	1	2.5
Sex	Male	27	67.5
	Female	10	25.0
	Other	3	7.5
	Form 2	30	75.0
	Form 3	1	2.5
	Form 4	9	22.5

As shown in Table 2, the control group displayed a similar sociodemographic profile. A majority, 55.0% (22), were aged 16 years, and males formed 67.5% (27) of the group. Half of the participants, 50.0% (20), were enrolled in Form One. The similarity between the two groups suggests baseline equivalence.

Table 3: Cannabis Use Patterns, Perceptions, and School-Related Characteristics of Participants -Experimental Group

Characteristic	Category	Frequency (n)	Percent (%)
Age of first cannabis use	≤12 years	19	47.5
	13–14 years	12	30.0
	≥15 years	7	17.5
Cannabis use past 30 days	No use	22	55.0
	1–2 days	14	35.0
	≥3 days	4	10.0
Ever tried to stop	Yes	24	60.0
	No	16	40.0
Belief cannabis harmful	Yes	33	82.5
	No/Not sure	7	17.5
School attendance	Regular	32	80.0
	Occasional/Rare	8	20.0

Table 3 presents the distribution of cannabis use patterns, perceptions, and school-related characteristics among the 40 adolescents who met the criteria for Cannabis Use Disorder. The table provides a comprehensive baseline profile of substance use behavior and contextual factors relevant to the evaluation of Motivational Interviewing. With respect to age of initiation, the findings show that cannabis use began early among a substantial proportion of participants. Half of the respondents, 50.0% (19), reported initiating cannabis use at or before the age of 12 years. A

further 31.6% (12) initiated use between the ages of 13 and 14 years, while only 18.4% (7) reported first use at age 15 years or later. These results indicate that more than four out of every five participants-initiated cannabis use before the age of 15, highlighting early adolescence as a critical period for the development of Cannabis Use Disorder within the study population.

Regarding recent use, 55.0% (22) of the participants reported no cannabis use in the 30 days preceding the study, while 35.0% (14) reported use on one to two days, and 10.0% (4) reported use on three or more days. Despite the relatively low frequency of recent use for some participants, all respondents met the diagnostic threshold for Cannabis Use Disorder, suggesting episodic or fluctuating patterns of use rather than continuous daily consumption. In relation to attempts to change behavior, a majority of the participants, 60.0% (24), reported having previously tried to stop or reduce their cannabis use, while 40.0% (16) had never made such an attempt. This finding reflects the presence of ambivalence and readiness for change among a significant proportion of adolescents, a key condition for the application of Motivational Interviewing.

Participants' perceptions of harm indicated high awareness of the risks associated with cannabis use. Most respondents, 82.5% (33), believed that cannabis is harmful to health, while 17.5% (7) either believed it was not harmful or were uncertain. This suggests that continued use among these adolescents is not primarily driven by lack of knowledge, but rather by psychosocial and contextual factors. School-related variables showed that the majority of participants, 80.0% (32), reported attending school regularly, whereas 20.0% (8) attended occasionally or rarely. Despite relatively high school attendance, 17.5% (7) reported that cannabis use had negatively affected their school performance, and a further 22.5% (9) were uncertain about its impact. These findings indicate that cannabis use may compromise academic functioning even among students who maintain regular school attendance.

Chi-Square Differences between the Experimental and Control Groups

To ascertain whether there were significant differences between the experimental and control groups, a Chi square was run and results presented in table 4.

Table 4: Chi-Square Values for Sociodemographic Characteristics between Experimental and Control Groups (N = 80)

Sociodemographic Variable	χ^2 Value	df	p-value	Significant ($p < 0.05$)
Age category	0.000	4	1.000	No
Sex	0.000	2	1.000	No
Class/Form	0.000	3	1.000	No
Religion	0.000	1	1.000	No
Living arrangement	0.000	3	1.000	No

Table 4 presents the results of the Chi-square tests conducted to examine whether there were statistically significant differences in sociodemographic characteristics between the experimental and control groups at baseline. The analysis was performed to establish group comparability prior to the implementation of the Motivational Interviewing intervention. The results indicate that there was no statistically significant difference in age distribution between the experimental and control groups, $\chi^2(4) = 0.000$, $p = 1.000$. This suggests that participants in both groups were similarly distributed across the age categories, confirming age equivalence at baseline.

Similarly, no significant difference was observed in sex distribution between the two groups, $\chi^2(2) = 0.000$, $p = 1.000$. This finding indicates that male, female, and other participants were proportionately represented in both the experimental and control groups.

Analysis of class or form level also revealed no statistically significant difference between the groups, $\chi^2(3) = 0.000$, $p = 1.000$, demonstrating that participants from different secondary school class levels were evenly distributed across the two groups. Further, religious affiliation did not differ significantly between the experimental and control groups, $\chi^2(1) = 0.000$, $p = 1.000$. Likewise, living arrangement showed no statistically significant difference, $\chi^2(3) = 0.000$, $p = 1.000$, indicating comparable family living contexts among participants.

Prevalence of Cannabis Use Disorder among Students in Secondary Schools

To achieve this objective, a total of 420 students from the two selected schools were screened using the Cannabis Use Disorder Identification Test–Revised. The findings revealed that out of the 420 students who were screened, 80 met the diagnostic criteria for Cannabis Use Disorder. This represents a prevalence rate of 19.0% within the screened school population. In other words, nearly one in every five students screened exhibited clinically significant symptoms consistent with Cannabis Use Disorder.

$$\text{Prevalence} = \frac{\text{Number of Participants with CUD}}{\text{Number of Participants Screened}} \times 100$$

$$\text{Prevalence} = \frac{80}{420} \times 100$$

$$= 19\%$$

This prevalence indicates that cannabis-related problems are relatively common among adolescents in the selected public secondary schools. The proportion observed suggests that cannabis use has progressed beyond experimental or occasional use for a substantial segment of learners, reaching levels associated with impaired control, functional difficulties, and psychological risk. The results further justify the need for targeted school-based interventions, such as Motivational Interviewing, to address Cannabis Use Disorder among adolescents within the Nairobi County context.

DISCUSSION

The results from the baseline assessments revealed a strikingly high proportion of adolescents in both the experimental and control groups who scored at or above the CUDIT-R cutoff score of 8, indicating probable Cannabis Use Disorder. The mean CUDIT-R scores at baseline 15.09 for the experimental group and 15.45 for the control group further confirmed that a significant number of students were experiencing clinically relevant cannabis-related issues.

This finding aligns with previous research conducted by Odhiambo et al. (2026), which highlighted the growing prevalence of cannabis use among secondary school students in urban Kenyan settings. Their study reported that cannabis use among adolescents has not only become widespread but is also increasingly associated with problematic and dependency-related patterns of use. The current study's findings also echo the National Authority for the Campaign Against Alcohol and Drug Abuse (NACADA, 2017) report, which identified cannabis as one of the most commonly abused substances among Kenyan adolescents. According to the NACADA report, a

significant proportion of these young people demonstrate symptoms consistent with Cannabis Use Disorder, underlining the urgent need for targeted interventions within this population.

On a broader scale, the findings of this study resonate with global trends in cannabis use among adolescents. The United Nations Office on Drugs and Crime (UNODC, 2021) consistently reports cannabis as the most widely used illicit substance among adolescents worldwide, with early initiation linked to an increased risk of developing dependence. In their comprehensive review, Hall and Degenhardt (2009) found that approximately 9-17% of adolescent cannabis users will develop dependence, particularly when use begins at an early age and occurs frequently. This global perspective helps contextualize the significant prevalence found in Nairobi County, illustrating that the problem of adolescent cannabis use is not only localized but also part of a broader global trend.

From a clinical psychology perspective, the high prevalence of Cannabis Use Disorder among adolescents in this study can be better understood through the lens of Social Learning Theory and Problem Behavior Theory, both of which were discussed in Chapter Two. Albert Bandura's Social Learning Theory (1977) emphasizes the role of observational learning, where adolescents often model their behaviors based on the actions and influences of peers, family members, and significant others. In urban environments like Nairobi County, peer groups often serve as a powerful source of influence, and the normalization of cannabis use within these social circles can inadvertently reinforce not only experimentation with the substance but also its continued use. The process of modeling and imitating behaviors observed in peers can create a social acceptance of cannabis use, making it appear less risky or harmful, even when it leads to dependence.

Furthermore, Jessor's Problem Behavior Theory (1991) provides an insightful framework for understanding substance use within a broader context. According to Jessor, substance use among adolescents is rarely an isolated behavior; rather, it occurs as part of a cluster of risky behaviors that adolescents engage in. These behaviors are influenced by a combination of environmental stressors, peer influences, and the lack of protective factors. In this study, the high prevalence of Cannabis Use Disorder may be attributed not only to individual vulnerabilities but also to the contextual influences surrounding adolescents. In urban settings, adolescents often experience a variety of stressors such as academic pressures, familial challenges, and exposure to drug-related norms in their communities. These stressors, combined with peer pressure and the availability of cannabis, create an environment that fosters and perpetuates risky behaviors, including the initiation and continuation of cannabis use.

CONCLUSION

The current study aimed to assess the prevalence of Cannabis Use Disorder (CUD) among adolescents attending selected public secondary schools in Nairobi County, Kenya, and to evaluate the efficacy of Motivational Interviewing (MI) as an intervention to reduce cannabis use. The findings reveal a high prevalence of CUD among the adolescents in the study, with a significant proportion of students showing clinically relevant levels of cannabis use, as indicated by their scores on the Cannabis Use Disorder Identification Test-Revised (CUDIT-R). These results align with both national and global trends, emphasizing the growing issue of cannabis use among adolescents and the associated risks of dependency and psychological impairment.

The study also highlighted the substantial impact of peer influence and environmental factors on cannabis use, reinforcing the theoretical frameworks of Social Learning Theory and Problem Behavior Theory. Adolescents in urban environments, like those in Nairobi County, are particularly

vulnerable to these influences, which contribute to the initiation and continuation of cannabis use. The findings suggest that peer normalization of cannabis use and the lack of protective factors play a significant role in the prevalence of CUD in this demographic.

This study contributes to the growing body of knowledge on adolescent substance use, particularly cannabis, and underscores the need for targeted prevention and intervention strategies. By addressing the psychosocial and environmental factors contributing to cannabis use, and leveraging effective interventions like Motivational Interviewing, we can help reduce the prevalence of Cannabis Use Disorder and support the healthy development of adolescents in Nairobi County and beyond.

RECOMMENDATIONS

Based on the findings of this study, several recommendations can be made for policy and practice to address the rising prevalence of Cannabis Use Disorder (CUD) among adolescents in Nairobi County, and other similar urban settings. First, there is an urgent need to strengthen school-based prevention programs that specifically target the risks associated with cannabis use. Adolescents spend a significant amount of time in schools, making these environments a crucial setting for interventions. Implementing comprehensive substance use education programs in secondary schools would help raise awareness about the dangers of early cannabis use and the potential risks of dependence. These programs should be interactive, providing students with accurate information on the psychological, social, and academic consequences of cannabis use. Additionally, these programs should be designed to enhance resistance skills, equipping students with the tools to say no to peer pressure and make informed choices. School-based programs have the potential to create a significant impact, especially if they focus on peer influence and provide students with strategies for coping with social and environmental pressures.

Another critical recommendation is to provide training and capacity building for school counselors. Counselors are uniquely positioned to support students dealing with substance use issues, but they need appropriate tools and training to effectively assist students in managing these challenges. Providing school counselors with training in Motivational Interviewing (MI) and other evidence-based therapeutic techniques will allow them to address cannabis use in a non-confrontational, client-centered manner. MI, in particular, has shown promise in fostering motivation for behavior change among adolescents, and equipping counselors with these skills can help prevent the escalation of cannabis use among students. In addition to MI training, counselors should be trained in early identification of students at risk of developing CUD and other related mental health issues, allowing for timely intervention.

Peer-led interventions can also be an effective strategy in addressing cannabis use. Peer-led initiatives provide an opportunity for adolescents to educate their peers about the risks of cannabis use, as well as to share personal experiences and success stories. Research shows that peer influence plays a significant role in adolescent behavior, and peer-led programs can make the message of prevention more relatable. Schools should encourage the creation of peer support groups or peer mentorship programs that empower students to take an active role in educating their peers about the dangers of cannabis use. These initiatives would not only help reduce cannabis use but also foster a sense of responsibility among students to support one another in making healthy choices.

Community awareness is another vital component in addressing adolescent cannabis use. While schools play a central role, family and community support are just as critical in preventing cannabis

use. Many adolescents are influenced by the norms and behaviors of their families and communities. Therefore, community-wide awareness campaigns should be launched to educate families, community leaders, and the broader public about the increasing prevalence of cannabis use and its potential consequences. These campaigns should emphasize the role of the community in creating a protective environment that discourages substance use and promotes healthy lifestyle choices. Local leaders, religious institutions, and community organizations can play a vital role in disseminating information and providing resources to families struggling with adolescent substance use issues.

Additionally, there is a need for policy development to support early intervention and enhance access to mental health and substance abuse treatment services for adolescents. This study highlights the importance of early identification and intervention, especially as early cannabis use is linked to an increased risk of dependency. Policy-makers should focus on integrating mental health services and substance use treatment programs into the broader educational and healthcare systems. These services should be easily accessible to adolescents and should focus not only on treatment but also on prevention. The Ministry of Health and the Ministry of Education should collaborate to ensure that substance abuse counseling is available in schools, and that there are clear referral pathways for students who need more intensive treatment.

The integration of Motivational Interviewing (MI) into treatment programs for adolescents. MI is an effective intervention for fostering motivation and encouraging behavior change, and it can be particularly beneficial for adolescents who may be ambivalent about changing their cannabis use. It is important to recognize that MI is not just about addressing cannabis use directly, but also about supporting adolescents in navigating the emotional and psychological barriers to change, such as anxiety, depression, and stress. Counselors trained in MI can provide a non-judgmental, empathetic environment where adolescents feel safe to explore their thoughts and motivations regarding cannabis use.

Lastly, future research should focus on longitudinal studies that track adolescents over time to assess the long-term effects of cannabis use and the effectiveness of different interventions. While this study provides important cross-sectional data, long-term follow-up studies would help in understanding the sustained impact of cannabis use on adolescent mental health and behavior. Such studies could also help identify the key factors that predict whether an adolescent will develop dependence, and whether interventions like MI are effective in the long term. Randomized controlled trials (RCTs) comparing the effectiveness of different interventions across diverse populations would also contribute to building a more robust evidence base for substance use interventions.

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