Journal of Medicine and Biomedical Research. 24 (2) 117-123
https://dx.doi.org/10.4314/jmbr.v24i2.14

JMBR
Peer-review Journal of the College of Medical Sciences University of Benin , Nigeria

REVIEW ARTICLE

Mitigating Substance Abuse Mortality through Harm Reduction Interventions in Nigeria

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ABSTRACT

Background: Substance abuse is a major global health concern, causing about 11.8 million deaths annually. Despite efforts to reduce abuse, it remains high, particularly among young adults. Harm reduction philosophy is a promising strategy to address these issues by offering a pragmatic and flexible approach to drug abuse. The aim of this review was to highlight the burden of psychoactive substance use, available treatment methods, the concept of harm reduction strategies, its barriers and enhancers and make recommendations for its enhancement in Nigeria.

Discussion: Harm reduction is a public health strategy that attempt to lessen the harmful effects of drug abuse, including physical, social, and economic, without focusing on abstinence. It involves policies, initiatives, and methods that seek to lessen drug use's harmful consequences without emphasizing abstinence. However, in Nigeria, there is little evidence to support the acceptance, usage, and knowledge of end users and their caregivers of HRS, despite the program's many advantages and certain policy shifts toward a public health approach to drug use. Some of obstacles to causing this include inadequate information, lack of awareness, limited economic resources, stigmatization, misconception and many others.

Conclusion: In the future, it is important to achieve proper utilization of harm reduction strategies in Nigeria. Some factors that can enhance this include education on what harm reduction is and its benefits, openness to harm reduction strategies, support from community members and organizations, developing therapeutic relationship, organizational support, and specialized healthcare service providers.

Keywords: Harm reduction strategies, prevention, reduction, substance abuse, young adults

INTRODUCTION

The World Health Organization (WHO) defines substance abuse as the harmful or hazardous use of psychoactive substances such as alcohol and illegal drugs.[1] Substance abuse is a significant issue affecting young people, particularly males aged 15 to 19 years, who have a higher prevalence of heavy episodic drinking (11.7%) compared to the general older population (7.5%).[1] In 2022, the United Nations Office on Drugs and Crime (UNODC) estimated that there were 292 million drug users globally, a 20% increase over the previous ten years and most commonly used drug in the world was reported to be cannabis (228 million users), followed by opioids (60 million users), amphetamines (30 million users), cocaine (23 million users) and ecstasy (20 million users) with about 64 million people suffering from substance use disorders.[1]

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Psychoactive drugs are classified based on their effects on the central nervous system into stimulants, depressants, narcotics, and hallucinogens.[2] Stimulants, such as cocaine and amphetamines, enhance CNS activity by inhibiting the reabsorption of dopamine, norepinephrine, and serotonin, leading to increased alertness and energy. Depressants, including alcohol and sedatives, slow CNS activity by increasing GABA production, affecting cognition and memory. Narcotics like heroin and morphine relieve pain by activating endorphins but are highly addictive. Hallucinogens, such as LSD and marijuana, alter perception and consciousness by mimicking serotonin and epinephrine, often causing mood changes, paranoia, and anxiety.[2]

The cause of substance abuse is unknown, but it is linked to various social, psychological, and biological factors.[3] Social factors include peer pressure, availability, disputes, cultural issues, lack of social support, unstable home environments, poverty, and bad family relationships. Psychological factors include

social disobedience, self-worth, stress management, trauma, and poor parenting. Biological factors include genetic susceptibility, personality disorder, medical illness, withdrawal symptoms, and cravings.[4] Adolescents and youth who have a family history of substance abuse frequently experiment with substances for a variety of reasons, including the desire for a new experience or adventure, trauma, race, gender, social position and especially peer pressure which is one of the strongest factors. Academic stress is also a key risk factor for substance usage, as well as long-term use of prescription pharmaceuticals following minor surgery or a bad relationship with parents. [5]

Adults aged 26 to 64 frequently confront big life issues and must strike a balance between work and family life, which increases the risk of substance abuse, particularly for those in high-stress professions such as attorneys, healthcare professionals, or military personnel. Grieving or losing a close family member or friend can lead to drug misuse. Also, persons over the age of 65 confront various challenges, such as sorrow, chronic diseases, and social isolation, which may cause them to use drugs in improper dosages.[5]

However, drug overdoses have caused millions of deaths globally, with 106,699 in the U.S. alone in 2021.[6] Opioids, especially synthetic ones like fentanyl, are the leading cause, responsible for 75.4% of overdose deaths that year. Fentanyl also significantly contributed to the rise in benzodiazepine- and antidepressant-related fatalities. Alcohol abuse led to over three million deaths in 2016, mostly among men, and accounts for over 5% of global disease burden.[6] In Nigeria, one in seven people aged 15–64 used a psychoactive substance in the past year, with one in five developing substance-related disorders, often linked to criminal behavior.

Generally, substance abuse, both through drug overdoses and long-term use, leads to diseases and injuries such as accidents, pregnancy complications, academic failure, diabetes, heart disease, stroke, suicide, liver disease, hepatitis, and Human Immunodeficiency Virus (HIV), several cancers and mental health and workplace issues or death.[5,7]

Substance abuse treatment involves pharmacotherapy, behavioral therapy, and harm reduction strategies. Pharmacotherapy includes medications like methadone, buprenorphine, suboxone, naltrexone, nicotine replacement therapy, varenicline, acamprosate, and disulfiram.[8] Behavioral therapies such as Cognitive Behavioral Therapy, Motivational Enhancement Therapy, the Matrix Model, and various family-based therapies which aim to engage individuals in treatment, modify drug-related behaviors and attitudes, and enhance life skills. These approaches are often combined to improve treatment outcomes and support long-term recovery from substance use disorders.[9]

Nevertheless, factors affecting people who use drugs (PWUDs) include stigma, treatment difficulties, and a lack of harm reduction programs[7] and drug abuse cessation is challenging due to low success rates, high relapse rates, and high desire among individuals,[10] however, harm reduction are measures that are promoted to address public health issues like substance abuse. The moral case for harm reduction is consequentialist, as it aims to reduce the negative effects of drug activities. However, abstinence or incidence reduction models are argued to have a deontological basis due to ethical dubious actions. The public health strategy of harm reduction is justified by the moral obligation to uphold autonomy and dignity, as argued for in other medical ethics. The moral basis for harm reduction is commonly assumed to be consequentialist, because the purpose of harm reduction is to lessen the detrimental health consequences of hazardous activities, such as substance use.[11] The harm reduction strategies include sterile syringes program, controlled drinking, tobacco harm reduction, vending machine for harm reduction, drug checking, overdose education, and medication assisted treatment. This review aims to examine the burden of psychoactive substance use in Nigeria, evaluate the existing treatment methods, explore the concept of harm reduction strategies along with the factors that hinder or promote their effectiveness, and provide recommendations for their improvement.

OVERVIEW OF HARM REDUCTION STRATEGIES

Harm reduction is a set of practical strategies and concepts aimed at reducing the health, social, and/or economic effects of drug use as an alternative to abstinence-based initiatives and programs. It is a chemical dependence prevention and practice approach that has arisen in reaction to growing frustration with abstinence and prohibition initiatives, as well as a growing pandemic of HIV/AIDS and hepatitis infections linked to needle sharing among injectable drug users.[12] Harm reduction acknowledges the freedom of drug users to consume drugs safely and upholds their rights and dignity, serving as a substitute for abstinence-focused programs and policies.

The strategies strive to raise substance use understanding and focus on the reduction of related harms rather than frequency or amount of use, which results in safer attitudes toward substance use and fewer incidents of harms associated with alcohol and drug use.[13]

Harm reduction strategies are also interventions needed to avoid the serious repercussions of

problematic use and change the trajectory toward substance use disorder (SUD). Such treatments include activities that have been found to defer the onset of substance use and minimize substance abuse and its related effects in people.[14] Also, the ability of people who use drugs (PWUDs) to communicate with experts in harm reduction and drug treatment regarding drug use, harms, and their access to care and social assistance is a noteworthy advantage of these programs.[15]

HARM REDUCTION INTERVENTIONS

Harm reduction strategies have been developed in recent years to cater for the unique social and health requirements of those experiencing alcoholism and homelessness. It was implemented in the United States as early as 1964. However, the modern harm reduction movement emerged in reaction to the HIV/AIDS pandemic in the early 1980s, with the introduction of syringe exchange [16] and they include:

Managed Alcohol Programs (MAPs): They offer regulated alcohol doses in addition to housing and services that have been shown to reduce the use of non-beverage alcohol (such as hand sanitizer, rubbing alcohol, mouthwash, etc.), lower harms caused by alcohol, reduce emergency room visits, limit exposure to police and criminal cases, increase housing preservation, promote rehabilitation, as well as enhance social interactions, wellbeing, and quality of life.[17]

Tobacco Harm Reduction: It is comparable to the modern approach to quitting smoking, which promotes the use of nicotine replacement products like snus and e-cigarettes in order to lessen the health hazards related to tobacco usage.[18] Examples include:

Snus and smokeless (oral) tobacco: Snus is an oral substance that contains refined tobacco in a paper bag that the user inserts between the gums and cheeks. It is not the same as chewing or dipping tobacco. Pasteurization of snus tobacco considerably decreases the quantity of nitrosamines, tobacco chemicals responsible for tobacco-related illnesses. Another benefit of snus is that it does not cause second-hand smoking exposure.[10]

E-cigarettes: Since its introduction in the market more than a decade ago, electronic nicotine dispensing systems (ENDS), often known as electronic cigarettes or e-cigarettes, have been widely regarded as a less dangerous alternative to traditional cigarette smoking. Electronic cigarettes are devices that vaporize a solution (e-liquid) mostly composed of glycerol, propylene glycol, distilled water, and flavorings and may or may not include nicotine. Heat produces an aerosol (vapour), which is inhaled (vaping). E-cigarettes are 95% less dangerous than tobacco smoking, according to research.[18]

Use of medical cannabis: Experimental studies using animals for drug-seeking behavior suggest that cannabinoids might be vital for treatments aimed at decreasing both the unconditioned (e.g., somatic signs) and conditioned (e.g., negative affect) effects of opiate withdrawal syndrome, which contribute to drug-craving/ seeking behavior in opioid addiction and relapse. Cannabis extracts, such as nabiximols have been demonstrated to be much more efficient than placebo in reducing the overall number of days of illegal cannabis usage.[19]

Syringe-services programs / Supervised consumption services (SCS): In this type of intervention in which users may acquire sterile injecting devices and utilize pre-obtained drugs in a legally sanctioned setting under the supervision of professionals prepared to respond to an overdose. Syringe-services initiatives have been utilized to react to HIV epidemics, rising rates of hepatitis C, and soft tissue infections among persons who inject drugs, and can help people enter substance-use rehabilitation.[20]

Vending Machine for Harm Reduction: VMHR is an umbrella name for a variety of automated devices that offer resources, knowledge, and therapy to historically marginalized populations, notably people who inject drugs (PWID). Although the first forms of VMHR were designed to gather and deliver syringes, some machines now also provide fentanyl test strips, naloxone, medications for opioid use disorder (MOUD, i.e., buprenorphine, methadone, and naltrexone), and safe supplies of pharmaceutical opioids. It improves accessibility to clients who do not have a vehicle or transportation funds, or who are physically unable to travel to a set location.[21]

Medication-assisted treatment (MAT): Methadone is one of the opioid substitution therapies, [22] and the World Health Organization, the Center for Disease Control, Substance Abuse and Mental Health Services Administration, and other advocacy groups endorse the utilization of methadone for minimizing withdrawal symptoms in individuals with heroin addiction, naltrexone in conjunction with an alcohol treatment scheme, and naloxone co-prescribing to avoid opioid overdose is a harm reduction technique for combating the opioid crisis. [23]

Community Overdose Education: Counseling on strategies to lessen the hazards of continued drug use is essential to promoting a harm reduction framework within the primary care substance abuse treatment programs. Acknowledging that drug users have substantial competence in keeping themselves safe, healthcare professionals can inquire about the

techniques they are presently doing to limit the risk of becoming infected and overdose. Once healthcare professionals understand how patients use drugs, they will be better able to discuss methods to make behavior safer, such as altering the way skin is cleansed before to injection. [24]

IMPLEMENTATION AND UPTAKE OF HARM REDUCTION STRATEGIES IN NIGERIA

A consultation on the creation of rules on the administration of methadone for drug rehabilitation therapy was initiated by the Federal Ministry of Health in 2018. A task team was also established by the health minister to oversee the national rollout of HRS and the National Drug Control Master Plan was created by the National Drug Law Enforcement Agency in collaboration with other institutions. [25]

In 2019, the Federal Government of Nigeria gave its approval for the key harm reduction services (Naloxone, OAT, and NSP) to be implemented. The Drug Harm Reduction Advocacy Network conducted a programmatic analysis in December 2022 of the harm reduction implementation among drug users and discovered that, although there were variations in implementation, 13 states had similar preventative package strategies. NSP was present in seven states (Oyo, Abia, Gombe, Cross River, Akwa Ibom, Rivers, and Lagos), but the harm reduction plan varied greatly.[25]

The national HIV and AIDS strategy framework 2021–2025 includes harm reduction programs such outreach, opioid agonist treatment (OAT), and the needle and syringe program (NSP). The United Nations Office on Drugs and Crime (UNODC) is presently providing support for the creation of established operating processes and guidelines for OAT-focused medically-assisted therapy in Nigeria. The country's National Drug Control Masterplan 2021–2025 committed to implementing OAT in four states: Oyo, Lagos, Gombe, and Abia, piloting NSPs in four states between 2020 and 2021 and proposed that between October 2021 and September 2022, three states will see a rise in harm reduction services as a result of the pilot's results. In the current project cycle, there are ongoing initiatives to expand harm reduction programs in four more states, for a total of seven out of the 36 states plus the Federal Capital Territory. Investments from ViiV Healthcare and the Global Fund assist the provision of harm reduction programs. [25]

Harm reduction services, including Needle and Syringe Programs (NSP), are delivered through public and private health facilities, drop-in centers, one-stop shops, and community-based organizations, using fixed site and community outreach models. These outreach efforts are supported by trained peer workers who provide health education, distribute condoms, and supply sterile injecting equipment while retrieving used items. Approximately 32% of people who inject drugs (PWID) have been tested for HIV, with 25% of HIV-positive PWID accessing Anti-Retroviral Therapy (ART). From January 2020 to September 2021, 8,190 HIV-negative PWID were screened for Preexposure Prophylaxis (PrEP), with 2,661 deemed eligible and receiving PrEP alongside risk reduction counseling. [26]

In 2022, the Federal Ministry of Health (FMOH) approved the full implementation of harm reduction services, allowing for the introduction of Opioid Agonist Therapy (OAT) and opioid overdose management with naloxone. From January to May 2023, OAT guidelines and Standard Operating Procedures (SOP) were launched, and selected health facilities were authorized to provide services. The target population was expanded to include pentazocine and tramadol users. Methadone procurement is underway, and training for service providers is planned. Naloxone is currently distributed through one-stop-shop facilities for key populations, with plans for community-level distribution. [26]

Despite progress, challenges remain. The procurement of naloxone and methadone has been delayed due to bureaucratic obstacles, and many facilities face stock shortages. However, there is growing acceptance of harm reduction services among health professionals, and national guidelines have been developed. Federal approval for harm reduction services, alongside a non-prosecution policy for small drug possession, represents significant advan-cements. Yet, law enforcement coopera-tion remains inadequate, with repressive policing practices hindering service uptake. At the community level, the involvement of PWID in service design has improved health outcomes, reduced stigma, and fostered collective action, though several factors still threaten the sustainability of these services.[26]

BARRIERS TO HARM REDUCTION STRATEGIES

Regardless of the possible benefits of harm reduction techniques, there are a number of obstacles to overcome.[27] Some of these barriers include:

Inadequate information: Utilization and knowledge of harm reduction education strate-gies are deficient from the nursing treatment of people with substance use disorder (SUD), and a lack of comprehension of what harm reduction encompasses is an obstacle to implementation among health care professionnals.[27]

Lack of awareness: Despite the advantages, young people's participation in harm reduction

programs is lower than it should be because they are less aware of its existence, are less adaptive, and are reluctant to acknowledge that they use psychoactive drugs.

Limited economic resources: Inadequate government funding affects how workers understand harm reduction. Workers may feel compelled to pay for petrol and other expenses to continue outreach services if government funding for harm reduction projects is restricted.[21]

Stigmatization: Research has consistently shown that healthcare workers have negative opinions about individuals with substance use disorders, and these beliefs may get worse over time for patients who have dual diagnoses. These behaviors might include declining to provide needles, anticipating that providing syringes would lead to further drug use.

Misconceptions: Concerns about needle exchanges and sales from a legal and ethical standpoint prevent the implementation of harm reduction programs. These concerns include the notion that providing injecting equipment is unlawful or that using harm reduction services in some way encourages criminal behavior; nonetheless, it seems that ignorance of the rules governing harm reduction techniques is more common than the regulations themselves.

Availability of substances: The availability of medications within hospitals has been identified by a few healthcare and service providers as a potential obstacle to the implementation of harm reduction programs. Methamphetamine access issues might compromise patients' treatment or need an outside drug dealer to visit the hospital due to the difficulties in maintaining the substance on site.[27]

Cost, space and time: Allocating financial resources for strategies can be challenging due to factors like manpower, location, equipment, time constraints, and logistical constraints. These challenges can contribute to future expenses. Caregiving for patients with socioeconomic disparities increases the likelihood of trauma, moral anguish, burnout, stress, and vicarious trauma.[28]

THE WAY FORWARD

Education was recognized as a possible facilitator for reducing stigma and increasing health workers' acceptability. Further education on what harm reduction is and how it might benefit patients who use substances may assist to develop interest and optimism about it.

Also, community organizations have the ability to garner backing for the utilization of harm reduction tactics. These organizations can help patients and hospital staff develop a therapeutic relationship and address any trust issues that may be present. [27] It is recommended that key populations and community-based groups are identified in order to promote harm reduction initiatives, mobilize a variety of local stakeholders to share knowledge and resources, and raise awareness of harm reduction programs in local communities.

Integration of harm reduction strategies in drug abuse prevention and control programs should be encouraged through policies, and federal and domestic financing should be advocated for to increase sustainability of such programs. Furthermore, to obtain the necessary funds, senior management and leadership must show support and interest, as this will be an example for others to follow and could promote workers' acceptance and education for senior nurses and those in positions of leadership to increase support.[27] Also, having expert team with knowledge in harm reduction will help in providing treatment for patients as this might be difficult for frontline personnel without the requisite experience.[27]

CONCLUSION

Substance abuse among young people is a critical global challenge, with persistently high relapse rates making long-term recovery difficult to achieve. The chronic nature of addiction means that sustained sobriety requires comprehensive, multi-faceted support strategies that go beyond traditional treatment approaches.

Utilizing a harm-reduction philosophy which can be provided in a variety of locations, from clinical treatment facilities to community-based prevention-education initiatives to medical care acknowledges that drug use occurs along a continuum from abstaining to persistently chaotic and hazardous use, therefore, healthcare professionals should assist patients in reducing their drug use or using it more safely so as to enable higher levels of functioning, improved social relationships, and better health results. Instead of focusing just on abstinence, this approach results in treatment interactions that are more fulfilling and less problematic.

Acknowledgement: The authors appreciate the contributions of the mental health/psychiatric nurses and supervisors for their insightful feedback on this work.

Conflict of interest: There was no conflict of interest to declare

Source of funding: None

Authors' contributions: OOC: Corresponding author, and carried out literature search and wrote the manuscript; AJA and AEE: Reviewed the manuscript; ASR, BIB and DMN:

Manuscript preparation and editing. All authors approved the manuscript.

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