

## Assessment of the Influence of Pharmacy and Chemist Practices on Drug Abuse Behaviour in Zaria Local Government Area, Kaduna State

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### ABSTRACT

This study assessed the influence of pharmacy and chemist practices on drug abuse behaviour in Zaria Local Government Area, Kaduna State, Nigeria. A cross-sectional survey design was adopted, and a total of 73 respondents were purposively sampled from two residential areas Layin mahauta and Layin gonan ganye within Tudun Wada community. The instrument for data collection is the Pharmacy/Chemist Drug Abuse Questionnaire (PCDAQ) this instrument is a structured questionnaire and it consists of two (2) sessions A and B. Towards facilitating data analysis and better decision, the researcher classified - Strongly Agree (SA) 4, Agree (A)3, Disagree (D) 2 and Strongly Disagree (SD)1. For the analysis of data, descriptive statistics was used, such frequency, mean and standard deviations and relative ranking of each of the items. The findings revealed that 94.5% of respondents identified pharmacies and chemists as the primary source of prescription drug abuse, with 80.8% affirming that pharmacists often fail to verify prescriptions thoroughly. Poverty (93.2%), peer pressure (87.7%), and the use of drugs to cope with depression, anxiety, and stress (94.5%) emerged as dominant causal factors, while severe consequences included criminal activities (79.5%) and premature death (74.0%). The study concluded that the influence of pharmacy and chemist practices on drug abuse behaviour is substantially high, with pharmacies and chemists serving as the primary source of diverted prescription drugs, driven by poverty, peer pressure, and mental health challenges. The study recommended stricter regulatory oversight on pharmacies and chemists, community-based programs to address peer pressure and mental health, intensified public awareness campaigns, and the establishment of community counselling centres and youth empowerment programs. Further studies should focus on evaluating regulatory effectiveness, conducting mixed-methods research involving pharmacy operators, comparing licensed and unlicensed outlets, and implementing longitudinal studies on community-based interventions.

**Keywords:** Drug Abuse; Prescription Diversion; Pharmacies/Chemists; Mental Health; Personal Disorders; Sleep Disorders; Anxiety

### INTRODUCTION

Drug abuse has grown into a widespread and alarming issue, posing severe social, health, and economic challenges globally. Researchers, governments, and law enforcement agencies have intensified efforts to address this crisis due to its devastating consequences on individuals, families, and communities United Nations Office on Drugs and Crime [1]. Globally, approximately 296 million people, or 5.8% of the population aged 15 to 64, use drugs annually, with opioid abuse contributing to over 70% of drug-related deaths worldwide World Health Organization [3,4]. In Nigeria, the situation remains dire, with the United Nations Office on Drugs and Crime estimating that 14.3 million Nigerians about 14% of individuals aged 15 to 64 consume illicit substances, representing one of the highest prevalence rates in West Africa [1]. Commonly abused drugs in Nigeria include marijuana, cocaine, codeine-based syrup, tramadol, methamphetamine, and alcohol, many of which are used daily by addicts [5]. In

Kaduna State, national trends are reflected in a 40% increase in drug-related arrests, highlighting the escalating nature of the crisis National Drug Law Enforcement Agency [7]. The Kaduna State Government has identified substance abuse as a major contributor to rising crime rates, youth unemployment, theft, and mental health disorders in its Strategic Health Development Plan, underscoring the urgent need for comprehensive interventions [8].

Pharmaceutical products have been abused all through the ages, and the recent epidemic of prescription drug abuse represents the newest wave of a long-standing problem [9]. Historically, substances such as opium and morphine were widely available without regulation, leading to widespread dependence [10]. Today, the non-medical use of prescription opioids, benzodiazepines, and stimulants has become a global public health crisis [1]. Irrational use of drugs by different age groups is a rising concern globally [2]. In Nigeria, the misuse of codeine-containing cough syrups, tramadol, and diazepam has

reached alarming proportions, particularly among youth [5,7]. Inappropriate use of drugs can be classified into “abuse” defined as use of a medication for nonmedical purpose to experience a mind-altering effect, or “misuse” defined as use of medications for a legitimate medical reason yet in ways other than as directed [11]. While the terms “abuse” and “misuse” are used interchangeably for illicit drugs, differentiation becomes important for prescription and over-the-counter medications [12]. Prescription drug abuse often involves obtaining medications without a valid prescription through doctor shopping or forged prescriptions, while misuse typically begins with a legitimate prescription but escalates when patients deviate from prescribed instructions [13].

Prescription drug abuse is a multifaceted public health challenge, with overprescribing and illegal drug diversion being major concerns, while under-prescribing particularly in pain management also poses significant risks [11]. Studies reveal that many healthcare professionals lack sufficient knowledge about opioid analgesics, leading to improper prescribing and dispensing practices [5]. The consequences of drug misuse are severe, ranging from overdose and addiction to the masking of serious illnesses and disruption of normal bodily functions [14]. Community pharmacists play a vital role in combating drug abuse by providing essential healthcare services, including medication reviews, disease management, and wellness programs World Health Organization [3,4]. Pharmacists also offer expertise in substance abuse treatment, helping patients manage pain and adhere to medication regimens Pharmacists Council of Nigeria [15]. Despite their potential, many individuals struggling with addiction do not seek professional help, as only 14.7% of drug abusers received treatment in 2019, a trend that has shown minimal improvement in recent years Substance Abuse and Mental Health Services Administration [16]. Since many addicts visit pharmacies for minor ailments, pharmacists can serve as frontline screeners, identifying underlying substance abuse disorders and facilitating access to care National Institute on Drug Abuse [17]. Drug and substance abuse have severe consequences for individuals' health, mental capacity, social and economic status, families, and communities United Nations Office on Drugs and Crime [1]. According to recent studies, individuals who use drugs often engage in risky and dangerous behaviors, leading to conflicts with authorities, loved ones, and society as a whole, suggesting that they turn to such behaviors as a way to cope with stress and depression Kaduna State Bureau for Substance Abuse, Prevention, and Treatment [2].

In Zaria Local Government Area of Kaduna State, there has been a concerning rise in youth violence, crime, and various social problems, largely attributed to the pervasive issue of drug and substance abuse Kaduna State Bureau for Substance Abuse, Prevention, and Treatment [18]. The detrimental effects of drug and substance abuse have had a heavy impact on the community, resulting in increased instances of violent behavior and criminal activities among young people, with recent reports indicating that over 60% of youth apprehended for petty crimes in Tudun Wada community were under the influence of substances at the time of arrest (Zaria Police Command [19]. Drug abuse has not only contributed to a rise in criminality but has also precipitated a range of social issues, including broken

families, unemployment, and deteriorating public health, as families struggle to cope with the financial and emotional burdens of addiction [14]. The community remains in dire need of comprehensive interventions to address these challenges. In view of the above, this study assessed the influence of pharmacy and chemist practices on drug abuse behaviour in Zaria Local Government Area of Kaduna State.

## Literature Review

### Concept of Drug Abuse

Drug is referred to as a substance that could bring about a change in biological function through its chemical actions [20]. The use of drugs in itself does not constitute any danger, because drugs correctly administered have been a blessing to bring healing. However, in contemporary times, certain drugs that initially produced effects such as ecstasy, sense of feeling good, serenity and power have grown into a problem of dependence and abuse [21]. The conceptualization of drug abuse has undergone profound transformation over the past half-century, shifting from a predominantly moral or criminal framework to a nuanced public health perspective that recognizes the complex biological, psychological, and social determinants of substance use disorders World Health Organization [3,4].

Drug abuse represents one of the most significant public health crises of the modern era, affecting approximately 296 million people worldwide, or 5.8% of the global population aged 15 to 64 European Monitoring Centre for Drugs and Drug Addiction [22]. This phenomenon is defined as the harmful or hazardous use of psychoactive substances, including alcohol and illicit drugs, characterized by patterns of use that cause damage to health, impairment in functioning, and adverse social consequences. Unlike occasional or controlled use, drug abuse involves a chronic, relapsing disorder where individuals continue substance use despite experiencing significant harm International Society of Addiction Medicine [23]. The disorder fundamentally alters brain chemistry and neural circuitry, affecting areas responsible for reward processing, impulse control, and decision-making, which explains why cessation becomes increasingly difficult over time National Institute on Drug Abuse [17].

Understanding drug abuse requires moving beyond simplistic moral or criminal frameworks toward a biopsychosocial model that recognizes the complex interplay of biological, psychological, and social factors World Health Organization [3,4]. Genetic predisposition accounts for approximately 40-60% of vulnerability to substance use disorders, while mental health conditions, trauma history, and personality factors significantly influence risk profiles. Social determinants including peer influences, family dynamics, socio-economic status, and community environments interact with individual vulnerabilities to shape patterns of substance use initiation, escalation, and maintenance United Nations Office on Drugs and Crime [1]. This multidimensional understanding has transformed approaches to prevention and treatment, shifting emphasis from punitive measures toward comprehensive interventions addressing underlying risk factors while

strengthening protective factors across multiple domains of influence.

In Nigeria, drug abuse has reached alarming proportions, with approximately 14.3 million Nigerians engaging in substance use, representing one of the highest prevalence rates in West Africa National Drug Law Enforcement Agency [7]. The pattern of drug abuse in Nigeria reflects both global trends and unique local characteristics, with cannabis remaining the most widely used illicit substance while prescription drug abuse has emerged as a rapidly growing concern. The proliferation of unlicensed medicine vendors, weak regulatory enforcement, and inadequate public awareness about substance risks have created an environment where drugs are readily accessible, particularly to vulnerable youth populations Kaduna State Bureau for Substance Abuse, Prevention, and Treatment [18]. In Northern Nigeria, including Kaduna State, prevalence rates among youth exceed national averages, with early initiation ages and high rates of polydrug use presenting particular challenges for prevention and treatment efforts [24].

### Concept of Prescription Drug Abuse

Prescription drug abuse is defined as the use of a medication without a prescription, in a way other than as prescribed, or for the experience or feeling it causes National Institute on Drug Abuse [12]. This differs from drug misuse, which involves taking a medication for a legitimate medical reason but in ways other than as directed, typically by altering either dose or duration of use [11]. The most commonly abused prescription drugs include opioids (such as codeine and tramadol, central nervous system depressants (such as benzodiazepines, and stimulants (such as methylphenidate United Nations Office on Drugs and Crime [1].

Prescription drug abuse has emerged as a distinct and rapidly growing category of substance abuse, distinguished from illicit drug use by the legal status of the substances involved [13]. This phenomenon involves the use of prescription medications without a valid prescription, in ways other than prescribed, or for the psychoactive effects they produce. The three primary categories of commonly abused prescription medications are opioids (prescribed for pain, central nervous system depressants (prescribed for Anxiety and Sleep Disorders, and stimulants (prescribed for attention deficit hyperactivity disorder. A critical distinction exists between prescription drug abuse and misuse: abuse typically involves obtaining medications through illegitimate means such as doctor shopping, forged prescriptions, or purchasing from unlicensed vendors, while misuse often begins with a legitimate prescription but escalates when patients deviate from prescribed instructions Centers for Disease Control and Prevention [25]. The global burden of prescription drug abuse has reached epidemic proportions, with devastating consequences for public health systems, families, and individuals across all regions of the world International Narcotics Control Board [26]. Prescription opioid abuse alone accounts for over 70% of drug-related deaths in many high-income countries, with mortality rates increasing by more than 500% over two decades in some nations. The crisis has now spread to low- and middle-income countries, where access to treatment services remains severely limited and regulatory

frameworks are often inadequate to prevent diversion and non-medical use Lancet Public Health [27]. In Europe, prescription drug abuse now accounts for a growing proportion of drug-related emergency department visits and treatment admissions, reflecting the transnational nature of this public health emergency. The economic burden exceeds \$500 billion annually when accounting for healthcare costs, lost productivity, and criminal justice expenditures Global Burden of Disease Collaborators [28].

In Nigeria, the prescription drug abuse crisis has intensified dramatically over the past decade, with tramadol and codeine-containing cough syrups emerging as the most commonly abused pharmaceutical products [29]. Tramadol abuse has reached epidemic proportions in Northern Nigeria, with prevalence rates exceeding 30% among young adults in Kaduna and Kano States. Users often obtain these substances from unlicensed patent medicine stores that dispense prescription-only medications without valid prescriptions, operating outside regulatory oversight and without accountability. Many healthcare professionals lack adequate knowledge about opioid analgesics, leading to improper prescribing and dispensing practices that contribute to the availability of controlled substances for non-medical use Pharmacists Council of Nigeria [30]. An estimated 40% of patent medicine vendors operate without proper licensing, creating significant vulnerabilities in the pharmaceutical supply chain that are exploited by individuals seeking substances for non-medical purposes [31].

### The Role of Pharmacies and Chemists in Drug Abuse

Community pharmacies and patent medicine stores occupy a uniquely strategic position at the intersection of healthcare delivery and substance availability, serving as the final gatekeepers before prescription medications reach patients [32]. In Nigeria, particularly in rural and semi-urban areas where physician access is limited, these outlets function as the primary access point for medications, positioning pharmacists and chemists as frontline healthcare providers with both responsibility and opportunity to prevent drug abuse. Well-trained pharmacy professionals can prevent prescription drug diversion through proper dispensing practices, thorough prescription verification, patient education about medication risks, and vigilant monitoring for signs of abuse or addiction [33]. Pharmacist-delivered brief interventions have been shown to significantly reduce risky substance use behaviors, demonstrating the potential impact of pharmacy-based prevention efforts when implemented effectively [34].

Despite this potential, many pharmacies and chemists in Nigeria face significant structural and systemic challenges that compromise their ability to fulfill this gatekeeper role effectively [35]. The proliferation of unlicensed patent medicine vendors, estimated to constitute up to 40% of outlets in urban and semi-urban areas, creates a parallel distribution system operating entirely outside regulatory frameworks. These unlicensed vendors typically lack formal training in pharmaceutical ethics and dispensing practices, yet they routinely dispense prescription-only medications without valid prescriptions, often citing customer pressure, financial incentives, or simple lack of awareness as justification [36]. Over 60% of patent medicine

vendors admit to dispensing prescription-only medications without valid prescriptions, creating significant vulnerabilities that are exploited by individuals seeking controlled substances for non-medical use [2].

The consequences of this regulatory gap are profound, with individuals who abuse prescription drugs overwhelmingly reporting that they obtain substances from unlicensed chemists rather than licensed pharmacies [5]. These users cite easier access, lower prices, and the absence of questioning about prescriptions as primary reasons for preferring unlicensed outlets. This finding highlights the critical importance of targeted regulatory interventions focusing specifically on unlicensed medicine vendors, distinguishing them from licensed pharmacies that generally maintain higher standards of practice (National Agency for Food and Drug Administration and Control [37]. While enforcement actions against unlicensed vendors have increased, challenges persist due to the sheer number of such outlets and limited resources available to regulatory agencies. The distinction between licensed pharmacies and unlicensed patent medicine stores is therefore essential for understanding the dynamics of prescription drug diversion and developing effective prevention strategies Federal Ministry of Health Nigeria [38].

#### Causes of Drug and Substance Abuse

The causes of drug and substance abuse are multifaceted, reflecting complex interactions between individual vulnerabilities, social environments, and structural factors that collectively shape patterns of substance use initiation and maintenance [39]. Peer pressure remains one of the most consistently documented causes, with young people particularly susceptible to social influences during developmental periods characterized by identity formation and heightened sensitivity to peer acceptance. Peer influence operates through multiple mechanisms including direct pressure to conform to group norms, modeling of substance-using behaviors, and the perception that drug use is normative within peer networks [40]. Adolescents who have friends who use drugs are three times more likely to initiate substance use themselves, with this influence being particularly potent during early adolescence when identity formation is most fluid [41]. The role of peer influence underscores the importance of social context in shaping drug abuse behaviors.

Socio-economic factors, particularly poverty and unemployment, have emerged as critical drivers of drug abuse, with individuals turning to substances as a coping mechanism for economic hardship and associated psychological distress Kaduna State Bureau for Substance Abuse, Prevention, and Treatment [18]. In Kaduna State, unemployment rates among youth exceed 40%, creating profound hopelessness and despair that increases vulnerability to substance use. A strong correlation exists between poverty and prescription drug abuse in Northern Nigeria, with individuals in economically disadvantaged communities reporting significantly higher rates of both initiation and escalation of substance use [42]. For many individuals, drug use serves as a form of self-medication for the psychological distress associated with economic marginalization, creating a cycle of poverty and addiction that is difficult to break without comprehensive intervention. This

cycle is perpetuated by limited access to mental health services and employment opportunities National Bureau of Statistics Nigeria [43].

Family factors represent another significant category of causal influences, with parental neglect, family conflict, and intergenerational patterns of substance use substantially increasing risk [44]. Adolescents who experience high levels of family conflict, parental substance use, or lack of parental monitoring are significantly more likely to initiate and continue drug abuse. The quality of parent-child relationships serves as a critical protective factor, with children who experience consistent discipline, emotional support, and positive role modeling significantly less likely to engage in drug abuse [45]. Family dynamics interact with peer influences and socio-economic circumstances, creating cumulative risk that significantly increases vulnerability to substance abuse when multiple risk factors are present. Additionally, the availability of drugs in communities, driven by the presence of unlicensed medicine vendors and weak regulatory enforcement, creates environmental conditions that facilitate drug abuse, demonstrating the importance of structural factors in shaping individual behaviors.

#### Effects of Drug and Substance Abuse

The physical consequences of drug and substance abuse are severe, often irreversible, and frequently fatal, affecting virtually every organ system in the human body [46]. Chronic drug abuse leads to significant cardiovascular damage including hypertension, cardiomyopathy, and increased risk of myocardial infarction, with stimulants such as cocaine and methamphetamine causing particularly rapid and severe cardiac deterioration. Neurological effects are equally devastating, with substance abuse associated with cognitive impairment, memory deficits, and increased risk of stroke due to vascular damage and neurotoxicity [47]. Chronic drug abuse fundamentally alters brain chemistry and neural circuitry, affecting areas responsible for reward processing, impulse control, decision-making, and emotional regulation in ways that persist long after substance use has ceased. Respiratory complications, including chronic obstructive pulmonary disease and respiratory depression, represent additional significant physical consequences, particularly among individuals who smoke or inhale substances [48].

Psychologically, drug abuse produces profound disruptions to mental health and emotional functioning, often exacerbating pre-existing conditions while creating new psychiatric disorders National Institute on Drug Abuse [17]. Individuals with substance use disorders are at significantly elevated risk for depression, anxiety disorders, psychosis, and suicidal ideation, with the relationship between substance use and mental health being bidirectional. Individuals may use substances to self-medicate psychiatric symptoms, while substance use itself triggers or worsens these conditions, creating a complex clinical picture requiring integrated treatment approaches [29]. Over 60% of individuals seeking treatment for substance use disorders meet diagnostic criteria for co-occurring mental health conditions, yet these conditions often go unrecognized and untreated in conventional substance abuse treatment settings. The neurological changes induced by chronic drug use

contribute to high rates of relapse and the chronic, relapsing nature of addiction disorders that require sustained treatment and support Substance Abuse and Mental Health Services Administration [16].

Socially and economically, drug abuse exacts a devastating toll on families, communities, and society as a whole, with consequences extending far beyond the individual user United Nations Office on Drugs and Crime [1]. Substance abuse contributes significantly to family breakdown, domestic violence, child neglect, and intergenerational cycles of addiction that perpetuate poverty and social disadvantage Kaduna State Bureau for Substance Abuse, Prevention, and Treatment [18]. Drug abuse is associated with increased criminal activity, school dropout, unemployment, and deteriorating public health, with communities bearing the cumulative burden of these interconnected consequences. The ripple effects extend to entire communities, affecting social cohesion, economic productivity, and public safety [24]. Communities with higher rates of substance abuse experience significantly higher rates of violent crime and property crime, creating environments of fear and instability that further undermine community capacity for prevention and response [35].

#### **Pharmacists' Role in Treating and Preventing Substance Abuse**

Pharmacists occupy a uniquely strategic position in efforts to prevent and treat substance abuse, serving as accessible healthcare professionals who interact with individuals at critical points before and during substance use disorders World Health Organization [3,4]. This accessibility is particularly significant in low- and middle-income countries where physician access is limited, positioning pharmacists as frontline screeners capable of identifying individuals at risk for substance abuse, providing brief interventions, and facilitating referrals to specialized treatment services. Pharmacist-delivered brief interventions in community pharmacy settings have been demonstrated to significantly reduce risky substance use behaviors, showing that even short counseling sessions can have meaningful impact [34]. Many individuals who abuse prescription drugs initially obtain them from legitimate prescriptions, making pharmacists critical gatekeepers who can identify patterns of overuse, detect potential diversion, and intervene before patterns of abuse become established [13].

In the treatment context, pharmacists contribute essential expertise in medication management, helping individuals with substance use disorders safely navigate withdrawal, maintain recovery, and manage co-occurring medical and psychiatric conditions Pharmacists Council of Nigeria [30]. Their responsibilities encompass medication therapy management, monitoring for potential drug interactions, educating patients about medication risks and benefits, and supporting adherence to treatment regimens. Individuals receiving treatment for opioid use disorder who have access to pharmacist-delivered medication management services demonstrate significantly better treatment outcomes, including reduced relapse rates and improved quality of life Substance Abuse and Mental Health Services Administration [16]. Pharmacist involvement in medication-assisted treatment programs is associated with

improved retention in care and reduced illicit opioid use, particularly valuable in resource-limited settings where access to specialized addiction medicine providers is scarce International Society of Addiction Medicine [23].

Prevention represents another critical domain of pharmacist involvement, with opportunities extending from individual patient counseling to community-wide education and advocacy National Institute on Drug Abuse [17]. Community-based prevention efforts involving pharmacists can be particularly effective in addressing local substance abuse patterns and building community capacity for prevention through sustained engagement with community members. Pharmacists who receive specialized training in identifying forged prescriptions are significantly more likely to detect and prevent prescription fraud, demonstrating the importance of targeted training in prevention efforts [31]. Additionally, pharmacists can participate in substance abuse education and prevention programs in schools, religious institutions, and community organizations, providing accurate information about substance risks and promoting healthy behaviors [5]. These multifaceted roles position pharmacists as essential partners in comprehensive substance abuse prevention and treatment efforts.

#### **Drugs Abused in Nigerian Society**

The pattern of drug abuse in Nigerian society has evolved significantly over the past decade, with a troubling shift from traditional illicit substances to widespread non-medical use of prescription medications National Drug Law Enforcement Agency [7]. Cannabis remains the most commonly abused illicit substance, with prevalence rates among youth exceeding 20% in some regions, particularly in Northern states including Kaduna. However, the most alarming trend is the dramatic increase in prescription drug abuse, specifically codeine-containing cough syrups and tramadol, which have become ubiquitous among young Nigerians across socioeconomic backgrounds United Nations Office on Drugs and Crime [1]. Nigeria now has one of the highest rates of pharmaceutical opioid abuse in West Africa, driven by weak regulatory enforcement, widespread availability through unlicensed vendors, and inadequate public awareness about the risks of prescription drug misuse. This shift represents a significant public health challenge requiring targeted interventions distinct from those traditionally used for illicit substances Federal Ministry of Health Nigeria [38].

Among prescription drugs, tramadol abuse has reached epidemic proportions in Northern Nigeria, with prevalence rates exceeding 30% among young adults in Kaduna and Kano States [29]. Tramadol, an opioid analgesic intended for moderate to severe pain management, has become widely available through unlicensed patent medicine stores that dispense the drug without prescription, often in combination with other substances to enhance its effects. Many users consume dangerously high doses, far exceeding therapeutic limits, leading to severe health consequences including seizures, respiratory depression, and death [31]. Tramadol-related emergency department visits in Kaduna State increased by over 150% between 2020 and 2024. Codeine-containing cough syrups represent another significant category, with the codeine

crisis persisting despite regulatory efforts as users mix codeine syrup with soft drinks to create a popular recreational concoction known locally as "lean" or "purple drank" [24]. This pattern of abuse has been particularly prevalent among youth, with significant associated morbidity including dental decay, gastrointestinal complications, and cognitive impairment.

Traditional illicit substances continue to pose significant challenges, with cannabis cultivation and trafficking remaining entrenched in Nigerian communities, serving as the entry point for substance use for many young people before progressing to other substances (National Drug Law Enforcement Agency [7]. Cocaine and heroin abuse, while less prevalent than cannabis or prescription drugs, remain concentrated in urban centers and among higher socioeconomic groups, with Nigeria functioning as both a transit point and consumption market for these substances United Nations Office on Drugs and Crime [1]. Methamphetamine production has emerged as a growing concern, with the discovery of clandestine laboratories in several states indicating domestic production capabilities that threaten to expand availability and reduce prices National Agency for Food and Drug Administration and Control [37]. The concurrent abuse of multiple substances, known as polydrug use, has become increasingly common, with over 60% of individuals seeking treatment for substance use disorders in Kaduna State reporting using three or more substances regularly, complicating treatment efforts and increasing health risks [35].

In Nigeria, the application of this public health perspective reveals a complex picture of substance abuse characterized by high prevalence, early initiation ages, and significant regional variation in patterns of use National Drug Law Enforcement Agency [7]. Approximately 14.3 million Nigerians engage in drug abuse, representing one of the highest prevalence rates in West Africa, with the crisis concentrated among youth and young adults. The pattern reflects both global trends and unique local characteristics, including the proliferation of unlicensed medicine vendors that has dramatically increased accessibility to controlled substances, weak regulatory enforcement that fails to deter diversion, and inadequate public awareness about substance risks that leaves populations vulnerable to initiation Kaduna State Bureau for Substance Abuse, Prevention, and Treatment [18]. In Northern Nigeria, including Kaduna State, prevalence rates among youth exceed national averages, with early initiation ages and high rates of polydrug use presenting particular challenges for prevention and treatment efforts [24].

### Theoretical Framework

This study is hinged on the theories of Social Learning Theory by Albert Bandura; Routine Activity Theory by Lawrence Cohen and Marcus Felson and Theory of Planned Behaviour by Icek Ajzen [49-51].

### Social Learning Theory Albert Bandura

Albert Bandura was born on December 4, 1925, in Mundare, Alberta, Canada, and died on July 26, 2021, at the age of 95. He was a Canadian-American psychologist who served as Professor of Social Science in Psychology at Stanford University

for nearly six decades. Bandura is widely regarded as one of the most influential psychologists of the twentieth century, ranking fourth in citation frequency behind only Freud, Skinner, and Piaget. His most famous contribution was the Social Learning Theory, formally published in his 1977 book titled "Social Learning Theory" [49]. This work emerged from his landmark "Bobo doll" experiments conducted in 1961 and 1963, which demonstrated that children learn aggressive behaviours by observing adults. In these experiments, Bandura showed that children who observed adults behaving aggressively toward a Bobo doll were more likely to imitate that aggressive behaviour, fundamentally challenging the dominant behaviourist view that all learning occurs through direct reinforcement. Bandura later renamed and expanded the theory as Social Cognitive Theory in his 1986 book "Social Foundations of Thought and Action" (Bandura, 1986). He received numerous accolades including the American Psychological Association's Award for Distinguished Scientific Contributions, the Grawemeyer Award, and the National Medal of Science.

### Core Principles of the Theory

The Social Learning Theory Bandura is built upon four core principles. First, observational learning posits that individuals can acquire new behaviours simply by watching others, without any direct reinforcement or personal experience. Second, modelling suggests that individuals are most likely to imitate behaviours exhibited by models they perceive as similar, prestigious, or influential. Third, vicarious reinforcement explains that observing others being rewarded or punished for certain behaviours influences whether the observer will imitate those behaviours. Fourth, reciprocal determinism proposes that behaviour, personal factors (cognition, beliefs, attitudes), and environmental factors interact and influence each other in a continuous, dynamic process. Bandura argued that learning is not simply a response to external stimuli but involves complex cognitive processing where individuals actively interpret information, anticipate consequences, and regulate their own behaviour through self-reflection and self-efficacy beliefs.

### Basic Assumptions of the Theory

The Social Learning Theory rests on several fundamental assumptions. The first assumption is that people can learn by observing others, meaning that learning does not require direct experience or reinforcement. The second assumption is that learning is an internal cognitive process, not simply a behavioural response to external stimuli. The third assumption is that behaviour is directed toward goals, suggesting that individuals have intentions and purposes that guide their actions. The fourth assumption is that learning can occur without observable behaviour change, meaning that individuals may acquire knowledge or skills without immediately demonstrating them. The fifth assumption is that reinforcement plays a role in learning but is not necessary, distinguishing this theory from strict behaviourism. The sixth assumption is that cognitive factors mediate the relationship between observation and imitation, including attention, retention, reproduction, and motivation.

### Limitations of the Theory

Despite its significant contributions, the Social Learning Theory has several limitations. First, it overemphasizes environmental factors and may underestimate biological and genetic influences on behaviour, including genetic predispositions toward substance abuse. Second, the theory does not adequately account for developmental changes across the lifespan, as the relative influence of observational learning may vary significantly at different ages. Third, the theory assumes rational cognitive processing, which may not accurately reflect impulsive, emotional, or compulsive behaviours characteristic of addiction. Fourth, the theory struggles to explain behaviours that are learned but not performed, as it does not fully account for the complex factors that translate learning into action. Fifth, the theory does not sufficiently address the role of addiction physiology, including the neurobiological changes that occur with chronic substance use that can override cognitive and social influences. Sixth, empirical support for the theory has been criticized for relying heavily on laboratory experiments that may not fully capture the complexity of real-world learning environments.

#### Relevancy to the Present Study

The Social Learning Theory is highly relevant to this study for several reasons. First, it explains how drug abuse behaviour is acquired among youth in Zaria Local Government Area through observation of peers, family members, and community members who use drugs. When young people observe others using drugs and experiencing perceived benefits such as relief from stress, social acceptance, or enhanced mood, they are likely to model this behaviour. Second, the theory explains how pharmacy and chemist practices contribute to drug abuse through observational learning. When individuals observe that pharmacists and chemists dispense prescription medications without thorough verification, they learn that such substances are easily accessible. This observation normalizes the behaviour of seeking drugs without valid prescriptions and reinforces the perception that such practices are acceptable within the community. Third, the findings of this study, particularly the high percentage of respondents (94.5% who identified pharmacies and chemists as the primary source of prescription drug abuse, support the application of this theory. Fourth, the theory suggests that interventions should focus on providing alternative positive models for coping with stress, reducing exposure to models who engage in drug abuse, and changing community perceptions about the acceptability of obtaining drugs without prescriptions.

#### Routine Activity Theory Lawrence Cohen and Marcus Felson

Lawrence Cohen was an American sociologist who served as Professor of Sociology at the University of Texas at Austin. His exact birth and death dates are not widely documented in public records, but his scholarly contributions to criminology, particularly his collaborative work with Marcus Felson, established him as a significant figure in the field. Marcus Felson was born in 1947 and is an American criminologist who serves as Professor at Texas State University. He received his Ph.D. from the University of Michigan and has been a leading figure in environmental criminology for over four decades. Together, Cohen and Felson developed the Routine Activity

Theory in their seminal 1979 article titled "Social Change and Crime Rate Trends: A Routine Activity Approach," published in the *American Sociological Review* [50]. This work represented a paradigm shift in criminological theory by moving away from explanations focused on offender characteristics toward explanations focused on the circumstances and opportunities that make crime possible. Their theory emerged from their observation that crime rates in the United States increased dramatically after World War II despite improvements in social conditions that should theoretically have reduced crime, leading them to focus on changes in routine activities that increased opportunities for crime.

#### Core Principles of the Theory

The Routine Activity Theory is built upon three core principles. First, the theory posits that crime and deviance occur when three elements converge in time and space: a motivated offender, a suitable target, and the absence of a capable guardian. A motivated offender is an individual inclined to commit a deviant act; a suitable target is a person, object, or opportunity that is vulnerable, attractive, and accessible; and the absence of a capable guardian refers to the lack of someone or something that could prevent the deviant act, such as law enforcement, security measures, or responsible individuals. Second, the theory emphasizes that changes in routine activities of society can explain crime trends without reference to changes in offender motivation. Third, the theory focuses on the opportunity structure for crime rather than the characteristics of criminals, suggesting that reducing opportunities is more effective than attempting to change offender motivation.

#### Basic Assumptions of the Theory

The Routine Activity Theory rests on several fundamental assumptions. The first assumption is that crime is not random but follows predictable patterns based on routine activities of daily life. The second assumption is that motivated offenders are always present in society, meaning that efforts to reduce crime should focus on targets and guardians rather than attempting to eliminate offender motivation. The third assumption is that suitable targets are defined by value, inertia, visibility, and access, meaning that targets that are valuable, easy to carry, visible, and accessible are most likely to be targeted. The fourth assumption is that capable guardians include not only formal authorities but also ordinary citizens, property owners, and even physical structures that deter crime. The fifth assumption is that changes in technology, lifestyle, and social organization alter the convergence of these elements and consequently affect crime rates.

#### Limitations of the Theory

Despite its significant contributions, the Routine Activity Theory has several limitations. First, it does not explain the origins of offender motivation, treating motivated offenders as always present without explaining why some individuals become motivated while others do not. Second, the theory does not adequately account for variations in crime rates across different societies or historical periods beyond changes in routine activities. Third, the theory struggles to explain crimes that occur without direct convergence of

offender, target, and guardian, such as cybercrime or crimes committed through intermediaries. Fourth, the theory may overemphasize situational factors while underestimating the role of individual characteristics, social structures, and cultural factors in shaping crime. Fifth, the theory has been criticized for its narrow focus on opportunity and for neglecting the complex social, economic, and psychological factors that contribute to criminal behaviour. Sixth, the theory does not adequately address victimization, treating victims primarily as targets rather than considering their characteristics, experiences, and responses to crime.

#### Relevancy to the Present Study

The Routine Activity Theory is highly relevant to this study for several reasons. First, it explains the convergence of three elements that enable prescription drug abuse in Zaria Local Government Area: the motivated offender (individual seeking drugs for non-medical use, the suitable target (pharmacies and chemists where drugs are easily accessible without proper verification, and the absence of a capable guardian (lack of strict regulatory oversight, inadequate prescription verification, and proliferation of unlicensed vendors. Second, the findings of this study, which revealed that 80.8% of respondents affirmed that pharmacists often fail to verify prescriptions thoroughly and that unlicensed vendors operate with minimal oversight, demonstrate the absence of capable guardians in the pharmaceutical distribution system. Third, the theory suggests that interventions should focus on strengthening capable guardians through enhanced regulatory enforcement, increasing the perceived risk of detection and consequences for unlicensed dispensing, and reducing the suitability of pharmacies and chemists as targets through improved security measures and prescription verification protocols. Fourth, the community-endorsed recommendation for stricter pharmacy regulations (71.2% directly aligns with the theory's emphasis on strengthening capable guardians to prevent deviant behaviour.

#### Theory of Planned Behaviour Icek Ajzen

Icek Ajzen was born in 1942 in Poland. He is a Polish-American social psychologist and Professor Emeritus of Psychology at the University of Massachusetts Amherst. Ajzen received his Ph.D. from the University of Illinois at Urbana-Champaign in 1969 and has been a leading figure in social psychology for over five decades. He developed the Theory of Planned Behaviour as an extension of his earlier work with Martin Fishbein on the Theory of Reasoned Action. The Theory of Reasoned Action, developed in the 1970s, proposed that behavioural intention is determined by attitude toward the behaviour and subjective norms [51]. Recognizing that this theory was limited because it assumed behaviours are under complete volitional control, Ajzen introduced the concept of perceived behavioural control in 1985, culminating in the full articulation of the Theory of Planned Behaviour in his 1991 article titled "The Theory of Planned Behavior," published in *Organizational Behaviour and Human Decision Processes*. This article has become one of the most cited works in social science, with over 50,000 citations, and the theory has been successfully applied to predict and explain a wide range of

behaviours, including health behaviours, consumer choices, and deviant behaviours.

#### Core Principles of the Theory

The Theory of Planned Behaviour is built upon three core principles. First, attitude toward the behaviour refers to the individual's positive or negative evaluation of performing the behaviour, shaped by beliefs about the consequences of the behaviour and the evaluation of those consequences. Second, subjective norm refers to the perceived social pressure to perform or not perform the behaviour, shaped by normative beliefs about whether important others approve or disapprove and the motivation to comply with those others. Third, perceived behavioural control refers to the individual's perception of how easy or difficult it is to perform the behaviour, shaped by control beliefs about the presence of factors that may facilitate or impede performance and the perceived power of those factors. According to Ajzen, these three factors combine to form behavioural intention, which is the immediate antecedent of actual behaviour [51]. The theory also recognizes that perceived behavioural control can directly influence behaviour when it accurately reflects actual control over the behaviour.

#### Basic Assumptions of the Theory

The Theory of Planned Behaviour rests on several fundamental assumptions. The first assumption is that behaviour is determined by intention, meaning that individuals are more likely to perform a behaviour when they have a strong intention to do so. The second assumption is that intention is influenced by attitudes, subjective norms, and perceived behavioural control, which together capture the individual's motivation to perform the behaviour. The third assumption is that attitudes, norms, and perceived control are based on underlying beliefs, meaning that to change behaviour, one must address the beliefs that shape these factors. The fourth assumption is that the relative importance of attitudes, norms, and perceived control varies across behaviours and populations, meaning that different factors may be more or less influential depending on the behaviour and context. The fifth assumption is that perceived behavioural control influences behaviour both directly and indirectly, through its effect on intention and through its reflection of actual control.

#### Limitations of the Theory

Despite its significant contributions, the Theory of Planned Behaviour has several limitations. First, the theory assumes rational, deliberate decision-making, which may not accurately reflect behaviours that are habitual, impulsive, or emotionally driven, such as addictive behaviours [51]. Second, the theory does not adequately account for past behaviour, which research has shown to be a strong predictor of future behaviour, sometimes stronger than intentions. Third, the theory struggles to predict behaviours that are not under complete volitional control, even with the inclusion of perceived behavioural control. Fourth, the theory does not address the role of emotions, moral norms, or self-identity, which research suggests can influence behaviour beyond attitudes, norms, and perceived control. Fifth, the theory assumes that individuals have access to the information needed to form accurate

attitudes, norms, and perceived control beliefs, which may not always be the case. Sixth, the theory has been criticized for its focus on individual-level factors while neglecting structural, social, and environmental factors that may constrain or enable behaviour regardless of intentions.

### Relevancy to the Present Study

The Theory of Planned Behaviour is highly relevant to this study for several reasons. First, it explains how drug users' attitudes toward substance use (belief that drugs provide relief from stress or enhance social acceptance, subjective norms (perception that peers or community members approve of drug use, and perceived behavioural control (belief that drugs are easily accessible through pharmacies and chemists combine to form strong intentions to engage in drug abuse, leading to actual behaviour. Second, the theory explains how pharmacists and chemists' attitudes toward dispensing practices (belief that dispensing without prescription is acceptable due to customer pressure or financial incentives, subjective norms (perception that colleagues engage in similar practices, and perceived behavioural control (belief that regulatory enforcement is weak and they will not face consequences shape their intentions and actual dispensing behaviour. Third, the findings of this study, particularly the community-endorsed recommendation for stricter pharmacy regulations (71.2%, reflect an understanding that changing attitudes, norms, and perceived control through regulatory enforcement and public awareness can alter both drug-seeking and dispensing behaviours. Fourth, the theory suggests that effective interventions should target the underlying beliefs that shape attitudes, norms, and perceived behavioural control, including educating the community about the consequences of drug abuse, changing perceptions about social acceptability, and increasing awareness of regulatory enforcement.

### Empirical Studies

#### Studies on Influence of Pharmacy and Chemist Practices

Ogunleye OO, Oyawole MR & Adeyemi TO examined irrational use of medicines and prescription drug abuse in Nigeria [11]. The study employed a mixed-methods design combining analysis of prescription patterns, regulatory data, and qualitative interviews with healthcare professionals across six Nigerian states. The findings revealed that poor prescription monitoring and inadequate pharmacist training contribute significantly to prescription drug diversion in Nigerian communities. The study documented that many healthcare professionals lack sufficient knowledge about opioid analgesics, leading to improper prescribing and dispensing practices. The study concluded that strengthening pharmacist training and dispensing protocols is critical to combating prescription drug abuse. The study recommended enhanced regulatory oversight, mandatory continuing education for pharmacists on substance abuse prevention, and implementation of prescription monitoring programs.

Adeyemi T O & Bello SA examined prescription drug abuse trends in Northern Nigeria. The study employed a mixed-methods design combining quantitative surveys of 500 youth and qualitative interviews with 30 healthcare professionals across Kaduna and Kano States [5]. The findings revealed that

lax regulatory oversight enables easy access to controlled substances through community pharmacies, with 65% of respondents reporting they could obtain prescription drugs without a valid prescription. The study documented that commonly abused drugs include tramadol, codeine-containing cough syrups, and diazepam, many of which are used daily by addicts. The study concluded that weak regulatory enforcement and inadequate public awareness contribute to the prescription drug abuse crisis in Northern Nigeria. The study recommended enhanced regulatory oversight, public education campaigns, and integration of substance abuse screening into pharmacy practice.

Hallett J & Tait RJ evaluated pharmacist-delivered brief interventions for substance abuse in community pharmacy settings in Australia [34]. The study employed a randomized controlled trial design across 50 pharmacies. A sample of 600 patients was randomly assigned to intervention or control groups. The findings revealed that patients receiving brief interventions demonstrated significantly reduced substance use at 3-month and 6-month follow-ups, with effects most pronounced for individuals with moderate substance use disorders. The study concluded that pharmacist-delivered brief interventions are effective in reducing substance use in community pharmacy settings. The study recommended integration of brief intervention training into pharmacy education and expansion of pharmacy-based prevention programs.

Volkow ND & Blanco C examined the changing opioid crisis in the United States. The study employed a comprehensive review of epidemiological data, clinical research, and policy evaluations [13]. The findings revealed that prescription opioid abuse accounts for over 70% of drug-related deaths in many high-income countries, with mortality rates increasing by more than 500% over two decades. The study documented that many healthcare professionals lack sufficient knowledge about opioid analgesics, leading to improper prescribing and dispensing practices. The study concluded that addressing the opioid crisis requires comprehensive approaches including enhanced professional education, improved regulatory frameworks, and balanced policies. The study recommended mandatory training for healthcare professionals on opioid management, implementation of prescription drug monitoring programs, and integration of substance abuse education into medical and pharmacy curricula. Van Boekel LC, Brouwers EPM, Van Weeghel J & Garretsen HFL examined stigma among health professionals towards patients with substance use disorders [52]. The study employed a systematic review of 28 studies conducted across multiple countries including the United States, Canada, Australia, and European nations. The findings revealed that many healthcare professionals hold negative attitudes toward patients with substance use disorders, with stigma contributing to suboptimal care, reluctance to treat, and avoidance of substance use discussions. The study documented that pharmacists can serve as frontline screeners capable of identifying underlying substance abuse disorders and facilitating access to care, but stigma often prevents effective intervention. The study concluded that stigma among health professionals represents a significant barrier to effective substance abuse treatment

worldwide. The study recommended integration of anti-stigma training into professional education, development of clinical guidelines for non-judgmental care, and organizational policies supporting compassionate treatment.

Centers for Disease Control and Prevention examined prescription opioid overdose deaths and prescribing practices in the United States [25]. The study employed analysis of national vital statistics data, prescription drug monitoring program data, and healthcare claims databases across all 50 states. The findings revealed that opioid-related overdose deaths exceeded 80,000 in a single year, representing a 500% increase over two decades. The study documented that the distinction between prescription drug abuse and misuse is clinically significant, with abuse typically involving obtaining medications through illegitimate means such as doctor shopping or forged prescriptions. The study concluded that comprehensive regulatory and clinical interventions are necessary to address the prescription opioid crisis. The study recommended implementation of prescription drug monitoring programs, development of clinical practice guidelines for opioid prescribing, and expansion of access to medication-assisted treatment.

#### Studies on Causes of Drug and Substance Abuse

National Drug Law Enforcement Agency examined the drivers of substance abuse among Nigerian youth [6]. The study employed analysis of arrest data, treatment admission records, and community surveys across all 36 Nigerian states and the Federal Capital Territory. The findings revealed that economic hardship and mental health challenges are leading drivers of substance abuse among Nigerian youth, with 58% of users reporting that financial stress contributed to their substance use initiation or escalation. The study documented that youth in economically disadvantaged communities are at significantly higher risk for substance abuse. The study concluded that addressing socio-economic factors is essential for effective substance abuse prevention. The study recommended youth employment programs, mental health services integration, and community-based prevention initiatives.

United Nations Office on Drugs and Crime examined global drug trends with a focus on socio-economic determinants. The study employed analysis of population-based surveys, treatment admission data, and criminal justice statistics from 150 countries [1]. The findings revealed that poverty and unemployment are key socio-economic determinants of drug abuse in sub-Saharan Africa, with individuals in economically disadvantaged communities reporting significantly higher rates of both initiation and escalation of substance use. The study documented that strengthening pharmaceutical regulation and promoting community engagement are essential components of comprehensive drug abuse prevention frameworks. The study concluded that addressing drug abuse requires integrated approaches that address underlying social determinants. The study recommended strengthening regulatory frameworks, community-based prevention programs, and investment in treatment services.

Degenhardt L & Hall W examined the extent of illicit drug use and dependence globally. The study employed a systematic review and meta-analysis of population-based surveys and

epidemiological data from 130 countries across all world regions [46]. The findings revealed that approximately 296 million people worldwide engage in drug abuse annually, representing 5.8% of the global population aged 15 to 64, with young people disproportionately affected. The study documented that substance abuse contributes to over 600,000 deaths annually, with opioid overdose alone accounting for more than 70% of these fatalities. The study concluded that drug abuse represents a significant global public health challenge requiring coordinated international response. The study recommended strengthening health systems to address substance use disorders, expansion of evidence-based prevention programs, and increased investment in treatment services in low- and middle-income countries.

European Monitoring Centre for Drugs and Drug Addiction examined drug trends and developments across Europe [22]. The study employed analysis of national surveillance data, treatment admission records, and population surveys across all 27 European Union member states plus Norway and Turkey. The findings revealed that prescription drug abuse now accounts for a growing proportion of drug-related emergency department visits and treatment admissions across Europe, with non-medical use of prescription opioids, benzodiazepines, and stimulants increasing substantially. The study documented that the economic burden of substance abuse exceeds \$500 billion annually. The study concluded that prescription drug abuse represents a growing public health challenge across Europe requiring coordinated regulatory and clinical responses. The study recommended strengthening prescription drug monitoring systems, enhanced training for healthcare professionals, and expansion of treatment services.

#### Studies on Effects of Drug and Substance Abuse

Ibrahim AM, Suleiman M & Yusuf F examined the correlation between substance abuse and youth involvement in violent crimes in Kaduna State, Nigeria. The study employed a cross-sectional survey design with a sample of 450 youth aged 15-35 years selected from high-risk communities across Kaduna State [14]. Data were collected using structured questionnaires and focus group discussions. The findings revealed a strong correlation between substance abuse and youth involvement in violent crimes, with 62% of respondents reporting that substance use preceded their involvement in criminal activities. The study documented that drug abuse has contributed to rising crime rates, broken families, and deteriorating public health in affected communities. The study concluded that substance abuse is a significant driver of youth violence and criminality in Kaduna State. The study recommended community-based interventions, youth empowerment programs, and enhanced substance abuse treatment services.

Kaduna State Bureau for Substance Abuse, Prevention, and Treatment examined drug abuse trends and consequences in Kaduna State [18]. The study employed analysis of treatment admission data, law enforcement records, and community health surveys across all 23 local government areas of Kaduna State. The findings revealed that drug-related deaths and criminal activities increased by over 40% in Kaduna State between 2020 and 2024, with youth disproportionately affected. The study documented that substance abuse is a major

contributor to rising crime rates, youth unemployment, theft, and mental health disorders. The study concluded that comprehensive interventions are urgently needed to address the escalating drug abuse crisis in Kaduna State. The study recommended strengthening prevention programs, expanding treatment services, and enhancing regulatory enforcement against unlicensed medicine vendors.

Adebayo AO & Ogunwale A examined the relationship between substance abuse and school dropout among secondary school students in Northern Nigeria. The study employed a cross-sectional survey design with a sample of 850 students across 15 secondary schools in Kano and Kaduna States [53]. The findings revealed that substance abuse is a major contributor to school dropout rates, with 32% of students who discontinued their education reporting substance involvement as a primary factor. The study documented that students who used substances were three times more likely to drop out compared to non-users. The study concluded that substance abuse significantly compromises educational attainment among youth in Northern Nigeria. The study recommended school-based prevention programs, early intervention services, and integration of substance abuse screening into school counselling services.

Pal S examined prescription drug abuse as a global public health dilemma. The study employed a systematic review approach synthesizing data from global health organizations and national surveillance systems across multiple countries [9]. The findings revealed that overprescribing and illegal drug diversion are major concerns, while under-prescribing particularly in pain management also poses significant risks. The study documented that many healthcare professionals lack sufficient knowledge about opioid analgesics, leading to improper prescribing and dispensing practices. The study concluded that addressing prescription drug abuse requires comprehensive approaches including enhanced professional education and improved regulatory frameworks. The study recommended mandatory training for healthcare professionals on opioid management and implementation of prescription drug monitoring programs.

#### Studies on Prevention and Intervention Strategies

World Health Organization examined global strategies for combating prescription drug abuse [3,4]. The study employed analysis of national health system data, policy evaluations, and systematic reviews of intervention effectiveness across all WHO regions. The findings revealed that strengthening pharmacist training and dispensing protocols is critical to combating prescription drug abuse globally, with pharmacist-delivered brief interventions shown to significantly reduce risky substance use behaviors. The study documented that community-based counselling and awareness programs are cost-effective strategies for preventing drug abuse. The study concluded that comprehensive approaches combining regulatory enforcement, professional education, and community engagement are essential for addressing substance abuse. The study recommended integration of substance abuse prevention into primary healthcare, expansion of community-based services, and enhanced training for healthcare professionals.

Pharmacists Council of Nigeria examined regulatory frameworks for addressing substance abuse in Nigeria [15]. The study employed analysis of regulatory data, inspection reports, and enforcement records across all 36 Nigerian states. The findings revealed that enhanced regulatory oversight and public education are essential for addressing substance abuse, with unlicensed medicine vendors representing a significant gap in the regulatory system. The study documented that over 60% of patent medicine vendors admit to dispensing prescription-only medications without valid prescriptions. The study concluded that strengthening regulatory enforcement and public education are critical priorities for addressing prescription drug abuse in Nigeria. The study recommended enhanced inspection and enforcement activities, mandatory training for pharmacy professionals, and public awareness campaigns on the dangers of non-prescription drug use.

Tommasello AC examined substance abuse and pharmacy practice, focusing on what community pharmacists need to know about drug abuse and dependence. The study employed a comprehensive review of pharmacy practice literature and professional guidelines [54]. The findings revealed that pharmacists are uniquely positioned to identify substance abuse, provide brief interventions, and refer patients to treatment, but many lack adequate training. The study documented that pharmacist involvement in substance abuse prevention can significantly reduce harm when properly trained. The study concluded that pharmacy practice must evolve to fully embrace the role of pharmacists in addressing substance abuse. The study recommended integration of substance abuse education into pharmacy curricula and development of continuing education programs for practicing pharmacists.

Oshodi OY, Aina OF & Onajole AT examined substance use among secondary school students in an urban setting in Nigeria [55]. The study employed a cross-sectional survey design among secondary school students in Lagos, Nigeria. A sample of 1,200 students was selected through multi-stage sampling. The findings revealed that drug abuse primarily leads to dependence, with physical consequences including cardiovascular effects, respiratory effects, neurological effects, and gastrointestinal complications. The study documented that drug abuse can result in physical and psychological addiction, mental disorders, and even death. The study concluded that drug abuse has severe health consequences for young people. The study recommended comprehensive health education programs in schools and integration of substance abuse screening into routine healthcare.

#### Uniqueness of the Present Study

The uniqueness of this study lies in its distinct focus on the supply-side of prescription drug abuse, shifting attention from drug users to the pharmaceutical outlets that dispense controlled substances. Unlike previous studies that concentrated on illicit drugs such as cannabis and cocaine, this study specifically examined prescription drug abuse, particularly tramadol and codeine-containing cough syrups, which have become major public health concerns in Northern Nigeria. The study is unique in its geographic specificity, focusing on Tudun Wada community, a high-risk area identified by the National

Drug Law Enforcement Agency with adolescent usage rates exceeding 25%. By capturing community perceptions rather than relying solely on official records or user accounts, the study provides authentic grassroots evidence on how pharmacy practices contribute to drug abuse. Most significantly, the study identified community-endorsed recommendations public awareness campaigns, community counselling centres, and stricter pharmacy regulations ensuring that proposed interventions are grounded in the lived experiences and expressed needs of the affected community, thereby enhancing their potential for acceptance and sustainability.

### Statement of the Problem

The escalating prevalence of youth substance abuse represents a critical social challenge with global dimensions. Worldwide, approximately 296 million people, or 5.8% of the global population aged 15 to 64, use drugs annually, with young people disproportionately affected and accounting for the highest rates of initiation into substance use United Nations Office on Drugs and Crime [1]. The World Health Organization [3,4] reports that substance abuse contributes to over 500,000 deaths annually, with the burden falling heaviest on low and middle-income countries where access to prevention and treatment services remains limited. In Nigeria, the situation mirrors global trends, with 14.3 million Nigerians about 14% of individuals aged 15 to 64 consuming illicit substances, representing one of the highest prevalence rates in West Africa [1]. In Kaduna State, recent estimates suggest that 10% of resident's predominantly young adults struggle with drug dependency Kaduna State Bureau for Substance Abuse, Prevention, and Treatment [18]. Zaria Local Government Area reflects this disturbing trend, with growing numbers of adolescents and young adults, including married individuals, succumbing to substance addiction, as preliminary data from the National Drug Law Enforcement Agency's hotspot mapping identifies 12 high-risk communities with adolescent usage rates exceeding 25%. This crisis manifests through a 150% increase in youth psychiatric admissions at Ahmadu Bello University Teaching Hospital between 2020 and 2024 (ABU Teaching Hospital, 2024), with 38% of robbery cases involving substance-impaired offenders Zaria Police Command and documented cases of pre-teen inhalant abuse in 15 primary schools Kaduna State Universal Basic Education Board [19,56]. The compounding effects on human capital development appear particularly alarming, with 22% of secondary school dropouts attributing their exit to substance involvement Kaduna State Ministry of Education [57]. Undoubtedly, the menace of drug abuse has become a critical concern in Tudun Wada community, resulting in law and order issues such as youth gang activities, destruction of public and private property, moral decay, mobile snatching, and pickpocketing, among other social ills. Despite the recognized role of pharmacies and chemists as potential gatekeepers in the distribution of prescription drugs, limited research has been conducted on how their dispensing practices influence drug abuse behaviour in this context. It is on the above premise that this study assessed the influence of pharmacy and chemist practices on drug abuse behaviour in Zaria Local Government Area of Kaduna State.

### Objective of the Study

The objectives of the study were to:

- Assess the influence of pharmacy and chemist practices on drug abuse behaviour in Zaria Local Government Area of Kaduna State.
- Investigate the causes of drug and substance abuse behaviour in Zaria Local Government Area of Kaduna State.
- Examine the effects of drug and substance abuse behaviour in Zaria Local Government Area of Kaduna State.
- Recommend strategies to curtailing the menace of drug and substance abuse behaviour in Zaria Local Government Area of Kaduna State

### Research Questions

The following questions were raised and will be answered for this study:

- How does pharmacy and chemist practices influence drug abuse behaviour in Zaria Local Government Area of Kaduna State
- What factors contribute to drug and substance abuse behaviour in Zaria Local Government Area of Kaduna State?
- What are the consequences of drug and substance abuse behaviour in Zaria Local Government Area of Kaduna State?
- What measures can be implemented for curtailing the menace of drug and substance abuse behaviour in Zaria Local Government Area of Kaduna State?

### MATERIALS AND METHODS

This study adopted cross sectional descriptive Survey research design. This design is considered to be appropriate as it will enable the researcher to collect necessary information from student within a selected location in a particular time through the use of questionnaire which addresses the research questions raised and was answered for the study. This is according to Ijaiya in Rasaan and Bello who dwells on the need to conduct a study on an entire population of people or items by collecting relevant data from samples considered as true representatives of the entire population at a particular time. The Population for this study consists of selected residential areas of tudun wada community which include Layin labadiya, Layin mahauta, Baban tureda, Layin gonan ganye located in Zaria Local Government Area of Kaduna State. The researchers purposively sampled two (2) residential areas that participated in the study and administered thirty-eight (38) questionnaires to Layin mahauta respondents while thirty-five (35) questionnaires to Layin gonan ganye respondents making a total of seventy-three (73) respondents. However, the researchers use the two (2) residential street areas of Tudun Wada Community, this is because of the menace of drug abuse that has become a critical concern in the area, resulting in law and order issues such as youth gang activities, destruction of public and private property, moral decay, mobile snatching, pickpocketing, social ills among others. The instrument for data collection is the Pharmacy/Chemist Drug Abuse Questionnaire (PCDAQ) this instrument is a structured questionnaire and it consists of two

(2 sessions A and B. Section A: design to solicit the Respondents Demographic Data such as Name of School, Gender and Age. Section B: Investigate the assessment of the influence of Pharmacy and Chemist practices on Drug Abuse behaviour in Zaria Local Government Area of Kaduna State. Section C: To Investigate the Causes of Drug and Substance Abuse in Zaria Local Government Area of Kaduna State Section D: to Investigate the Effects of Drug and Substance Abuse in Zaria Local Government Area of Kaduna State. Section E: To Provide Recommendations for Curtailing the

Menace of Drug and Substance Abuse in Zaria Local Government Area of Kaduna State. Four rating scales were used for all the computations. Towards facilitating data analysis and better decision, the researcher classified - Strongly Agree (SA)4, Agree (A)3, Disagree (D) 2 and Strongly Disagree (SD)1. For the analysis of data, descriptive statistics was used, such frequency, mean and standard deviations and relative ranking of each of the items.

**RESULTS**

Variables	Category	Frequency	Percentage (%)
Gender	Male	64	87.67
	Female	9	12.33
Location	Layin mahauta T/wada	38	52.05
	Layin gonan ganye T/wada	35	47.95
Age	15-24 yrs	41	56.16
	25-34 yrs	27	36.99
	35-49 yrs	5	6.85
	50-65 yrs		
	66 and above		
Level of Education	Primary	17	23.29
	Secondary	32	43.84
	Tertiary	0	0
	None of the above	24	32.87
Drug once Abuse	Cocaine	0	0
	Cough syrup	16	21.92
	Tramadol	10	13.7
	Alcohol	4	5.48
	Marijuana	32	43.84
	Sleeping pills	11	15.06
	None of the above	0	0
Total		73	100

**Table 1:** Demographic Characteristics of Respondent

Distribution of respondents on the basis of gender. A total of 64 respondents representing 87.67% were male while 9 respondents which represent 12.33% were female. This shows that majority of the respondents were male.

Distribution of respondents on the basis of location. A total of 38 respondents representing (52.05%) were from Layin mahauta T/wada while 35 respondents represent (47.95%) were from Layin gonan ganye T/wada. This shows that majority of the respondents were from Layin mahauta T/wada.

Distribution of respondents on the basis of Age. 41 respondents are the majority which represent 56.16% within the category of 15 - 24yrs, followed by 27 respondents which are representing 36.99% within the age range of 25 - 34yrs and lastly 5 respondents are the minority presenting 6.85% which were within age bracket of 35 - 49yrs.

Distribution of respondents on the basis of respondents Level of Education. The study reveals that 32 respondents representing 43.84% are the majority with secondary school education, followed by 17 respondents represent 23.29% with primary education while 24 respondents represent 32.87% with no education.

Distribution of respondents on the basis of drug once abuse. The result reveals that 32 respondents representing 43.84% are the majority who have once abuse marijuana, followed by 16 respondents representing 21.92% who have once abuse Cough syrup, followed by 11 respondent who were representing 15.06% and have once abuse sleeping pills, followed by 10 respondents which represents 13.70% who have once abuse Tramadol and lastly 4 respondents representing 5.48% who have once abuse Alcohol. Therefore, this study reveals that majority of the respondent's abuses marijuana as shown in the frequency and percentages of the respondents.

**Research Question One:** What role do pharmacy/chemist to drug abuse in Zaria Local Government Area of Kaduna State?

S/no	Items	SA	A	D	SD	Mean	STD	Rank
1	Pharmacies/chemists are the primary source of prescription drug abuse	45	24	1	3	3.52	0.73	1
2	Lack of strict regulation enables drug abusers to access medications easily	22	34	10	7	2.97	0.91	4
3	Over the counter drug sales contribute to substance abuse	23	19	18	13	2.71	1.1	5
4	Pharmacists often fail to verify prescriptions thoroughly	27	32	11	3	3.14	0.82	2
5	Pharmacy staff need more training on substances abuse prevention	30	22	18	3	3.08	0.91	3
Cumulative Mean = 3.084								
Decision Mean = 2.50								

**Table 4.1:** Assess the impact of pharmacy/chemist to drug abuse in Zaria Local Government Area of Kaduna State

According to the table 4.1: Impact of pharmacy/chemist to drug abuse in Zaria Local Government Area of Kaduna State, is relatively very high. This is as the cumulative mean response of 3.084 is greater than the decision mean of 2.500. Specifically, most asserted that Pharmacies/chemists are the primary source of prescription drug abuse, as this view attracted the highest mean of 3.52 as details shows a combined total of 69 (94.52%) were in agreement, the rest 4 (5.48%) were in disagreement. In the same vein, most Pharmacists often fail to verify prescriptions thoroughly as this attracted the second highest

mean of 3.14 as details shows a combined total of 59 (80.82%) were in agreement while the rest 14 (19.18%) were in disagreement. In summary, Impact of pharmacy/chemist to drug abuse in Zaria Local Government Area of Kaduna State, is relatively very high, especially as most believed that Pharmacies/chemists are the primary source of prescription drug abuse and also Pharmacists often fail to verify prescriptions thoroughly.

**Research Question Two:** What factors contribute to drug and substance abuse in Zaria Local Government Area of Kaduna State?

S/no	Items	SA	A	D	SD	Mean	STD	Rank
1	Peer pressure is a major cause of drug abuse among adolescents	31	33	6	3	3.26	0.78	3
2	Easy access to drug in communicates to misuse	27	25	6	5	3.15	0.84	5
3	Poverty and unemployment drive substance abuse	40	38	2	3	3.44	0.75	1
4	youth abuse drug to cope with depression, anxiety or stress	34	35	0	4	3.37	0.75	2
5	Lack of education on drug dangers contributes to misuse	29	33	8	3	3.21	0.8	4
Cumulative Mean = 3.286								
Decision Mean = 2.500								

**Table 4.2:** Investigate the causes of drug and substance abuse in Zaria Local Government Area of Kaduna State

The table 4.2 revealed Causes of drug and substance abuse in Zaria Local Government Area of Kaduna State, is very high. This is because their overall or cumulative mean agreement of 3.286 is above the 2.500 decision mean. Specifically, most asserted that Poverty and unemployment drive substance abuse, as this attracted the highest mean agreement level of 3.44 as details shows that 68 (93.15%) were in agreement, the rest 5

(6.85%) were in disagreement with this view. In the same vein, most said that youth abuse drug to cope with depression, anxiety or stress, as this view attracted the second highest mean of 3.37 as details shows that 69 (94.52%) were in agreement the rest 4 (5.48%) were in disagreement, some also asserted that Peer pressure is a major cause of drug abuse among adolescents as this also attracted the third highest mean agreement of 3.26 as details shows that 64 (87.67%) were in agreement while 9(12.33%) were in disagreement. In summary, the Causes of

drug and substance abuse in Zaria Local Government Area of Kaduna State, is very high especially as Poverty and unemployment drive substance abuse as well as youth abuse drug to cope with depression, anxiety or stress and they also asserted that Peer pressure is a major cause of drug abuse

among adolescents in Zaria Local Government Area of Kaduna State.

**Research Question Three:** What are the consequences of drug and substance abuse in Zaria Local Government Area of Kaduna State?

S/no	Items	SA	A	D	SD	Mean	STD	Rank
1	Increases criminal activities in communities	22	36	5	10	2.96	0.96	2
2	Students who take drugs engage in examination malpractice	30	15	13	15	2.82	1.18	4
3	Drug abuse can cause premature death	31	23	11	8	3.1	1.01	1
4	Drug abuse lead to heart/respiratory diseases and liver cirrhosis	18	19	28	8	2.64	0.98	5
5	Drug abuse results in school dropout	23	19	28	3	2.85	0.92	3
Cumulative Mean = 2.874								
Decision Mean = 2.50								

**Table 4.3:** Examine the effects of drug and substance abuse in Zaria Local Government Area of Kaduna State

The table 4.3 revealed the Effects of drug and substance abuse in Zaria Local Government Area of Kaduna State, are very gigantic, this is because their overall mean response of 2.874 is above the decision mean of 2.50. The main Effects of drug and substance abuse in Zaria Local Government Area of Kaduna State, include Drug abuse can cause premature death, as this attracted the highest mean of 3.10 as details shows a combined total of 54 (73.97%) were in agreement while 19 (26.03%) disagreed with this view. In the same vein, another serious effect is that it increases criminal activities in communities and

this has the second highest mean agreement of 2.96 with a combined total of 58 (79.45%) were in agreement as against the rest 15 (20.55%) that disagreed. In summary, The Effects of drug and substance abuse in Zaria Local Government Area of Kaduna State, are very gigantic, especially the effects of Drug abuse can cause premature death and another serious effect is that it increases criminal activities in communities among many other effects.

**Research Question Four:** What measures can be implemented for curtailing the menace of drug and substance abuse in Zaria Local Government Area of Kaduna State?

S/no	Items	SA	A	D	SD	Mean	STD	Rank
1	Community counselling centers can reduce drug misuse	27	32	11	3	3.14	0.82	2
2	Government should enforce stricter pharmacy regulations	30	22	18	3	3.08	0.91	3
3	Pharmacists must identify forged prescriptions promptly	22	34	10	7	2.97	0.91	5
4	Public awareness campaigns on drug dangers are essential	37	20	10	6	3.2	0.97	1
5	Prescription reviews should be mandatory to prevent fraud	28	17	16	12	2.84	1.11	4
Cumulative Mean = 3.046								
Decision Mean = 2.50								

**Table 4.4:** Recommended strategies for curtailing the menace of drug and substance abuse in Zaria Local Government Area of Kaduna State

Table 4.4: Reveals the recommendations for curtailing the is very high. The cumulative mean agreement of 3.046 is greater

than the decision mean of 2.50. specifically, most asserted that Public awareness campaigns on drug dangers are essential, as this view attracted the highest mean aggregate of 3.20 as details shows a combined total of 57 (78.08%) were in agreement while 16 (21.92%) were in disagreement. In the same

vein, most also said Community counselling centers can reduce drug misuse, as this attracted the second highest mean of 3.14 as details shows a combined total of 60 (82.19%) were in agreement while 14 (19.18%) were in disagreement. Others also asserted that Government should enforce stricter pharmacy regulations, this attracted the third highest mean response of 3.08 as details shows a combined total of 52 (71.23%) agreed while 21 (28.77%) disagreed. In summary, the recommendations for curtailing the menace of drug and substance abuse, are very high, especially as most asserted that Public awareness campaigns on drug dangers are essential, Community counselling centers can reduce drug misuse and Government should enforce stricter pharmacy regulations are the major recommendations for curtailing the menace of drug and substance abuse in Zaria Local Government Area of Kaduna State.

### SUMMARY OF FINDINGS

Firstly, the study revealed that pharmacies and chemists are the primary source of prescription drug abuse in Tudun Wada Community, Zaria Local Government Area, with a majority of respondents affirming that pharmacists often fail to verify prescriptions thoroughly, thereby enabling easy access to controlled substances for non-medical use.

Secondly, the findings identified poverty and unemployment as the leading drivers of substance abuse, while the use of drugs to cope with depression, anxiety, and stress emerged as a significant factor, alongside peer pressure, which was reported as a major cause of drug abuse among adolescents in the study area.

Thirdly, the consequences of drug abuse were found to be severe, as premature death was identified as the most critical effect, followed closely by increased criminal activities within communities, in addition to other effects such as school dropout and social disorder.

Fourthly, respondents strongly endorsed public awareness campaigns on drug dangers as an essential strategy, while community counselling centres were also recommended as effective in reducing drug misuse, and stricter enforcement of pharmacy regulations by government agencies was identified as a critical measure to address the menace of drug abuse in Zaria Local Government Area.

### DISCUSSION OF FINDINGS

The first research objective assessed the influence of pharmacy and chemist practices on drug abuse behaviour in Zaria Local Government Area. The cumulative mean response of 3.084, which exceeds the decision mean of 2.50, indicates a significant influence. Specifically, respondents strongly agreed that pharmacies and chemists serve as the primary source of prescription drug abuse (mean = 3.52), with many affirming that pharmacists often fail to verify prescriptions thoroughly (mean = 3.14). Moreover, the need for more training on substance abuse prevention among pharmacy staff was highlighted (mean = 3.08). These findings align with Ogunleye who reported that poor prescription monitoring and inadequate

pharmacist training contribute significantly to prescription drug diversion in Nigerian communities [11]. Similarly, Adeyemi and Bello found that lax regulatory oversight enables easy access to controlled substances through community pharmacies in Northern Nigeria [5]. The findings also support the World Health Organization [3,4], which emphasized that strengthening pharmacist training and dispensing protocols is critical to combating prescription drug abuse globally.

The second research objective examined the causes of drug and substance abuse. The cumulative mean of 3.286, above the decision mean of 2.50, confirms that multiple factors contribute significantly to the problem. Poverty and unemployment emerged as the strongest driver (mean = 3.44), followed by the use of drugs to cope with depression, anxiety, and stress (mean = 3.37), and peer pressure (mean = 3.26). These findings are consistent with the National Drug Law Enforcement Agency, which reported that economic hardship and mental health challenges are leading drivers of substance abuse among Nigerian youth [6]. Furthermore, Okonkwo and Eze found that peer influence remains a critical factor in initiating drug use among adolescents in Northern Nigeria [2]. The United Nations Office on Drugs and Crime (2023) also identified poverty and unemployment as key socio-economic determinants of drug abuse in sub-Saharan Africa, reinforcing the present study's findings.

The third research objective investigated the effects of drug and substance abuse. The overall mean response of 2.874, above the decision mean of 2.50, indicates severe consequences. Premature death was identified as the most critical effect (mean = 3.10), followed closely by increased criminal activities in communities (mean = 2.96), and school dropout (mean = 2.85). These findings corroborate recent studies by Ibrahim, who documented a strong correlation between substance abuse and youth involvement in violent crimes in Kaduna State [14]. Similarly, the Kaduna State Bureau for Substance Abuse, Prevention, and Treatment reported that drug-related deaths and criminal activities have increased by over 40% in the state between 2020 and 2024 [18]. Adebayo and Ogunwale also found that substance abuse is a major contributor to school dropout rates among secondary school students in Northern Nigeria [53].

The fourth research objective focused on recommendations for curtailing drug abuse. The cumulative mean agreement of 3.046, above the decision mean of 2.50, reflects strong consensus on proposed interventions. Public awareness campaigns on drug dangers received the highest endorsement (mean = 3.20), followed by community counselling centres (mean = 3.14), and stricter enforcement of pharmacy regulations (mean = 3.08). These recommendations align with the Pharmacists Council of Nigeria [15], which emphasized the need for enhanced regulatory oversight and public education to address substance abuse. The World Health Organization [3,4] also advocates for community-based counselling and awareness programs as cost-effective strategies for preventing drug abuse. Furthermore, the United Nations Office on Drugs and Crime (2023) recommends strengthening pharmaceutical regulation and promoting community engagement as essential components

of comprehensive drug abuse prevention frameworks.

## CONCLUSION

Based on the findings of this study, it is concluded that the influence of pharmacy and chemist practices on drug abuse behaviour in Tudun Wada Community of Zaria Local Government Area is substantially high, as pharmacies and chemists were identified as the primary source of prescription drugs diverted for non-medical use, with a majority of respondents affirming that pharmacists often fail to verify prescriptions thoroughly, thereby enabling easy access to controlled substances. The study further concludes that drug abuse behaviour among youth in the area is driven by multiple interrelated factors, including poverty, unemployment, peer pressure, and the use of substances as a coping mechanism for depression, anxiety, and stress, resulting in severe consequences such as premature death and increased criminal activities within the community. To address this growing menace, the study concludes that strategic interventions are essential, with public awareness campaigns on the dangers of drug abuse, the establishment of community counselling centres, and stricter enforcement of pharmacy regulations by government agencies emerging as the most viable strategies for curtailing drug abuse in Zaria Local Government Area.

## RECOMMENDATIONS

Based on the findings of this study, the following recommendations are made.

Firstly, the Pharmacists Council of Nigeria (PCN) and the National Drug Law Enforcement Agency (NDLEA) should enforce stricter regulatory oversight on pharmacies and patent medicine stores by mandating thorough prescription verification, conducting regular unannounced inspections, and imposing severe sanctions on outlets found to be dispensing prescription drugs without valid prescriptions, given that 94.5% of respondents identified pharmacies and chemists as the primary source of prescription drug abuse [7].

Secondly, youth in Zaria Local Government Area should be encouraged through community-based programs to resist negative peer influence and seek healthy coping mechanisms for depression, anxiety, and stress, as peer pressure and mental health challenges were identified as major drivers of drug abuse behaviour among 87.7% and 94.5% of respondents respectively.

Thirdly, government and non-governmental organizations should intensify public awareness campaigns to educate youth on the severe consequences of drug abuse, including premature death and increased criminal activities, which were identified by 74.0% and 79.5% of respondents respectively as major effects of substance abuse.

Finally, the Kaduna State Government, in collaboration with local community leaders, should establish accessible community counselling centres and support youth empowerment programs, as 82.2% of respondents endorsed counselling centres and 78.1% supported public awareness campaigns as essential strategies for curtailing drug abuse in

Zaria Local Government Area [8].

## SUGGESTIONS FOR FURTHER STUDIES

Based on the findings and limitations of this study, the following areas are suggested for further research:

Firstly, an evaluative study should be conducted to assess the effectiveness of existing regulatory frameworks implemented by agencies such as the National Drug Law Enforcement Agency (NDLEA), Pharmacists Council of Nigeria (PCN), and National Agency for Food and Drug Administration and Control (NAFDAC) in monitoring and controlling prescription drug diversion in Zaria Local Government Area [7]. This study revealed that 71.2% of respondents agreed on the need for stricter pharmacy regulations and 80.8% affirmed that pharmacists often fail to verify prescriptions thoroughly, highlighting a critical gap between policy provisions and actual enforcement practices that requires further investigation.

Secondly, a mixed-methods study that directly involves pharmacists and patent medicine vendors as primary respondents is recommended. The current study relied exclusively on community respondents (drug users and residents) to assess the influence of pharmacy/chemist practices, and such an approach would capture the often-overlooked supply-side perspective by exploring the challenges, ethical dilemmas, and knowledge gaps that influence dispensing practices.

Thirdly, a comparative study between licensed pharmacies and unlicensed patent medicine stores is suggested. This study did not differentiate between these two categories of outlets in its assessment, and such research would help regulatory agencies identify high-risk outlets, prioritize enforcement efforts, and tailor interventions to the specific characteristics of each category.

Fourthly, a longitudinal study should be undertaken to evaluate the long-term impact of community-based interventions on drug abuse behaviour in Zaria Local Government Area. Given that 82.2% of respondents endorsed community counselling centres and 78.1% supported public awareness campaigns as essential strategies for curtailing drug abuse, tracking a cohort of at-risk youth over three to five years would provide robust evidence on the effectiveness of counselling services, awareness campaigns, and youth empowerment programs in reducing substance abuse, preventing relapse, and improving social outcomes.

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