PERCEIVED INFLUENCE OF SOCIAL MEDIA ON HEALTH PROMOTION OUTCOMES AMONG UNDERGRADUATE STUDENTS IN NNAMDI AZIKWE UNIVERSITY, AWKA

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ABSTRACT

The research work examined the perceived influence of social media on health promotion outcomes among undergraduate students in Nnamdi Azikiwe University Awka. Social media platforms have become essential tools for disseminating health information, raising awareness, and promoting healthy behaviors among youth. However, there is limited research on how undergraduate students engage with these platforms for health purposes. The study assessed the level of social media usage, the health topics explored, and the factors influencing students' adoption and usage of social media for health promotion outcomes. Guided by four research questions, the study employed a descriptive survey research design. A sample of 200 undergraduate students was randomly selected from a population of 25,000. Data were collected using a structured questionnaire titled "Undergraduates' Social Media Habits and Health Promotion Outcomes," rated on a four-point scale. The instrument yielded a reliability score of 0.77, indicating strong internal consistency. The findings revealed low usage of social media for accessing health information but high levels of engagement with health-related topics and behaviours. Significant factors influencing social media adoption for health promotion were identified, though actual utilization for achieving tangible health promotion outcomes remained low. Based on these findings, the study recommends targeted social media campaigns that promote credible health information. It suggests leveraging social environments by establishing peer-led health groups on platforms such as Facebook, WhatsApp, Instagram, YouTube, and Twitter to encourage healthier lifestyles. Additionally, workshops and online courses on effectively using social media for health promotion are advised. This research underscores the critical need to enhance health communication strategies and ensure access to credible health sources through social media.

Keywords: Social media, Health Promotion, Undergraduates

Introduction

The rapid proliferation of social media has transformed the way people communicate and access information. Social media platforms, such as Facebook, Twitter, Instagram, and YouTube, have become ubiquitous in modern society, enabling users to engage in online interactions, share content, and participate in virtual communities (Maya, 2024). These platforms have facilitated a

significant increase in connectivity, allowing people to stay connected with their social circles regardless of geographical distance. More importantly, social media has emerged as a key player in the dissemination of information, particularly in the realm of health promotion. By leveraging the wide reach of these platforms, health professionals and organizations can effectively share information and promote healthy behaviors to diverse audiences (Trappe, 2020). Trappe (2020) highlights that social media platforms offer unique opportunities for health promotion, especially in fields like cardiology, by allowing for rapid dissemination of health information, facilitating patient-provider communication, and supporting health behavior change through peer networks and social support.

According to Ghahrami, *et al.,* (2021), social media has been found to be a valuable tool in changing health-related behaviors among young adults, particularly undergraduates. By adopting and utilizing social media, health promotion initiatives can be implemented to encourage healthy behaviors, raise awareness about specific health issues prevalent among undergraduates (e.g., stress, anxiety, and poor nutrition), and provide support for students struggling with these concerns. For example, social media platforms can be used to promote physical activity through the sharing of workout routines and motivational content, encourage healthy eating by providing nutritious recipes and meal planning tips, and support stress management by offering mindful exercises and resources for mental well-being (Ghahrami, *et al.,* 2021). Additionally, social media can serve as a collaborative dissemination platform to reach and influence the target audience and deliver health-related information tailored to the specific needs and interests of undergraduates.

According to Welch, Petkovic, Pardo, Rader and Tugwell (2016) demonstrates the effectiveness of social media campaigns in promoting healthy behaviors and improving health

outcomes among young adults. By leveraging popular social media platforms, such as Facebook and Instagram, health promotion initiatives were able to reach a large and diverse audience of young adults, including undergraduates. These campaigns adopted and utilized engaging content, such as infographics, videos, and interactive quizzes, to educate participants about the importance of physical activity, healthy eating, and stress management. Moreover, the social media platforms allowed for personalized feedback and support, as participants could ask questions, share their experiences, and receive encouragement from both health professionals and their peers. Welch *et al*. (2016) suggest that the interactive and engaging nature of social media can contribute to improved health outcomes by increasing knowledge, motivation, and self-efficacy among young adults.

While social media can be a valuable tool for promoting health and wellness, it is important to recognize that its impact on health behaviors is not always straightforward. Social media's adoption and use can have both positive and negative effects on mental and physical health. On the one hand, engaging with health-related content on social media can increase awareness, knowledge, and motivation to adopt healthy behaviors (Smith, Saleem, and Alhabash 2020), For example, following fitness influencers or joining online communities focused on healthy eating can inspire individuals to exercise regularly and make nutritious food choices. On the other hand, excessive or passive social media use, such as scrolling through idealized images or comparing oneself to others, can lead to increased stress, anxiety, and decreased physical activity (Smith *et al*., 2020). This is particularly relevant for undergraduates, who may already be experiencing academic pressures and mental health challenges. For some students, social media may serve as a relaxing and stress-reducing activity, providing a much-needed mental break. However, when used excessively or in an unhealthy manner, social media can exacerbate

feelings of tension and anxiety, ultimately leading to negative health outcomes. This dual impact underscores the need for a nuanced understanding of social media's role in health promotion, one that considers both its potential benefits and drawbacks.

Revolutionizing the way health messages are shared and health behaviours are promoted, the adoption and utilization of social media platforms can achieve health promotion outcomes through an appropriate level of awareness and favorable attitudes among undergraduates towards the use of these platforms. These outcomes, which represent changes in health status attributable to planned interventions and programs such as exercise, nutrition, and stress management (Nutbeam and Muscat, 2021), can be attained by leveraging the reach and engagement potential of social media. However, it is crucial to recognize that these platforms can also have negative effects on both mental and physical health (Smith *et al*., 2020). This dual impact underscores the need for a thorough understanding of social media's role in health promotion, one that considers both its potential benefits and drawbacks in order to develop effective strategies and interventions.

Health promotion as a multidisciplinary approach aims to promote health, prevent disease, and improve quality of life, Journal of Health Promotion and Disease Prevention, (2021). It is also a social and political process that aims to create healthy public policy, healthy environments, and healthy behaviors (Global Health, (2023). In essence, health promotion has the potential to drive positive change in individuals, communities, and populations, making it a crucial strategy in the quest for optimal health and wellbeing.

Determining the effectiveness of adopting and using social media platforms to change health behaviours and promote positive health outcomes among undergraduate students. While social media has potential for reaching a wide audience, more research is needed to evaluate the

long-term impact on sustainable behaviour change. Methodological approaches are also lacking with studies using quantitative methods or focusing on short-term engagement rather than measuring changes in health behaviours.

Considering the rampant of social media usage among undergraduate students of Nnamdi Azikiwe University, the researchers deem it necessary to find out the perceived influence of social media on Health Promotion outcomes and addressing these gaps in the research is crucial for optimizing social media strategies to improve public health especially among Undergraduates who are frequent social media users.

Purpose of the study

The purpose of this study is to investigate the influence of social media on Health Promotion outcomes among undergraduates in Nnamdi Azikwe University Awka. The specific objectives are as follows:

1. Assess the level of social media usage by undergraduates for accessing health information.
2. Determine the types of health topics and behaviours that undergraduates engage with on social media.
3. Identify factors that influence Undergraduate's adoption of social media for health promotion outcomes.

Research Questions

1. What is the level of social media usage among undergraduates for accessing health information?
2. What types of health topics and behaviors do undergraduates most commonly engage with on social media platforms?

3. What factors influence undergraduates' adoption of social media for health promotion outcomes?

Social Cognitive Theory (SCT) (Bandura, 1986) posits that learning is a cognitive process influenced by observational learning, reinforcement, self-efficacy, behavioral capability, and environmental factors. In the context of health promotion, Social cognitive theory has been used to understand how individuals adopt healthy behaviors (Bandura, 1997). This study applies Social cognitive theory to investigate how social media use influences health promotion outcomes among undergraduates. The key components of Social cognitive theory relevant to this study include observational learning, reinforcement, self-efficacy, behavioral capability, and environmental factors. Observational learning refers to the process of learning through observing others' behaviors and outcomes on social media. Reinforcement includes the likes, comments, and shares that follow health-related posts. Self-efficacy is the belief in one's ability to adopt healthy behaviors, while behavioral capability refers to the knowledge and skills necessary for healthy behaviors. Environmental factors include the social media platforms and peer networks that influence health promotion outcomes.

Based on social cognitive theory, this study proposes that observational learning and reinforcement on social media will increase self-efficacy and behavioral capability, leading to improved health promotion outcomes. Additionally, environmental factors (social media platforms and peer networks) are expected to moderate the relationships between observational learning, self-efficacy, and health promotion outcomes.

Methodology

The design for the study is a Descriptive survey design. This design allows for the identification of trends, patterns, and relationships between variables, which is essential for understanding the adoption and utilization of social media on health promotion outcomes.

This research was conducted at Nnamdi Azikiwe University Awka, a leading federal institution in Nigeria's higher education landscape. The university's main campus is strategically located in Awka, the capital city of Anambra State, with additional campuses in Nnewi and Agulu. As one of the top 25 federal universities in the country, Nnamdi Azikiwe University Awka is committed to academic excellence and quality, ssunder the guidance of the National University Commission.

The study's population consisted of 25,000 undergraduate students enrolled across the 14 faculties at Nnamdi Azikiwe University, Awka, Anambra state. The sample for this study consisted of 200 undergraduate students selected from the population of 25,000 students at Nnamdi Azikiwe University, Awka, using a simple random sampling technique.

The data collection instrument used in this study was a questionnaire titled "Undergraduates' social media habits and Health Promotion outcomes. The questionnaire consisted of four parts, each focusing on a specific aspect of health promotion and social media use. The instrument was based on a four-point scale of Strongly Agree (4), Agree (3), Disagree (2) and Strongly Disagree (1). The instrument was validated by three experts, two experts in the department of Health Promotion and Public Health Education and one in Measurement and Evaluation in the department of Educational Foundation, faculty of Education, Nnamdi Azikiwe University, Awka. The reliability of the research instrument was established through a robust process. The instrument was administered to 20 participants in Chukwuemeka Odumegwu

Ojukwu University Igbariam. Cronbach alpha was used to establish internal consistency, which revealed a high coefficient value of 0.77 indicating excellent internal consistency and reliability. Data for the study was analyzed using descriptive statistics.

Results

Research Question 1: What is the level of social media usage among undergraduate students of Nnamdi Azikiwe University, Awka for accessing health information?

Table 1: Mean ratings on the level of social media usage among undergraduate students of Nnamdi Azikiwe University, Awka for accessing health information.

N=200

	Mean	SD	Remark
1. I use social media to learn about healthy habits.	2.56	.70	High
2. I have used Facebook to get health information.	1.58	.86	Low
3. I have used Instagram to get health information	1.94	.84	Low
4. I have used Twitter to get health information.	1.50	.90	Low
5. I have used You Tube to get health information.	1.54	.88	Low

Table 1 shows that the Mean ratings on the four questions out of five listed items on the level of social media usage among undergraduate students of Nnamdi Azikiwe University, Awka for accessing health information were low. However, they agreed on item number one. The mean scores of the questions are as follows 2.56, 1.58, 1.94, 1.50 and 1.54 respectively. The respondents however have the following scores in SD; .70, .86, .84, .90, and .88 respectively.

Research Question 2: What type of health topics and behaviours do undergraduate students of Nnamdi Azikiwe University, Awka most commonly engage with on social media platforms?

Table 2: Mean ratings on the type of health topics and behaviours undergraduate students of Nnamdi Azikiwe University, Awka most commonly engage with on social media platforms.
N=200

HEALTHY TOPICS ON SOCIAL MEDIA	Mean	SD	Remark
1. Healthy eating.	3.49	.64	High
2. Videos on exercise and fitness.	3.15	.61	High
3. Pep talks by health experts.	2.23	.80	Low
4. Online discussion about mental health.	2.02	.87	Low
5. Tracking physical activities or exercise routine.	3.07	.74	High

Analysis in Table 2 shows that the respondents had high mean rating in three questions asked out of five questions on the type of health topics and behaviours undergraduate students of Nnamdi Azikiwe University, Awka most commonly engage with on social media platforms**.** However, the student's online discussion is not about mental health and they don't pep talk by health experts. The mean scores of questions 1 -5 are as follows 3.49, 3.15, 2.23, 2.02 and 3.07 respectively. The respondents however have the following scores in SD; .64, .61, .80, .87, and .74 respectively.

Research Question 3: What factors influence undergraduate students of Nnamdi Azikiwe University, Awka in adoption of social media for health promotion outcomes?

Table 3: Mean ratings on the factors that influence undergraduate students of Nnamdi Azikiwe University, Awka in adoption of social media for health promotion outcomes.
N=200

	Mean	SD	Remark
1. Self-efficacy.	2.50	.88	High
2. Skills and capabilities.	3.49	.64	High
3. Observational learning.	3.15	.61	High
4. Incentives and rewards.	1.50	.97	Low
5. Social identity.	3.07	.74	High

Analysis in Table 3 shows that the respondents have high mean rating in four of the questions asked out of five on adoption of social media for health promotion outcomes among undergraduate students of Nnamdi Azikiwe University, Awka (mean = 2.50, 3.49, 3.15 and 3.07 respectively). Meanwhile, undergraduate students of Nnamdi Azikiwe University, Awka has

low mean rating on question number four (mean = 1.50). The respondents however have the following scores in SD; .88, .64, .61, .97, and .74 respectively.

Discussion of Findings

Level of social media usage among undergraduates students of Nnamdi Azikwe University, Awka for accessing health information

The finding in research question one revealed that the level of social media usage for Undergraduates students of Nnamdi Azikwe University, Awka for accessing Health information is low. This means that undergraduate students do not frequently use social media, Facebook, Instagram, Twitter and YouTube to learn healthy habits or to get health information. This findings was in line with the findings of Megnesha (2021) that a significant portion of students utilized social media for health information, with a focus on specific platforms. However, it also highlighted that while many students were aware of social media as a source for health-related information, actual usage rates for obtaining such information varied widely among different platforms. Mengesha (2021) reported that factors like daily social media usage and the type of health information sought influenced students' engagement with health content on social media. It's also aligns with the findings of Mengesha (2021), where students showed a high mean score in using social media to learn about healthy habits but low scores for specific platforms like Facebook, Instagram, Twitter, and YouTube. The researchers believes that more awareness and targeted educational efforts are needed to encourage students to access credible health information through social media.

Types of health topics and behaviours undergraduate students of Nnamdi Azikwe University, Awka commonly engage in on social media

The finding in research question two reveal distinct preferences among undergraduate students of Nnamdi Azikiwe University, Awka, regarding health topics and behaviours on social media. Students show high engagement with content related to healthy eating, exercise videos, and tracking physical activities. This suggests a prioritization of practical health information related to diet and fitness over more complex health discussions. The finding also agreed with the views of Lee *et al*. (2023) that topics related to healthy eating and exercise were the most prominent health-promoting behaviours reported by students, which is consistent with the findings, where "healthy eating" and "videos on exercise and fitness" received high mean ratings from respondents. Similarly, Greene *et al*. (2011) noted that students frequently engage with fitness and nutrition topics, mirroring the high mean ratings observed in this study. However, engagement with pep talks by health experts and online discussions about mental health remains low, consistent with Greene *et al*. (2011) that young adults prefer social interaction and entertainment to serious health discussions. The researchers are of the opinion that, while students actively engage with practical health topics on social media, there is a critical need to promote discussions on mental health and expert advice to enhance overall health literacy.

Factors that influence Undergraduate students of Nnamdi Azikwe University, Awka in adopting social media for health promotion outcomes

The findings in research question three revealed several key motivators influencing undergraduate students of Nnamdi Azikiwe University, Awka, in adopting social media for health promotion outcomes. The results show that skills and capabilities, observational learning, social identity, and self-efficacy are significant factors influencing students' use of social media

for health promotion. However, incentives and rewards appear to have a low influence on their adoption of social media for this purpose. These findings align with the work of Laranjo *et al*. (2015), which found that factors such as skills, social influence, and self-efficacy are critical in motivating individuals to adopt social media for health-related behaviours, while incentives and rewards play a smaller role. Similarly, Huang *et al*. (2014) emphasized the importance of observational learning—seeing peers engage in healthy behaviours—as a significant influence, which is consistent with the current study's high mean ratings for this factor. Additionally, they found that social identity strongly shapes users' decisions to adopt social media for health promotion, with students more inclined to participate when their social circles engage in similar health practices. The researchers believe that enhancing students' skills, self-efficacy, and leveraging social identity and observational learning will significantly boost their adoption of social media for health promotion outcomes.

Conclusion

Based on the finding of this study, the researcher concluded that, awareness and targeted educational efforts are needed to encourage students to access credible health information through social media. Again, while students actively engage with practical health topics on social media, there is a critical need to promote discussions on mental health and expert advice to enhance overall health literacy. The researchers also conclude that enhancing students' skills, self-efficacy, and leveraging social identity and observational learning will significantly boost their adoption of social media for health promotion outcomes. Therefore, increasing awareness, alongside leveraging the power of social networks, is crucial to enhance health literacy and behaviour among students.

Recommendations

1. Universities and health institutions should actively promote mental health discussions on social media by partnering with influencers, experts, and student ambassadors to reduce the stigma and encourage more engagement on health promotion.
2. Educational institutions should implement targeted social media campaigns focusing on credible health information. These campaigns could include interactive content on nutrition, exercise, and health management strategies to make health information more relatable and engaging for students.
3. Leverage social environments by creating peer-led health promotion groups on platforms like Facebook or WhatsApp, where students can encourage each other to adopt healthier lifestyles, thus enhancing the positive influence of social support on health behaviors.
4. Workshops or online courses on how to effectively utilize social media for health promotion should be offered to students. These programs would help improve their skills in identifying credible health information sources and avoid problematic social media use that hinders health-promoting behaviors.

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FACTORS INFLUENCING SELF- MEDICATION AND ITS PREVENTIVE MEASURES AMONG STUDENTS OF NNAMDI AZIKIWE UNIVERSITY, AWKA

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ABSTRACT
The study investigated factors influencing self-medication among undergraduate students of Nnamdi Azikiwe University Awka. Three research questions guided the study and one hypothesis was tested. The study adopted a descriptive survey design, the population comprised of 1268 students, 204 undergraduate students were sampled using simple random sampling technique and proportionate sampling technique. Instrument for data collection was a structured questionnaire titled Self-medication and Preventive Measures Questionnaire (FISPMQ). The instrument was validated by three experts, two from the Department of Health Promotion and Public Health Education and one from Measurement and Evaluation Department, Faculty of Education Nnamdi Azikiwe University, Awka. Reliability of the instrument was established using Cronbach Alpha coefficient that yielded a coefficient value of 0.78 which makes the instrument reliable. The data collected were analyzed using simple frequency tables while the study hypothesis was tested using one way ANOVA. Findings from the study shows that financial constraints, peer pressure, access to Over The Counter (OTC) drugs, lack of awareness of the dangers of self-medication and adequate knowledge of healthcare and medications are factors influencing self-medication among undergraduate students. The study also found that self-medication leads to frequent health issues or complications in students. Furthermore, the study found that self-medication leads to potential adverse reaction and risk of dependency and abuse among students. Based on these findings, the study recommends among others that university authorities should implement regular awareness programs on the dangers of self-medication, utilizing campus media and peer support groups to spread information on safe medication practices.

Keywords: Self-Medication, Factors, Effective, Preventive Measures, Students

Introduction

Self-medication in recent times has become an issue of significant global concern. Behzadifar *et al*., (2020) defined self-medication as a term that covers a variety of behaviours that range from self-care to prevention and management of diseases. Self-medication refers to the practice of individuals diagnosing and treating their own health conditions using medications without professional guidance. This phenomenon has become increasingly prevalent globally, particularly among young adults and university students. While self-medication can provide immediate relief for minor ailments, it raises significant concerns among scholars and health practitioners due to its potential health risks and implications for public health. Auta *et al*. (2019) defined self-medication as the use of medications for self-diagnosed disorders or symptoms or the continuous use of prescribed drugs for chronic conditions without professional guidance, emphasizing the autonomy and associated risks involved. Fadare *et al*. (2021) elaborated on this definition by highlighting the socio-cultural dimensions in Nigeria, where economic constraints, cultural beliefs, and perceived inadequacies in healthcare accessibility drive individuals to self-medicate. They note that community knowledge and peer influence significantly shape this practice, leading to potential misuse.

Similarly, Okoro *et al*. (2020) investigated self-medication among university students, describing it as a common behavior influenced by academic stress, peer pressure, and the availability of over-the-counter medications. They suggest that while self-medication offers quick relief for minor ailments, it poses significant risks such as incorrect dosages and adverse drug interactions. Osemene and Lamikanra (2022) further expanded on the economic aspects, suggesting that the high cost of healthcare services and medications prompts individuals to self-medicate as a cost-saving measure. They view self-medication as a rational choice for many

Nigerians, despite its potential adverse effects. Lastly, Eke and Eke (2023) discuss the regulatory and educational challenges, highlighting the lack of stringent regulatory frameworks and insufficient public health education as major contributors to the prevalence of self-medication. They call for comprehensive policies to mitigate these risks. Understanding the factors that drive students to self-medicate is crucial for developing effective interventions to mitigate these risks. Several factors can influence self-medication practices among undergraduate students including accessibility of medications, peer influence, knowledge of healthcare, financial constraints, lack of health insurance, availability of drugs, lack of knowledge and busy schedules (Belachew *et al*., 2021). Madtha, *et al*., (2022) opined that peer influence significantly impacts students' decision to self-medicate. Madtha *et al*., (2022) explained that undergraduate students often rely on the advice and experiences of their peers when it comes to health-related decisions as friends and classmates frequently share medications and recommend drugs based on their own experiences or hearsay.

By implication, students may turn to self-medication as a way to quickly treat their symptoms and return to their daily routines. It is important for universities to educate their students on the proper use of medications and the potential dangers associated with self-medication practices. Providing access to affordable medical care and health insurance can also help reduce self-medication practices among undergraduate students (Nwosu *et al*., 2021). The WHO (2021) guidelines stated that the act of practicing responsible self-medication can help prevent and treat diseases that do not require patients to seek medical consultation. This action can therefore reduce the increasing pressure on medical services for relief of minor ailments especially when resources are limited. However, there are risks associated with self-medication which include lack of clinical evaluation of the condition by a health care provider which could

result in misdiagnosis and incorrect choice of medicines, delays in seeking proper treatments, use of excessive medicines or lower dosage and prolonged duration of use of medicines (Behzadifar, *et al*., 2020; Ghosh & Shewade, 2020). Again, self-medication can also lead to incorrect self-diagnosis, delays in seeking appropriate care, dangerous drug interactions, risk of dependence, drug abuse, incorrect dosage and choice of medication.

Nigeria stands out among the few countries of the world where drugs are freely displayed for sale in unauthorized places such as markets, shops, roadside stalls, motor parks and other public places by individuals not duly licensed (Oyewole, *et al*., 2013). This can also result to self-medication among undergraduate students. Recent studies have identified various factors contributing to self-medication, including mental health stigma (Eisenberg *et al*., 2019), lack of access to healthcare services (Suleman *et al*., 2022), social media influence (Lee *et al*., 2021), and cultural beliefs (Wong *et al*., 2021). Moreover, academic work loads and school pressure has exacerbated the issue, with students experiencing increased stress, anxiety, and depression; undergraduate students of Nnamdi Azikiwe University, Awka are not exempted. It is against this backdrop that this study aims at determining the factors influencing self-medication among undergraduate students of Nnamdi Azikiwe University, Awka. Nnamdi Azikiwe University (Unizik) undergraduates comprised of young adults within the age range of 18 to 25 years, pursuing various academic programs in the university. Most of them are dependent on themselves when they are in school, sometimes if they are sick, they don't seek professional medical care, they do buy drugs from a patent medical-stores.

Statement of the Problem

Ideally, when individuals fall ill, they should seek professional medical care from a healthcare provider to ensure accurate diagnosis and appropriate treatment. This approach

minimizes the risks associated with incorrect self-diagnosis and inappropriate treatment, thereby promoting better health outcomes. However, among undergraduate students at Nnamdi Azikiwe University (NAU), there seem to be a growing trend of self-medication, where students bypass professional healthcare services and use over-the-counter drugs or home remedies without proper medical guidance. This practice often leads to misuse of medication, exacerbation of health issues, and potential development of drug resistance, which undermines the effectiveness of future treatments.

The problem is further compounded by several factors including limited access to healthcare facilities, a lack of awareness about the dangers of self-medication, and a culture of convenience that encourages quick fixes rather than seeking professional advice. Despite ongoing efforts by health professionals, educational institutions, and governmental bodies to address these issues through health campaigns, awareness programs, and improved access to healthcare services, self-medication remains prevalent among students. These initiatives have not sufficiently altered the behavior or practices of the students, indicating a need for more targeted and effective strategies. According to James *et al*. (2018) Self-medication is common practice among undergraduates, with studies showing that 60-80% of the students engaged in self-medication. Obi *et al*. (2023) reported that there is rising cases of self-medication among undergraduate students in Unizik. Obi *et al*. 76.1% of undergraduate self-medicated due to the perception of minor illnesses, while 49% made self-decisions regarding their treatment.

To address this issue, this research aims to investigate the factors influencing self-medication among undergraduate students at NAU and explore effective preventive measures. By conducting comprehensive surveys, the study will identify key drivers of self-medication, investigate the implications of self-medication on students and propose evidence-based strategies

to enhance awareness and encourage responsible health practices among students. It is against this backdrop that the present study aims to investigate factors influencing self- medication and its preventive measures among undergraduate students in Nnamdi Azikiwe University, Awka.

Purpose of the Study

The main purpose of this study is to investigate factors influencing self- medication and its preventive measures among students of Faculty of Education of Nnamdi Azikiwe University, Awka while the specific purposes are to determine the:

1. factors that can influence self-medication among Faculty of education students of Nnamdi Azikiwe University, Awka.
2. health implication of self-medication among Faculty of Education students in Nnamdi Azikiwe University, Awka.
3. measures to eradicate self-medication among Faculty of Education students in Nnamdi Azikiwe University, Awka.

Research Hypotheses

1. There is no significant difference between causes and health implication of self-medication among Faculty of education Students in Nnamdi Azikiwe University, Awka.

Methodology

The researcher adopted descriptive survey research design for the study. The area of the study was carried out in Nnamdi Azikiwe University, Awka. The population of the study comprised of 1,268 regular undergraduate students in Faculty of Education, in Nnamdi Azikiwe University, Awka. Multi stage sample and sampling techniques was adopted for this study, four (4) departments from the Faculty of Education comprised were selected using simple random sampling technique of balloting without replacement, 51 students were selected using purposive

sampling technique from each department, making it a total number of 204 students were selected for the study.

The instrument of data collection is a self-structured questionnaire titled Factors Influencing Self-medication and Preventive Measures Questionnaire (FISPMQ) developed by the researchers. This is made up of two sections (section A and B). Section A comprise of the bio data of respondents while section B consist of three sections and 18 items that reflect the research questions used in the study. Options in section B of the questionnaire is made up YES/NO. The instrument was validated by two experts in the Department of Health Promotion and Public Health Education and an expert in Measurement and Evaluation in Nnamdi Azikiwe University, Awka to determine the degree/extent at which the instrument fits the purpose it was designed for. To obtain the reliability of the instrument, the questionnaire was tested by administering 20 copies to some Faculty of Education students in another Chukwuemeka Odumegwu Ojukwu University, Igbariam campus (outside the area study). The data obtained from the administered questionnaire was then analyzed using Cronbach alpha method. The overall coefficient value gotten was 0.78 which was an indication that the instrument is reliable.

The researchers administered the structured questionnaire with the help of a research assistant to the sample in the Faculty of Education. The respondents were asked to express their opinion in line with the items on the questionnaire. The researchers with the help of the research assistants collected back the filled questionnaires on the spot to avoid loss of questionnaires. Thus, a total of 204 (100%) questionnaire were shared however, only 200 (98%) were adequately filled and returned. Data collected were analyzed and interpreted using frequency tables, percentages and ANOVA. The bio-data and questions that addressed the research questions were analyzed using frequency and percentages. The higher the percentage on an option (Yes/No), the

likelihood of acceptance or rejection in relation to the item. The study hypothesis was tested at 0.05 level of significance. Thus, when the level of significance obtained is greater than 0.05, the null hypothesis was accepted and the alternative hypothesis rejected and vice-versa.

Results

Table 1: Age Distribution of Respondents

Age	Frequency	Percentage
16-20 years	14	7.0
21-25 years	116	88.0
26-30 years	59	29.5
31 years and above	11	5.5
Total	**200**	**100**

Source: Field survey, 2024

Table 1 shows that 7.0% of the respondents are within the age category of 16-20 years, 88.0% are within the age category of 21-25 years, 29.5% are within the age category of 26-30 years while 5.5% are aged 31 years and above.

Table 2: Distribution of Respondents by Gender

Gender	Frequency	Percentages
Male	93	46.5
Female	107	53.5
Total	**200**	**100**

Source: Field Survey, 2024

Table 2 shows that 46.5% of the respondents are male while 53.5% are females.

Table 3: Distribution of Respondents by Departments

Departments	Frequency	Percentages
Library and Information Science	48	24.0
Early Childhood and Primary Education	51	25.5
Educational foundations	50	25.0
Health Promotion and Public Health Education	51	25.5
Total	**200**	**100**

Source: Field Survey, 2024

Table 3 shows that 24.0% of the respondents are student of Library and Information Science, 25.5% are students of Early Childhood and Primary Education, 25.0% are students of Educational Foundations Department while 25.5% are students of Health Promotion and Public Health Education Department.

Analysis of Research Questions

Research Question 1: What are the factors influencing self-medication among Faculty of education students of Nnamdi Azikiwe University, Awka?

Table 4: Frequency and percentages of the factors influencing self-medication among Faculty of education students

		YES			NO		
		N	%	Remark	N	%	Remark
1.	Financial constraints	167	83.5	VH	33	16.5	VL
2.	Peer pressure	180	90.0	VH	20	10	VL
3.	Access to over the counter (OTC) drugs	174	87.0	VH	26	13	VL
4.	Lack of awareness of the dangers of self-medication	155	77.5	VH	45	22.5	VL
5.	Adequate knowledge of healthcare and medications	160	80.0	VH	40	20.0	VL
6.	Attempting to deal with past trauma	76	38.0	VL	124	62.0	VH

Data presented in table 4 shows that majority of the respondents (83.5%) as against (16.5%) indicated yes that financial constraints influence self-medication among students of Faculty of Education in Nnamdi Azikiwe University. The table also shows that 90% of the respondents also agreed that peer pressure influences student self-medication. The table further shows that majority of the students (87.0%) also agreed that access to counter drugs influences students' self-medication. Table again, shows that majority of the respondents (77.5%) indicated yes that lack of awareness of the dangers of self-medication influences students' self-medication in Faculty of Education. In contrast, the table shows that a high percentage (62.0%) indicated no that attempting to deal with past trauma influences self-medication among students in Faculty of Education.

Research Question 2: What are the health implications of self-medication among Faculty of education students of Nnamdi Azikiwe University, Awka?

Table 5: Health implications of self-medication among Faculty of education students

		YES			NO		
		N	%	Remark	N	%	Remark
7.	Students suffer from overdose as a result of self-medication	86	43.0	L	114	57.0	H
8.	Self-medication leads to frequent health issues or complications in students.	128	64.0	H	72	36.0	L
9.	Self-medication leads to masking of severe diseases.	137	68.5	H	63	31.5	L
10.	Self-medication worsens illness conditions.	64	32	L	136	68.0	H
11.	Self-medication leads to potential adverse reaction.	168	84.0	VH	32	16.0	VL
12.	Self-medication leads to risk of dependency and abuse.	170	85.0	VH	30		VL

Table 5 shows that majority of the respondents (57.0%) indicated no that students suffer from overdose as a result of self-medication. The table also shows that majority of the

respondents (64.0%) agreed that self-medication leads to frequent health issues or complications in students. The table also shows high level of agreement (68.5%) among students that self-medication leads to masking of severe diseases. Data presented in table 5 further shows that a high level of the respondents (68.0%) disagreed that self-medication worsen illness conditions. The table further shows that a very high percentage of the respondents (84.0%) agreed that self-medication leads to potential adverse reaction. Lastly, table 5 shows that a high percentage of the respondents (85.0%) indicated yes that self-medication leads to risk of dependency and abuse.

Research Question 3: What are the measures to eradicate self-medication among Faculty of education students of Nnamdi Azikiwe University, Awka?

Table 6: Measures to eradicate self-medication among Faculty of education students

		YES			NO		
		N	%	Remark	N	%	Remark
13.	Implementation of educational programmes about the risks of self-medication.	189	94.5	VH	11	5.5	VL
14.	Providing accessible and affordable healthcare services in school clinic.	200	100.0	VH	0	0.0	VL
15.	Regular workshops on proper medication practices and consultation.	174	87.0	VH	26	13.0	VL
16.	Strict enforcement of policies against the sale of over-the-counter drugs without prescriptions.	188	94.0	VH	12	6.0	Vl
17.	Encouraging peer support groups for sharing information on safe medication.	160	80.0	VH	40	20.0	VL
18.	Promoting awareness through campus media and social networks.	187	93.5	VH	13	6.5	VL

Table 6 shows the responses given by respondents on measures to eradicate self-medication among Faculty of education students. Data presented in the table shows very high percent of agreement for all the items. From the table it can be seen that implementation of educational programmes about the risks of self-medication, providing accessible and affordable healthcare services in school clinic, regular workshops on proper medication practices and consultation, strict enforcement of policies against the sale of over-the-counter drugs without

prescriptions, encouraging peer support groups for sharing information on safe medication and promoting awareness through campus media and social networks were are agreed by the majority of the respondents as measures to eradicate self-medication among students of Faculty of Education in Nnamdi Azikiwe University, Awka.

Test of Hypothesis

Ho: There is no significant difference between causes and health implications of self-medication among undergraduate students of Faculty of Education.

Table 7: One Way ANOVA test of Hypothesis 1

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	15.499	2	7.749	83.453	.437
Within Groups	8.172	183	.093		
Total	23.670	199			

Source SPSS version 25

Table 7 shows significant value of .437 which is greater than the level of significance of .05. This is an indication that the alternative hypothesis is rejected and the null hypothesis accepted. By implication, there is no significant difference between causes and health implications of self-medication among undergraduate students of Faculty of Education.

Discussions

The study through the first research question found that there are several factors influencing self-medication among undergraduate students of Faculty of Education in Nnamdi Azikiwe University, Awka prominent among which are financial constraints. Again, the study found that peer pressure influences self-medication among undergraduate students of the faculty of education. This finding supports the finding of Nwosu *et al*. (2021) who found peer pressure as a major influencing factor of self-medication among students. However, the present study did

not find lack of parental guidance as an influencing factor as Nwosu *et al*. did. Again, the present study found access to over the counter (OTC) drugs, lack of awareness of the dangers of self-medication and adequate knowledge of healthcare and medications as influencing factors of self-medication among Faculty of Education students in Nnamdi Azikiwe University, Awka. This finding may have resulted because students' interaction with their peers could influence their disposition towards self-medication.

The study through the second research question found that self-medication leads to frequent health issues or complications in students of Faculty of Education in Nnamdi Azikiwe University, Awka. This finding supports Ghosh and Shewade (2020) who emphasized that self-medication can exacerbate health issues rather than providing relief for students. The study also found that self-medication leads to masking of severe diseases in students of Faculty of Education in Nnamdi Azikiwe University, Awka. Furthermore, it was found by the study that self-medication leads to potential adverse reaction and risk of dependency and abuse among students of Faculty of Education in Nnamdi Azikiwe University, Awka. The finding of the study indicate that self-medication could affect students' health. This is because when students self-medicate it could lead to further health complications.

The study through the third research question found that implementation of educational programmes about the risks of self-medication is a measure to eradicate self-medication among Faculty of education students. This finding in one way or the other support the findings of Jibril *et al*. (2023) who found that school-based programmes reduces students involvement in self-medication. The present study also found that providing accessible and affordable healthcare services in school clinic, regular workshops on proper medication practices and consultation, strict enforcement of policies against the sale of over-the-counter drugs without prescriptions,

encouraging peer support groups for sharing information on safe medication and promoting awareness through campus media and social networks are other measures to eradicate self-medication among Faculty of education students. The finding of the study indicate that the use of educational programme could offer students' knowledge on the problems associated with self-medication.

Conclusion

Based on the result obtained from the study, it was concluded that several factors such as peer pressure and access to over-the-counter drugs among others are responsible for why undergraduate students of Faculty of Education in Nnamdi Azikiwe University, Awka engage in self-medication. The study also concludes that self-medication leads to health issues/complications and other adverse reaction on undergraduate students of Faculty of Education students. The study further concludes that several measures for instance, implementation of educational programmes among others can be used to eradicate self-medication among undergraduate students of Faculty of Education in Nnamdi Azikiwe University, Awka.

Recommendations

Based on the findings of the study, it was recommended that:

1. University authorities should implement regular awareness programs on the dangers of self-medication, utilizing campus media and peer support groups to spread information on safe medication practices.
2. The university clinic should provide affordable, accessible healthcare services and offer regular workshops on the importance of professional medical consultations to reduce reliance on self-medication.

3. Strict enforcement of policies by ministry of health, banning the sale of over-the-counter drugs without prescriptions should be ensured within and around university campuses to limit easy access to medications.

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STRESS MANAGEMENT PRACTICES AMONG HEALTH CARE WORKERS DURING COVID-19 PANDEMIC AT CHUKWUEMEKA ODUMEGWU OJUKWU UNIVERSITY TEACHING HOSPITAL, AWKA.

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Abstract
Stress is part of our everyday life and can have life threatening consequences when not managed effectively. This study determined the stress management practices among healthcare workers during COVID-19 Pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka. Three research questions guided the study and two hypotheses were tested at .05 level of significance. The cross-sectional survey research design was used for the study. The Multistage sampling technique was used to draw a sample of 267 out of 534 Healthcare workers (HCWs). The instrument for data collection was a researcher's designed questionnaire titled "Stress Management Practices among Healthcare workers during Covid-19 Pandemic". The data collected were analyzed using frequency and percentages for research questions while the null hypotheses were tested using Chi - square (X^2) statistics. The findings of the study revealed among others: thirteen stress management practices HCWs adopted to combat stress during COVID-19 Pandemic. Moreover, the study revealed that there is no significant difference on the stress management practice among male and female HCWs but there is a significant difference on the stress management practice among HCWs of different job types. Based on the findings, the researcher concluded that some stress management practices adopted by HCWs in COOUTH, Awka during Covid-19 pandemic were having sense of control over life, thinking positively, relaxation, taking enough sleep, listening to music, sharing jokes or humour with colleagues, engaging in team work, communicating with people, adequate use of protective devices, avoiding problem situation, understanding the clarity in my job, taking break from work and being proactive. It was also recommended among other things that it is important to emphasize on the need for exercising as a stress management practice among HCWs. Also, Annual leave, maternity leave, casual leave and break periods amidst work, etc should not be denied any job category of worker in the healthcare system to avoid break down in health of the HCWs.

Keywords: COVID-19, Healthcare workers, Stress management.

Introduction

The coronavirus disease 2019 (COVID-19) is a communicable respiratory disease caused by new strain of coronavirus that causes illness in humans. According to Morre (2021), the novel

virus was first reported in Wuhan, China in 2019 and subsequently spread globally to become the fifth documented pandemic since the 1918 Spanish flu pandemic. COVID-19 affected a lot of countries in the world including Nigeria. The pandemic has not only caused a high mortality rate from viral infections but also psychological and mental effects on the rest of the world. The outbreak of the novel corona virus disease 2019 (COVID-19) pandemic presented a great threat to the physical and mental health of the general population especially the healthcare workers. United Kingdom Health and Safety Executives -HSE (2021) estimated that in the year 2019 and 2020 that about 828,000 workers were affected by work- related stress and health care workers were not left out especially during Covid-19 pandemic.

A healthcare worker (HCW) is a person trained and knowledgeable in medicine, nursing, or other allied health professions or public/community health. According to Ozor (2014) healthcare workers – HCWs can be referred to as a group of practitioners with specialized education and training in their various fields of health who render curative, preventive, rehabilitative, and educational services to patients and public on matters relating to their health. They share common health goals and objectives and they include; medical doctors, nurses, pharmacist, medical laboratory scientist, physiotherapist, dieticians, radiotherapists, medical records officers, and social workers.

According to a study conducted by Cui, Jiang, Shi, Zhang, Kong, Qian and Chu (2021), Health care workers were mostly infected than any other group and out of the confirmed cases worldwide, 6%, or 90,000, were healthcare workers. In Nigeria, Nigeria Centre for Disease Control (CDC) (2020) confirmed that about 812 HCWs were infected with COVID-19. They further stated that providing care to others during Covid-19 pandemic can lead to stress, anxiety, fear, and other strong emotions and how they cope with these emotions can affect their well-

being. National Primary Health Care Development Agency (NPHCDA) (2021), also posited that frontline health workers were exposed to stress and are at risk of being infected with Covid-19 because they go to work to care for the patients, they further stated that HCWs should be among the first to be vaccinated, in order to safely care for the rest of the society. The COVID-19 pandemic has resulted in unprecedented psychological stress on HCWs, such as anxiety, fear, panic attacks, post-traumatic stress symptoms, psychological distress, stigma, avoidance of contact, depressive tendencies, sleep disturbances, helplessness, interpersonal and isolation from family and social support, as well as concerns about their friends and family being exposed to infection. It is therefore, important to be able to identify and manage these stressors early, in order to avoid the more adverse effects of stress on the health and wellbeing of the health care workers. Hence, the need for stress management practices.

Managing stress is a continuous process, it is learning about whom we are as human beings, why we act and react to the frustrations as well as its joys and pleasures. According to Silver Cloud Health (2016), the realization that you are in control of your life is the very foundation of stress management and that involves becoming aware of your thoughts, feelings, behaviours and the impact of your life on the way you deal with problems. This may be why stress management is referred to as life management. Stressors often creates a state of psychological and physiological imbalance but the good news is that re-establishing this balance can successfully be achieved via stress management practices. Olga and Terry cited in Ozor (2014), stated stress management practice as methods often employed to deal with stressful or disturbing situations. They further categorized these methods into effective and ineffective practices. Such ineffective practices are overreacting, drug abuse, aggression which may make us feel better shortly, while effective practices are positive thinking, relaxation, sense of humour e.tc.

Rose *et al*. (2021) opined that HCWs were aided by a feeling of camaraderie amongst healthcare workers working together as well as sharing jokes or humor with colleagues. In as much as the ineffective practices can expose the healthcare workers to ill health, the effective practices can energize the health care workers to render meaningful healthcare services at their various job categories.

Purpose of the Study

The purpose of this study is to find out the stress management practices among Health Care workers during Covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka Anambra State. Specifically, the study determined;

1. The stress management practices among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka.
2. The stress management practices among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka based on their gender ;
3. The stress management practices among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka based on their Job type.

Research Questions

To guide this present study, the following research questions were posed and answered.

1. What are the stress management practices among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka.

2. What are the stress management practices among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka based on their gender?
3. What are the stress management practices among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka based on their job type?

Research Hypotheses

The following hypotheses were formulated and tested at 0.05 1evel of significance;

1. There is no significant difference in stress management practices among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka based on their gender.
2. There is no significant difference in stress management practices among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka based on their Job type.

Methods

The research design used to carry out this research is the cross-sectional survey design. The study was carried out in Awka South L.G.A, Anambra State. Awka South L.G.A is made up of nine (9) towns, namely, Amawbia; Awka; Ezinato; Isiagu; Mbaukwu; Nibo; Nise; Okpuno and Umuawulu. The population of the study consists of 534 health care workers at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka. These will include Doctors, Nurses, Medical laboratory scientist, Pharmacist, Physiotherapists, Dental Technologists, optometrists, Radiographers, Administrative officers, Works Dept, Dietician, Scientific Officers, Health Attendants (Cleaners), Health records officers and Tutors. The sample

of the study consists of 267 HCWs working in COOUTH. Multistage sampling was used to select the sample required for the study. The instrument used for data collection was the researcher's designed questionnaire on Stress Management Practices among Healthcare workers during Covid-19 Pandemic questionnaire (SMPHCWCPQ). The data was analyzed using Statistical Package for Social Sciences (SPSS) version 25. The research questions were answered using frequency and percentage of response. The research hypothesis was tested using Chi Square (X2) at 0.05 level of significance.

Presentation and Analysis of Data

Research Question One: What are the stress management practices among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka.

Table 1: Frequencies and percentages on Stress Management Practices among HCWs during Covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Awka.

	Yes	No
Stress Management Practices	**N (%)**	**N(%)**
1. Having sense of control over my life	254(95.8)	11(4.2)
2. Thinking positively helps me to manage stress	224(84.5)	41(15.5)
3. Relaxation helps me to manage stress (eg. spending time with intimate partner)	189(71.3)	76(28.7)
4. Taking drugs	61(23)	204(77)
5. Taking exercise	131(49.4)	134(50.6)
6. Being aggressive to others helps me to manage stress	57(21.5)	208(78.5)
7. Taking enough sleep when stressed	206(77.7)	59(22.3)
8. Listening to music helps me to manage stress	178(67.2)	87(32.8)
9. Sharing jokes or humor with colleagues and others help me to manage stress	228(86)	37(14)
10. Team work helps to reduce stress	217(81.9)	48(18.1)
11. Communicating with people	177(66.8)	88(33.2)
12. Adequate use of protective devices helps to reduce stress	203(76.6)	62(23.4)
13. Avoiding problem situation helps to manage stress	238(89.8)	27(10.2)
14. Understanding the clarity in my job role reduces stress	262(98.9)	3(1.1)
15. Taking break from work eg. shift schedule, annual/casual leave reduces stress	143(54)	122(46)
16. Being proactive helps me to manage stress (planning ahead of time)	235(88.7)	30(11.3)

The results displayed in Table 1 shows that of the 16 stress management practices listed, 13 were confirmed by over 50% of HCW in COOUTH as the stress management practices, they engage in engage in order to reduce stress in the Covid-19 pandemic.

Research Question Two: What are the stress management practices among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka based on their gender?

Table 2: Frequencies and percentages on Stress Management Practices among Male and Female HCWs during Covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Awka.

Stress Management Practices	Male (n=94)		Female (n=171)	
	Yes	No	Yes	No
	N (%)	N(%)	N(%)	N(%)
1. Having sense of control over my life	91(96.8)	3(3.2)	163(95.3)	8(4.)
2. Thinking positively helps me to manage stress	79(84)	15(16)	145(84.8)	26(15.2)
3. Relaxation helps me to manage stress (eg. spending time with intimate partner)	75(79.8)	19(20.2)	114(66.7)	57(33.3)
4. Taking drugs	28(29.8)	66(70.2)	33(19.3)	138(80.7)
5. Taking exercise	42(44.7)	52(55.3)	89(52)	82(48)
6. Being aggressive to others helps me to manage stress	5(5.3)	89(94.7)	52(30.4)	119(69.6)
7. Taking enough sleep when stressed	73(77.7)	21(22.3)	133(77.8)	38(22.2)
8. Listening to music helps me to manage stress	69(73.4)	25(26.6)	109(63.7)	62(36.3)
9. Sharing jokes or humor with colleagues and others help me to manage stress	83(88.3)	11(11.7)	145(84.8)	26(15.2)
10. Team work helps to reduce stress	78(83)	16(17)	139(81.3)	32(18.7)
11. Communicating with people	54(57.4)	40(42.6)	123(71.9)	48(28.1)
12. Adequate use of protective devices helps to reduce stress	83(88.3)	11(11.7)	120(70.2)	51(29.8)
13. Avoiding problem situation helps to manage stress	82(87.2)	12(12.8)	156(91.2)	15(8.8)
14. Understanding the clarity in my job role reduces stress	94(100)	-	168(98.2)	3(1.8)

15. Taking break from work eg. shift schedule, annual/casual leave reduces stress	47(50)	47(50)	96(56.1)	75(43.9)
16. Being proactive helps me to manage stress (planning ahead of time)	87(92.6)	(7.4)	148(86.5)	23(13.5)

The results displayed in Table 2 shows that of the 16 stress management practices listed, 11 were common stress management practices among male and female HCWs in COOUTH since over 50% both groups endorsed them. The stress management practices included: Having sense of control over life (male = 96.8%; female = 95.3%), thinking positively (Male = 84%, female 84.8%), relaxation (male = 79.8%, female = 66.7), taking enough sleep (male = 77.7%, female = 77.8%), listening to music (male = 73.4%, female = 63.7), sharing jokes or humour with colleagues (male = 88.3%, female = 84.8), engaging in team work (male = 83%, female = 81.3%), communicating with people (male = 57.4%, female = 71.9), adequate use of protective devices (male = 88.3%, female = 70.2%), avoiding problem situation (male =87.2%, female = 91.2), understanding the clarity in my job (male = 100%, female = 98.2%) and being proactive (male = 92.6, female = 86.5%).

Research Question Three: What are the stress management practices among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka based on their job type?

Table 3. Frequencies and Percentages on Stress Management Practices among HCWs During Covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital Awka based on Job Type

Stress Management Practices	Doctor (n=72)		Nurse (n=87)		M.L.S (=27)		H.R.O(n=18)		H.A.(n=61)	
	Yes N(%)	No N(%)	Yes N(%)	No N(%)	Yes N(%)	No N(%)	Yes N(%)	No N(%)	Yes N(%)	No N(%)
1. Having sense of control over my life	71(98.6)	1(1.4)	80(92)	7(8)	26(96.3)	1((3.7)	18(100	-	59(96.7)	2(3.3)
2. Thinking positively helps me to manage stress	59(81.9)	13(18.1)	71(81.6)	16(18.4)	22(81.5)	5(18.5)	17(94.4)	1(5.6)	55(90.2)	6(9.8)
3. Relaxation helps me to manage stress (eg. spending time with intimate partner)	59(81.9)	13(18.1)	58(66.7)	29(33.3)	22(81.5)	5(18.5)	12(66.7)	6(33.3)	38(62.3)	23(37.7)
4. Taking drugs	12(16.7)	60(83.3)	18(20.7)	69(79.3)	6(22.2)	21(77.8)	6(33.3)	12(66.7)	19(31.1)	42(68.9)
5. Taking exercise	22(30.6)	50(69.4)	65(74.7)	22(25.3)	7(25.9)	20(74.1)	9(50)	9(50)	26(45.9)	33(54.1)
6. Being aggressive to others helps me to manage stress	-	72(100)	36(41.4)	51(58.6)	1(3.7)	26(96.3)	-	18(100)	20(32.8)	41(67.2)
7. Taking enough sleep when stressed	62(86.1)	10(13.9)	59(67.8)	28(32.2)	24(88.9)	3(11.1)	15(83.3)	3(16.7)	46(75.4)	15(24.6)
8. Listening to music helps me to manage stress	46(63.9)	26(36.1)	66(75.9)	21(24.1)	22(81.5)	5(18.5)	6(33.3)	12(66.7)	38(62.3)	23(37.7)
9. Sharing jokes or humor with colleagues and others help me to manage stress	64(88.9)	8(11.1)	63(72.4)	24(27.6)	27(100)	-	18(100)	-	56(91.8)	5(8.2)
10. Team work helps to reduce stress	51(70.8)	21(29.2)	67(77)	20(23)	27(100)	-	18(100)	-	54(88.5)	7(11.5)
11. Communicatin	42(5	30(4	63(7	24(2	11(4	16(5	14(7	4(22	47(7	14(2

	g with people	8.3)	1.7)	2.4)	7.6)	0.7)	9.3)	7.8)	.2)	7)	3
12.	Adequate use of protective devices helps to reduce stress	70(97.2)	2(2.8)	45(51.7)	42(48.3)	24(88.9)	3(11.1)	14(77.8)	4(22.2)	50(82)	11(18)
13.	Avoiding problem situation helps to manage stress	65(90.3)	7(9.7)	79(90.8)	8(9.2)	24(88.9)	3(11.1)	16(88.9)	2(11.1)	54(88.5)	7(11.5)
14.	Understanding the clarity in my job role reduces stress	72(100)	-	84(96.6)	3(3.4)	27(100)	-	18(100)	-	61(100)	-
15.	Taking break from work eg. shift schedule, annual/casual leave reduces stress	42(58.3)	30(41.7)	31(35.6)	56(64.4)	5(18.5)	22(81.5)	5(27.8)	13(72.2)	60(98.4)	1(1.6)
16.	Being proactive helps me to manage stress (planning ahead of time)	66(91.7)	6(8.3)	69(79.3)	18(20.7)	24(88.9)	3(11.1)	18(100)	-	58(95.1)	3(4.9)

*M.L.S = Medical Lab. Scientist; H.R.O = Health Records Officer; H.A = Health Attendant (Cleaner)

Table 3 shows that out of the 16 stress management practices listed, 9 were common stress management practices among the different categories of HCWs in COOUTH since over 50% both groups endorsed them. The stress management practices included: Having sense of control over life, thinking positively, relaxation, taking enough sleep, sharing jokes or humour with colleagues, engaging in team work, adequate use of protective devices, avoiding problem situation, understanding the clarity in my job and being proactive.

Hypothesis One: There is no significant difference in stress management practices among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka based on their gender.

Table 4: Chi-square analysis on the difference in Stress Management Practices among Male and Female HCWs during the Covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu Teaching Hospital, Awka

Stress Management Practices	Male (n=94)		Female (n=171)				
	Yes	No	Yes	No			
	N (%)	N(%)	N(%)	N(%)	$X^2(1)$	*P*	Decision
1. Having sense of control over my life	91(96.8)	3(3.2)	163(95.3)	8(4.)	.34	.56	NS
2. Thinking positively helps me to manage stress	79(84)	15(16)	145(84.8)	26(15.2)	.03	.87	NS
3. Relaxation helps me to manage stress (eg. spending time with intimate partner)	75(79.8)	19(20.2)	114(66.7)	57(33.3)	5.11	.02	S
4. Taking drugs	28(29.8)	66(70.2)	33(19.3)	138(80.7)	3.77	.05	S
5. Taking exercise	42(44.7)	52(55.3)	89(52)	82(48)	1.32	.25	NS
6. Being aggressive to others helps me to manage stress	5(5.3)	89(94.7)	52(30.4)	119(69.6)	22.62	.00	S
7. Taking enough sleep when stressed	73(77.7)	21(22.3)	133(77.8)	38(22.2)	.00	.98	NS
8. Listening to music helps me to manage stress	69(73.4)	25(26.6)	109(63.7)	62(36.3)	2.57	.11	NS
9. Sharing jokes or humor with colleagues and others help me to manage stress	83(88.3)	11(11.7)	145(84.8)	26(15.2)	.62	.43	NS
10. Team work helps to reduce stress	78(83)	16(17)	139(81.3)	32(18.7)	.12	.73	NS
11. Communicating with people	54(57.4)	40(42.6)	123(71.9)	48(28.1)	5.74	.02	S
12. Adequate use of protective devices helps to reduce stress	83(88.3)	11(11.7)	120(70.2)	51(29.8)	11.12	.00	S
13. Avoiding problem situation	82(87.2)	12(12.8)	156(91.2)	15(8.8)	1.03	.30	NS

	helps to manage stress						
14.	Understanding the clarity in my job role reduces stress	94(100)	-	168(98.2)	3(1.8)	1.67	.20	NS
15.	Taking break from work eg. shift schedule, annual/casual leave reduces stress	47(50)	47(50)	96(56.1)	75(43.9)	.92	.34	NS
16.	Being proactive helps me to manage stress (planning ahead of time)	87(92.6)	7(7.4)	148(86.5)	23(13.5)	2.18	.14	NS

The results presented in Table 4 indicates that male and female HCWs were not significantly different in their responses on the stress management practices they engaged in during the Covid-19 pandemic since the *p*-values for 11 out of the 16 items were greater than 0.05 level of significance. Therefore, the null hypothesis was not rejected.

Hypothesis Two: There is no significant difference in the stress management practice among HCWs during covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu University Teaching Hospital, Awka based on their Job type.

Table 5: Chi-square analysis on the difference in the Responses on Stress Management Practices of HCWs during the Covid-19 pandemic at Chukwuemeka Odumegwu Ojukwu Teaching Hospital, Awka Based on Job Type

	Doctor (n=72)		Nurse (n=87)		M.L.S (=27)		H.R.O(n=18)		H.A.(n=61)				
Stress Management Practices	Yes N(%)	No N(%)	Yes N(%)	No N(%)	Yes N(%)	No N(%)	Yes N(%)	No N(%)	Yes N(%)	No N(%)	X2(4)	*P*	Decision
Having sense of control over my life	71(98.6)	1(1.4)	80(92)	7(8)	26(96.3)	1((3.7)	18(100)	-	59(96.7)	2(3.3)	5.61	.23	NS
Thinking positively helps me to manage stress	59(81.9)	13(18.1)	71(81.6)	16(18.4)	22(81.5)	5(18.5)	17(94.4)	1(5.6)	55(90.2)	6(9.8)	3.96	.41	NS
Relaxation helps me to manage stress (eg. spending time with intimate partner)	59(81.9)	13(18.1)	58(66.7)	29(33.3)	22(81.5)	5(18.5)	12(66.7)	6(33.3)	38(62.3)	23(37.7)	8.88	.06	NS
Taking drugs	12(16.7)	60(83.3)	18(20.7)	69(79.3)	6(22.2)	21(77.8)	6(33.3)	12(66.7)	19(31.1)	42(68.9)	5.27	.26	NS
Taking exercise	22(30.6)	50(69.4)	65(74.7)	22(25.3)	7(25.9)	20(74.1)	9(50)	9(50)	26(45.9)	33(54.1)	38.78	.00	S
Being aggressive to others helps me to manage stress	-	72(100)	36(41.4)	51(58.6)	1(3.7)	26(96.3)	-	18(100)	20(32.8)	41(67.2)	54.67	.00	S
Taking enough sleep when stressed	62(86.1)	10(13.9)	59(67.8)	28(32.2)	24(88.9)	3(11.1)	15(83.3)	3(16.7)	46(75.4)	15(24.6)	10.32	.04	S
Listening to music helps me to manage stress	46(63.9)	26(36.1)	66(75.9)	21(24.1)	22(81.5)	5(18.5)	6(33.3)	12(66.7)	38(62.3)	23(37.7)	15.84	.00	S
Sharing jokes or humor with colleagues and others help me to manage stress	64(88.9)	8(11.1)	63(72.4)	24(27.6)	27(100)	-	18(100)	-	56(91.8)	5(8.2)	22.92	.00	S
Team work helps to reduce stress	51(70.8)	21(29.2)	67(77)	20(23)	27(100)	-	18(100)	-	54(88.5)	7(11.5)	19.09	.00	S
Communicating with people	42(58.3)	30(41.7)	63(72.4)	24(27.6)	11(40.7)	16(59.3)	14(77.8)	4(22.2)	47(77)	14(23	15.70	.00	S
Adequate use of protective devices helps to reduce stress	70(97.2)	2(2.8)	45(51.7)	42(48.3)	24(88.9)	3(11.1)	14(77.8)	4(22.2)	50(82)	11(18)	50.39	.00	S
Avoiding problem situation helps to manage stress	65(90.3)	7(9.7)	79(90.8)	8(9.2)	24(88.9)	3(11.1)	16(88.9)	2(11.1)	54(88.5)	7(11.5)	.26	.99	NS
Understanding the clarity in my job role reduces stress	72(100)	-	84(96.6)	3(3.4)	27(100)	-	18(100)	-	61(100)	-	6.21	.18	NS
Taking break from work eg. shift schedule, annual/casual leave reduces stress	42(58.3)	30(41.7)	31(35.6)	56(64.4)	5(18.5)	22(81.5)	5(27.8)	13(72.2)	60(98.4)	1(1.6)	79.34	.00	S
Being proactive helps me to manage stress (planning ahead of time)	66(91.7)	6(8.3)	69(79.3)	18(20.7)	24(88.9)	3(11.1)	18(100)	-	58(95.1)	3(4.9)	13.04	.01	S

The results displayed in Table 5 shows that there was a significant difference in the responses of HCWs of different job types regarding the stress management practices they engaged in during the covid-19 pandemic since *p*-values for 10 out of the 16 items on the stress management practices were less than 0.05 level of significance. The null hypothesis was, therefore, rejected.

Stress Management Practices among health care workers during Covid-19 pandemic.

The findings from this study showed that stress management practices among HCWs during covid-19 pandemic include – having sense of control, thinking positively, relaxation, sharing jokes and humor with others, taking enough sleep, listening to music, team working, communicating with people, adequate use of protective devices, avoiding problem situations, job clarity, taking break from work and being proactive (Table 1).

This is in line with UK's Health and Safety Executive (HSE) (2001) whose study showed that team work is required by each health care worker for the best care of the patients/ public. This is because working together increases work pace and leads to a better outcome.

The findings of this study is also in line with Akubue (2000) whose study also identified other stress management practices to be exercise, discussion, relaxation and holiday. A possible explanation to this is that stress makes our body to release hormones that increase blood pressure and raise heart rate which can be reduced through relaxation and going on holidays.

The test hypothesis in table 4 indicated that male and female HCWs were not significantly different in their responses on the stress management practices they engaged in during the Covid-19 pandemic. This means that both gender share a similar method of stress management practices during covid-19 pandemic. This is in line with Ozor (2014) whose finding showed that there was no significant differences in these stress management practices; drinking coffee,

drinking water, sleeping, relaxing, applying humor in relationship and Listening to music or watching movies according to gender. This may be because the study was also carried out among male and female healthcare professional.

The findings of this study showed that various job types had some common stress management practices that they adopted during the covid-19 pandemic and had other stress management practices that were peculiar to each of the job groups. The test hypothesis in table 5 indicated that there was a significant difference in the responses of HCWs of different job types regarding the stress management practices they engaged in during the covid-19. This is because each job type has a unique job role and description attached to it; this is in line with Moustaka and Constantinidis (2010) who stated in their study that some stressful situations are specific to a particular type of hospital unit.

CONCLUSION

Based on the findings of the study, it was concluded that stress management practices adopted by HCWs in COOUTH, Awka during Covid-19 pandemic were having sense of control over life, thinking positively, relaxation, taking enough sleep, listening to music, sharing jokes or humour with colleagues, engaging in team work, communicating with people, adequate use of protective devices, avoiding problem situation, understanding the clarity in my job, taking break from work and being proactive.

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KNOWLEDGE OF PREVENTIVE MEASURES OF CHOLERA DISEASE AMONG COMMUNITY MEMBERS IN AKOKO SOUTH EAST LOCAL GOVERNMENT AREA OF ONDO STATE, NIGERIA.

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Abstract

The study was conducted to ascertain the knowledge of preventive measure of cholera disease among community members in Akoko south east LGA Ondo State. A descriptive cross-sectional survey research design was used for the study. The population for the study consisted of 10,548 community members in Akoko south east LGA .Taro Yamane formula was used to draw 340 community members in Akoko South East LGA. A validated questionnaire titled "Knowledge of Preventive Measures of Cholera Disease Questionnaire (KPMCDQ) was used as instrument for data collection. A split-half method (Spearman-Brown) statistic was used to determine reliability coefficient (KPMCDQ) which gave 0.78 and the instrument was adjudged reliable for use. Frequency counts, percentages and Chi-square were all used to both answer the research questions and test the hypotheses. The results of the study showed that there was moderate knowledge of cholera disease (52.3%) among the community members. The result also showed that there was moderate knowledge of preventive measures of cholera disease (56.2%) among the community members. There was a significant difference in the knowledge of cholera disease and preventive measures based on age and gender. The researcher recommended among others that since the people of the community have moderate knowledge of cholera disease and

preventive measures, measures should be taken by public health educators to encourage the people of the community to sustain the knowledge of personal hygiene and to be treated water before drinking, in order to decrease morbidity cause by cholera.
Keywords: Knowledge, Cholera, Prevention Measures, Community Members, Akoko South East Local Government.

Introduction

Cholera is a disease caused by eating food and drinking water contaminated with the bacterium Vibrio cholerae. Its symptoms are severe diarrhoea ("rice water stool"), dehydration, weakness, muscle cramps, fever, vomiting, low blood pressure and thirst which continues to be a major health risk to the population of many parts of the world (Adejuwon,2023). As a global health problem, Sanni (2019) reported that estimated 1.3 to 4.0 million cases, and 21,000 to 143,000 deaths occur annually due to cholera outbreak. Odubanjo,(2021) cholera cause acute watery diarrhea in children and adults and if left untreated, it may lead to death within hours.Harunah (2021) stated that Children under 2-5 years are the most severely affected.by cholera disease.

Cholera remains a global threat to public health and tend to occur as a result of contamination of food or water with vibro cholera organisms. According to Graham (2020) stated that poor personal hygiene, and unsafe environmental sanitation conditions compounded by lack of portable water supply in the area causes cholera disease .Taiwo (2018) stated that most of those infected have no or mild symptoms and can be successfully treated with oral rehydration solution. Tairo (2017) noted that Nigeria records 63 deaths and 2,102 cholera cases in 2024 outbreak., World Health Organization (2021) opined that cholera outbreak in Kwara State, Nigeria, is currently remains localized and confined. Between May 1st and June 30th 2017, suspected cholera cases in Kwara State were recorded from five local government areas, namely, Asa (18), Ilorin East (450), Ilorin South (215), Ilorin West (780), and Moro (50), in June

2017 an aggregate of 1,558 associated cases with cholera have been documented, including 11 deaths (case casualty rate: 0.7%) Thirteen of these cases were confirmed in the laboratory. Lawrence (2018) reported that 50% of the presumed cases of Cholera Disease are males and 39% are females. Omeh(2021) noted that 50% of the cholera disease cases are aged between 23-35 years. The disease affects all age groups. Judge, (2020) stated that cholera disease mostly affected age groups 5–14 years (24.8%) and 1–4 years (23.4%). The onset of the rainy season is increasing the number of cholera cases reported in Nigeria(John, 2023)

Cholera is a destructive disease that causes extreme and intense water loss. It takes between 12 hours and 5 days for an individual to show symptoms after ingesting contaminated food or water. Nwankwo (2020) stated that both young and old can be affected by cholera disease, and it can kill within hours if untreated. One of the major symptoms of cholera is diarrhea which is often described as “rice water”; it may also have a fishy smell. Untreated individual with cholera may eliminate 10 to 20 liters of diarrhea daily and serious cholera without treatment could result in life-threatening dehydration and electrolyte imbalances which kill about half of affected individuals. WHO (2020) estimates of the figure of asymptomatic to symptomatic cholera infections ranges from 3 to 100. Also, when infected with cholera, a person’s skin may turn bluish-gray from extreme loss of fluids. Falaye (2023), posited that fever is not common with cholera, but patients can be fatigued and lethargic, and might have sunken eyes, dry mouth, cold clammy skin, or wrinkled hands and feet. According to Bolaji (2023), breathing, which is characterized by a deep and labored breathing pattern, can occur as a result of blood pressure may drop because of dehydration, peripheral pulse is rapid, and urine output diminishes with time

Cholera can be spread when people do not wash their hands with soap and water after defecating and then cook or serve food with unwashed hands. Cholera also spreads when people eat food without washing their hands before and after eating. If cooked food is not covered, it may get contaminated from flies that carry the bacteria. Fatima (2021) Cholera spreads when raw fruits and vegetables are not thoroughly washed in clean running water before being eaten. Eating raw seafoods contaminated with cholera bacterium is another way people get infected (Omale,2022) A food handler who prepares drinks such as tigernut or zobo with contaminated water can spread cholera. The Lagos State government mentioned these local drinks as suspected sources of the latest outbreak. Not filtering and boiling unsafe water before drinking, or drinking sachet water that is not treated, can cause cholera. Cholera can spreads when an infected person defecates outside and contaminated faeces are washed into the water system that people drink from. Even a pit latrine that closely at a drinking water source. Ajayi and Ayo (2020) noted that muscle cramping and weakness, altered consciousness, seizures, or coma might occur due to electrolyte imbalances; these are common especially in children. Importantly, many people infected with V. cholerae do not develop any symptoms although the bacteria are present in their faeces for 1–10 days after infection and are shed back into the environment, potentially infecting other people (Ahmed, 2021).

Transmission of Cholera is primarily through the fecal-oral route of contaminated food or water caused by poor sanitation. Moshood (2021) stated that most cholera cases in developed countries are caused by the consumption of contaminated food while in the developing countries, it is caused by drinking contaminated water. Balogun (2023), individuals infected with cholera frequently have diarrhea, and infection transmission may occur if the liquid stool, and conversationally alluded to as “rice-water”, contaminates water used by others and just one

diarrhea stool can cause a one-million increment of V. cholerae in the environment. When the diarrhea stool of an infected individual enters public waterways, groundwater or drinking water supplies, contamination and transmission of cholera will occur. As such, drinking any contaminated water, eating any food washed in the contaminated water can predispose people to become infected with cholera

Knowledge is the awareness of something such as information, facts or skill which is acquired through experience or education. According to Makinde (2023), knowledge is the possession of information, skill and understanding gained through learning and experience. Knowledge is a prerequisite for good health which empowers community members to be capable of taking more effective actions on their health. Knowledge about signs and symptoms, transmission, and preventive measures of Cholera disease will help to improve the chance of detection of Cholera disease in early stages which results in an improvement in survival rate and quality of life (Folorunsho, 2024). It is therefore important that community members have this knowledge to avoid having cholera disease.

Preventive measures are those strategies that will help to curb the outcome of an illness or unhealthy situation. Olalekan (2023) opined that prevention of cholera disease can include drinking bottled water or water treated with chlorine and washing fruit and vegetables with chlorinated water before consumption. Olayemi (2022) stated that regularly washing hands with soap, eating thoroughly cooked food and avoiding consumption of raw seafood products can prevent contact cholera disease According to David (2023) proper hand washing with soap and clean water after using a toilet and before handling food or eating will help reduce the danger of contacted of cholera disease. Importantly, chlorination and boiling of water are often the least expensive, fastest, and most effective means of halting cholera transmission. Cloth filters or sari

filtration, though very basic, have significantly reduced the occurrence of cholera when used in poor villages (Uche, 2019). Warnings about possible cholera contamination can be posted around water sources, with directions on how to decontaminate drinking water. Oral cholera vaccines can be used in conjunction with improvements in water and sanitation to control cholera outbreak and for prevention in areas known to be high risk for cholera (Johnson, 2021)

Akoko South-East is one of eighteen Local Government Areas in Ondo State. The main economic activities amongst Akoko south east local government area are farming, petty trading and fishing. There are six (6) villages in the area; Isua, Epinmi, ipe, ifira, sosan and ipesi Akoko .The groundwater serves as the major sources of water supply for most of the residents in the area, because of lack of portable water supply in the area, rainy and river water is mainly sources of water supply which no doubt could expose the community members to the cholera disease. Therefore, the need to study cholera disease; its knowledge and preventive measures among community members become timely. This is because when the people of the community have knowledge in this area, the incident of having cholera disease will be reduced and the standard of living will improve, it becomes necessary to determine the level of knowledge of Preventive Measures of cholera disease among the Community Members in Akoko South East Local Government Area, Ondo State.

Purpose of the Study

The purpose of the study was to ascertain the knowledge of preventive measures of cholera disease among community members in Akoko south east local government area in Ondo state. Specifically, the study aimed to:

1. determine the level of knowledge of cholera disease among community members in Akoko South east local government area in Ondo state.

2. determine the level of knowledge of preventive measures of cholera disease among community members in Akoko south east local government area in Ondo state.
3. determine the level of knowledge of preventive measures of cholera disease among community members in Akoko south east local government area in Ondo state based on age.
4. determine the level of knowledge of preventive measures of cholera disease among community members in Akoko south east local government area in Ondo state based on gender

Research Questions

1. What is the level of knowledge of cholera disease among community members in Akoko south east local government area in Ondo state?
2. What is the level of knowledge of preventive measures of cholera disease among community members in Akoko south east local government area in Ondo state?
3. What is the level of knowledge of preventive measures of cholera disease among community members in Akoko south east local government area in Ondo state based on age?
4. What is the level of Knowledge of preventive measures of cholera disease among community members in Akoko south east local government area in Ondo state based on gender?

Hypotheses

1. There is no significant difference in the level of knowledge of preventive measures of cholera disease among community members in Akoko south east local government area in Ondo state based on age

2. There is no significant difference in the level of knowledge of preventive measures of cholera disease among community members in Akoko south east local government area in Ondo state based on gender.

Methods

The study adopted a descriptive cross- sectional survey research design. A cross-sectional survey is one that produces a snapshot of a population at a particular point in time, or at a different stages development (Cohen, Manion, & Morrison, 2011).

The study was conducted in Akoko South East LGA of Ondo State. The villages in the local government area are: Isua, Epinmi,Ifira, Ipe, Sosan and Ipesi Akoko . The population for the study consisted of all the community members in Akoko south east LGA. The number of community members was 10,548 (Community Record Development, 2023). A sample of 340 community members was selected for the study. This sample was determined using Yaro Yamen formula. Multi stage sampling procedure was used to select the respondents. First stage involved the use of simple random sampling to select four villages from the LGA .Second stage is by use of purposive sampling to select male and female community members. The third stage involved the use of systematic random sampling to select 85 commmunity members each from the four villages sampled. This procedure yielded a total of 340 community members used for the study.

The instrument used for data collection was researcher- designed questionnaire on Knowledge of Preventive Measures of Cholera Disease Questionnaire (KPMCDQ). The questionnaire consisted of three sections, A , B and C. Section A contained the demographic data of the respondents .Section B contained eight items on knowledge of cholera disease while section C contained eight items on preventive measures of cholera disease.

The face validity of KPMCDQ was established through the judgement of three experts from the Department of Human Kinetics and Health Education, and Measurement and Evaluation Department at Adekule Ajasin University Akungba Akoko Ondo State. Suggestions of the experts were incorporated to produce the final draft of the instrument. The internal consistency of KPMCDQ was established using split- half method (Spearman-Brown coefficient) and a reliability coefficient of 0.78 was obtained for the instrument which was adjudged reliable for the study. This is in line with the guidelines of Miller (2017) that if a reliability coefficient index of .70 and above is obtained, the instrument will be considered reliable. Hence the KPMCDQ was considered appropriate for the study on knowledge of Preventive Measures of cholera disease

Data was analysed using frequency counts and percentages to answer research questions while chi-square statistic was used to test the hypotheses at 0.05 level of significance. In determining the Knowledge of cholera and its preventive measures, Ashur's (1977) modified by Okafor (1997) criteria for determining knowledge was used. According to these criteria, scores from 0-39 per cent was considered low knowledge (LK), 40-59 per cent was considered as moderate knowledge (MK),60 per cent and above was considered High knowledge (HK).

Results

Table 1: Socio-demographic Characteristics of the Community Members in Akoko South East LGA in Ondo State (n=340)

Variables	Frequency	Percent
Age (in years)		
20-29	43	12.65
30-39	74	21.76
40-49	106	31.18
50+	117	34.41
Gender		
Male	152	44.71
Female	188	55.29

Table 1 reveals the Socio-demographic variables of community members in Akoko south east Local Government Area. The data shows that majority is within the age bracket 50- 59 years and greater percentage 55.29 percent are female.

Table 2: Knowledge of Cholera Disease Possessed by Community Members in Akoko South East LGA in Ondo state (n=340)

S/N	Signs and Symptoms	Yes		No		Decision
		F.	%	F.	%	
1	Diarrhoea and vomiting	216	(63.53)	124	(36.47)	HK
2	Thirst	188	(55.29)	152	(44.71)	HK
3	Increased heart rate	117	(34.41)	223	(65.59)	MK
4	Tiredness	197	(57.94)	143	(42.06)	LK
5	Leg cramps	147	(43.24)	193	(56.76)	HK
6	Dry mucous membranes in the mouth, throat, nose, and eyeslids	195	(57.35)	145.	(42.65)	MK
7	Decrease in urine frequency	161	(47.35)	176	(52.76)	HK
8	Shriveled skin	201	(59.12)	139	(40.88)	MK
	Overall (%)		52.3		47.7	Mk

The Table 2 shows that overall percentage (52.3%) indicates that community members had moderate knowledge of cholera disease. Result in Table 2 showed that (55.29%) experience thirst as the sign and symptom of cholera disease. The table also showed that (36.47%) did not have sign and symptom of diarrhea and vomiting. The table further showed that (57.94%) of the community members experience tiredness in their body as a sign and symptom of cholera disease. majority of the community members (57.35%) experience dry mucous membranes in the mouth, throat, nose, and eyelids.

Table 3: Knowledge of preventive measures of cholera disease possessed by community members in Akoko south east local government area, Ondo state (N=340)

S/N	Preventive measures	Yes		No		
		F	%	F	%	Decision
9	Avoid consuming unpeeled fruits vegetables	144	(42.35)	196	(57.65)	HK
10	Avoid undercooked seafood	215	(63.24)	125	(36.76)	Mk
11	Using purified or boiled water that is chemically disinfected for drinking, cooking, and washing	191	(56.18)	149	(43.82)	Hk
12	Avoid unpasteurized milk	251	(73.82)	89	(26.18)	Mk
13	Environmental sanitation should be practices	154	(45.29)	186.	(54.71)	Hk
14	Eating cooked food	178	(52.35)	162	(47.65)	Mk
15	Drinking clean water	194	(57.06)	146	(42.94)	Mk
16	Avoid contaminated food	201	(59.12)	139	(40.88)	Mk
	Overall (%)		56.2		43.8	Mk

Table 2 showed that overall percentage (56.2%) indicates that community members had moderate knowledge of preventive measures of cholera disease. Majority of the community members (57.65%) not avoid consuming unpeeled fruits vegetables. The table also showed that (57.06) of the community members practice drinking clean water. The table further revealed that

(59.12%) of the community members avoid contaminated food. While (47.65%) of the community members did not eaten cooked food.

Table 4: Level of Knowledge of Preventive Measures of Cholera Disease among Community Members in Akoko South East LGA, Ondo State based on Age

Age (in years)	Low n(%)	Moderate n(%)	High n(%)	Frequency
20-29	16(18.0)	18(8.9)	9(18.8)	43(12.6)
30-39	27(30.3)	38(18.9)	9(18.8)	74(21.8)
40-49	14(15.7)	75(36.9)	17(35.4)	106(31.2)
50+	32(36.0)	72(35.5)	13(27.1)	117((34.4)
Overall	**89(26.2)**	**203(59.7)**	**48(14.1)**	**340(100.0)**

Table 4 shows the level of knowledge of preventive measures of cholera disease among community members in Akoko south east local government Area based on age. The table show that respondents within the ages of 20-29 years had moderate knowledge (18.9%), the ages between 30-39 years had highest respondents with Low knowledge (30.3%), also, ages between 40-49 years had highest respondents with moderate knowledge level (36.9%), while ages between 50+ years have highest respondents with low knowledge (36.0%). Overall result indicates that community members have moderate knowledge (59.7%) of preventive measures of cholera disease based on age.

Table 5: Level of Knowledge of Preventive Measures of Cholera Disease among Community Members in Akoko South East LGA, Ondo State based on Gender

Gender	**Low n(%)**	**Moderate n(%)**	**High n(%)**	**Frequency**
Male	48(28.6)	96(48.5)	8(21.6)	152(44.7)
Female	57(54.3)	102(51.5	29(78.4)	188(55.3)
Overall	**105(30.9)**	**198(58.2)**	**37(10.9)**	**340(100.0)**

Table 5 revealed the level of knowledge of cholera preventive measures possessed by community members in Akoko south east local government area based on gender. The female has the highest respondents with High knowledge (78.4%) while male (48.5%) have moderate

knowledge of preventive measures of cholera disease. Overall result indicates that majority of the community members have moderate knowledge (58.2%) of preventive measures of cholera disease based on gender.

Table 6: Summary of the Chi-square Analysis of Responses Regarding the level of knowledge of preventive Measures of Cholera Disease possessed by Community Members in Akoko South East LGA, Ondo State based on Age

Age(in years)	Low	Moderate	High	X2	Crit	Df	P-val	Decision
20-29	16(18.0)	18(8.9)	9(18.8)	282.97	12.592	6	0.00	Rejected
30-39	27(30.3)	38(18.9)	9(18.8)					
40-49	14(15.7)	75(36.9)	17(35.4)					
50+	32(36.0)	72(35.5)	13(27.1)					

Table 6 showed that there is a significant difference in the knowledge of preventive measures of cholera disease based on age (x=282.97, df=6, p-value=0.00) since p-value is less than .05 level of significance. This implies that level of knowledge of preventive measures of cholera disease possessed by community members differs based on different age group .

Table 7: Summary of the Chi-square Analysis of Responses Regarding the level of Knowledge of Preventive Measures of Cholera Disease possessed by community Members in Akoko South East LGA , Ondo State based on Gender

Variable	Low	Moderate	High	X2	Crit	Df	P-val	Decision
Male	48(28.6)	96(48.5)	8(21.6)	149.02	5.991	2	0.00	Rejected
Female	57(54.3)	102(51.5)	29(78.4)					

The table 7 shows that there is significant difference in the knowledge of preventive measures of cholera disease based on gender (x=149.02, df=2, p-value=0.00) since p-value is less than .05 level of significance. This implies that both males and females differed in their knowledge of preventive measures of cholera disease.

Discussion

Table 1 revealed the socio-demographic characteristics of the respondents. The data shows that the majority is within the age bracket 40-49 years and 50 years above and others are 20-29% and 30-39% years living in the commumity while percentage of females respondents (55.29%) is greater than that of males (44.71%). Similarly, study conducted by Clement (2021) that over 50% of the cholera disease cases are aged between 23-34 years. This finding is in disagrees with the study conducted by Harunah (2021) stated that Children under 2-5 years are the most severely affected by cholera disease

Table 2 revealed that overall of the respondents have moderate knowledge (52.3%) of cholera disease among community members in Akoko south east local government area of Ondo state. The finding is expected and not surprising. This is because knowledge of cholera disease such as itching, thirst, decrease in urine frequency, shriveled skin among others is reasonable. This finding contradict with the Balogun (2023) which stated that individuals infected with cholera frequently have diarrhea, and infection transmission may occur if the liquid stool, and conversationally alluded to as “rice-water”, contaminates water used by others and one diarrhea stool can cause a one million increment of V. cholerae in the environment.

Table3, revealed that overall of the respondents have moderate knowledge (56.2%) on the preventive measures of cholera disease.Thus, the knowledge of Preventive Measures of Cholera disease among community members in Akoko south east local government area of Ondo state is moderate .The finding is expected and not surprising. This is because majority of the community members in Akoko south east local government area must have had information about cholera disease on radio or television. This findings is in line with the study of Olalekan(2023) opined that preventive of cholera disease can include drinking bottled water or

water treated with chlorine and washing fruit and vegetables with clean water or chlorinated water before consumption.

Table 4, revealed that majority of the respondents have moderate knowledge (59.7%) on the Preventive Measures of Cholera disease. Thus, the level of knowledge of Preventive Measures of Cholera disease among the community members in Akoko south east local government area in ondo state based on age is moderate. The data implies that age of individuals did not determined the level of knowledge of Preventive measures of cholera disease, because cholera can affects both young and old. The finding is contradictory with the study of Nwankwo(2020) which stated that cholera affects both young and old, and it can kill within hours if untreated.

Table 5, revealed that majority of the respondents have moderate knowledge (58.2%) on the preventive measures of cholera disease. Thus, the level of knowledge of Preventive Measures of Cholera disease among the community members in Akoko south east local government area based on gender is moderate. This implies that gender did not determined the level of knowledge of preventive measures of cholera disease, The finding is in line with the finding of Olayemi (2022) stated that regularly washing hands with soap, eating thoroughly cooked food and avoiding consumption of raw seafood products also proper hand washing with soap and clean water after using a toilet and before handling food or eating will help reduce the danger of contacted cholera disease

Table 6, revealed that there is a significant difference on the knowledge of preventive measures of cholera disease possessed by community members in Akoko south east local government area of Ondo state based on age. This finding is expected and not surprising because the age of individual determined the level of knowledge of preventive measures of cholera

disease. This finding is in disagrees with the study of Judge,(2020) which stated that the most affected age groups are 5–14 years (24.8%) and 1–4 years (23.4%). This is because no one can specify the age group that mostly affected by cholera disease.

Table 7, revealed that there is a significant difference on the knowledge of preventive measures of cholera disease possessed by community members in Akoko south east local government area of Ondo state based on gender. This finding is expected and therefore not surprising because one would expected that gender of individuals may determined the level of knowledge of preventive measures of cholera disease. This finding is in disagreed with the study of Lawrence (2018) stated that 50% of the presumed cases of Cholera disease are males and 39% are females.

Conclusion

Based on the findings and discussions of the study, the following conclusions were reached. Findings from the study revealed that the knowledge of Preventive Measures of Cholera disease among community members in Akoko south east local government area in ondo state is moderate. Based on the findings of this study, it is concluded that the community members in Akoko south east local government area in ondo state are knowledgeable of the preventive measures of Cholera disease. Both male and female had a moderate knowledge of Preventive Measures of Cholera disease Also there was a significant difference in the level of knowledge of Preventive Measures of Cholera disease among the community members in Akoko south east local government area of Ondo State based on age and gender.

Recommendations

Based on the findings and conclusions, the following recommendations were made:

1. The people of the community should make sure that water is well boiled and treated before drinking also, boiled and treated water should be stored in a clean and safe container.
2. Personal hygiene should be constant and paramount, hence hands must be washed frequently with soap and clean water or alcohol-based hand sanitizer should be used if soap and water are not available.
3. They should ensure all food is well cooked before consumption and avoid eating fruits, vegetables in raw form, except after washing them in clean water or peeling them.
4. People of the community should avoid open defecation and indiscriminate refuse dumping and ensure proper disposal of waste and clearing of sewage.
5. Public health education and adherence to appropriate basic sanitation practices should be practiced to help prevent and control transmission of cholera and other diseases

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FOOD ALLERGIES IN CHILDREN AND PREVENTIVE MEASURES

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Abstract
The human body reacts to so many foreign particles known as allergy. Allergies are the body's reaction to normally harmless substances. Allergy symptoms range from mild to life-threatening. Allergies are the body's reaction to a foreign protein; usually, these proteins (allergens) are harmless. Food allergy is an immune system reaction that happens soon after eating a certain food. Even a tiny amount of the allergy-causing food can trigger symptoms such as digestive problems, hives or swollen airways. An allergic reaction can happen anywhere in the body. This includes the skin, eyes, lining of the stomach, nose, sinuses, throat, and lungs. Allergic reactions can cause; itchy skin, red watery eyes, dry skin, hives, itchy nose, vomiting, dizziness. Foods most commonly connected to food allergies include; fish, shellfish, tree nuts. To prevent food allergy in children one must ensure the daily management of food allergies in individual children by avoiding food that causes allergy, prepare for food allergy emergencies and provide professional development on food allergies for staff members.

Introduction

Allergies are the body's reaction to normally harmless substances. Allergy symptoms range from mild to life-threatening. Allergies are the body's reaction to a foreign protein. Usually, these proteins (allergens) are harmless. However, if one has an allergy to a particular protein, the body's defense system (immune system) overreacts to its presence in the body (Cleveland clinic, 2024). Immune system produces substances known as antibodies, when one has allergies, the immune system makes antibodies that identify a particular allergen as harmful, even though it is not. When someone comes in contact with the allergen, the immune system's reaction can inflame the skin, sinuses, airways or digestive system.

Allergies, also known as allergic diseases, are various conditions caused by hypersensitivity of the immune system to typically harmless substances in the environment.

These diseases include hay fever, food allergies, atopic dermatitis, allergic asthma, and anaphylaxis.

Food Allergies in Children

Food allergies occur when the immune system overreacts to specific proteins found in food. They are different from food intolerances, such as gluten intolerance. Food allergies can cause sudden and severe reactions. In some cases, they may be life threatening (Soliman, 2024). Food allergy is an immune system reaction that happens soon after eating a certain food. Even a tiny amount of the allergy-causing food can trigger symptoms such as digestive problems, hives or swollen airways. In some people, a food allergy can cause severe symptoms or even a life threatening reaction known as anaphylaxis.

Food allergy affects an estimated 8percent of children under age five and up to four percent of adults (Sichere and Sampson, 2014). While there's no cure, some children outgrow their food allergies as they get older. It is easy to confuse a food allergy with a much more common reaction known as food intolerance (Mayo Clinic, 2024). Strict avoidance of the food allergen is the only way to prevent a reaction. However, because it is not always easy or possible to avoid certain foods, staff in schools, out-of-school time, and early care and education programs (ECE) should develop plans for preventing an allergic reaction and responding to a food allergy emergency, including anaphylaxis. Early and quick recognition and treatment can prevent serious health problems or death. The following foods or food groups account for most serious allergic reactions in the United States: milk, eggs, fish, crustacean shellfish, wheat, soy, peanuts, and tree nuts.

The symptoms and severity of allergic reactions to food can be different between individuals and can also be different for one person over time. Anaphylaxis is a sudden and

severe allergic reaction that may cause death. According to CDC (2024), not all allergic reactions will develop into anaphylaxis and more than 40 percent (2 in 5) of children with food allergies have been treated in the emergency department (Centers for Disease Control and Prevention (CDC), 2024).

While bothersome, food intolerance is a less serious condition that does not involve the immune system. According to Food and Drug Agency, the nine (9) under listed foods are most commonly connected to food allergies include: Cow milk, Eggs, Tree nuts (almond, walnuts, pecans), Peanuts, Shellfish (crabs, shrimps, lobster), Wheat, Soy (soybeans, soymilk). Fish, Sesame

1. **Cow Milk:** An allergy to cow milk is one of the most common childhood allergies, affecting 2 – 3% of children (Caffarelli *et al*., 2010). Around 90% of children will outgrow the condition. Allergic reactions to cow milk may occur within minutes of consuming milk or up to several hours later. The only treatment for cow's milk allergy is to avoid it although, they includes foods and drinks that contains cow's milk such as; Milk, Milk powder, Cheese, Butter/Margarine, Yogurt, Ice cream, Cream.
2. **Eggs:** an egg allergy is the second most common cause of food allergy in children. However, 68% of children allergic to eggs outgrow their allergy by the age of 16 years. (Wang, 2019). Children are trends to be allergic to egg whites but not the yolks and vice versa. This is because the protein in egg whites and egg yolks differ slightly. Like other allergies, the treatment for egg allergy is an egg –free di*et al*so speaking with health care professional before giving egg-containing foods to children is very important, as the consequences of ingesting eggs when allergic to them can be severe.

3. **Tree Nuts:** According to William (2020), a tree nut allergy is an allergy to some of the nuts and seeds that come from tree, it is a common food allergy that may affect up to 3% of children worldwide (by Byrne *et al* (2010). A tree nut allergy is usually a lifelong condition and less than 10% of people out grow it. A study by Byrne *et al* (2010), suggests that tree nut allergy is also responsible for 1 in 2 anaphylaxis – related death. However, a study in 2021 by World Allergy Organization suggests that many children allergic to one type of nut may also tolerate other types. As such, the authors suggest other strategies for managing nut allergies, such as oral immunotherapy (which is a process of teaching the body to become tolerant). This should only be done under a physician's supervision. Some examples includes; Almond, Cashews, Pine nuts, Walnuts, Pecans.

4. **Peanuts:** Like a tree nut allergy, peanut allergies are very common and can cause severe and potentially fatal allergic reactions. The two conditions are considered distinct because peanut is a LEGUME. It is estimated that over 6.1 million people in the developed countries have a peanut allergy according to FARE (Food Allergy Research and Education 2014). According to Foong *et al* (2021), 20% of children who develop a peanut allergy may find it resolves as they move into their teenage years. The root cause of peanut allergies is unknown. However, people with a family history of peanut allergies may be more at risk. However, research by Abrams *et al* (2020), suggests that introducing peanuts early may be protective. Like other allergies, treatments includes avoiding all peanuts and peanut containing products. Also, the FDA has approved the oral immunotherapy medication called Palforzia for the treatment of peanut allergies in people age 4 – 17 years (Lauren *et al.*, 2022).

5. **Shellfish:** A shellfish allergy is caused by body attacking proteins from the crustacean and mollusk families of fish known as shellfish. Examples of shell fish include; Shrimp, Prawns, Crayfish, Lobster, Squid, Scallops.

   Symptoms of a shellfish allergy come on quickly, even inhaling the vapors from cooking shellfish an allergic reaction in those who are allergic. Sometimes, a seafood allergy is hard to distinguish from an adverse reaction to a contaminant of seafood such as bacteria, virus or parasites. This is because the symptoms can be similar, as both can cause digestive issues like vomiting, diarrhea, and stomach pain.

6. **Wheat:** wheat allergy is an allergic response to one the proteins found in wheat, its more common in children, but they will often outgrow it by age 10years (Glampaolo *et al*, 2019). Those with a wheat allergy only need to avoid wheat and can tolerate gluten from grains that do not contain wheat.

7. **Soy:** soy allergies are triggered by a protein in soybeans or soy-bean containing products. According to Messina *et al* (2020), soy affect up to 0.5% of children and are most commonly seen in infants and children under 3 years old, around 70% of children eventually outgrow the allergy. Symptoms range from itchy, tingly mouth and runny nose to a rash and asthma or difficulty in breathing. Common food triggers of soy allergy include soybeans and soy products like soymilk or soy sauce (American college of Allergy, Asthma and Immunology 2021). Since soy is found in many products/ foods, it is important to read food labels and only treatment is avoidance of soy.

8. **Fish:** Unlike other allergies that are usually present in childhood, up to 40% of children with fish allergies report not experiencing symptoms until adulthood. (American College of Allergy, Asthma & Immunology, 2022). The main symptoms of food allergy are vomiting

and diarrhea. Interesting shellfish and fish with fins don't carry the same proteins, so children who are allergic to shellfish may not be allergic to fish.

9. **Sesame:** In 2021, the food and drug agency declared sesame as the ninth major allergies may occur in up to 17% of children who also have Ige – meditated allergic reactions to peanuts and tree nuts (Kristin *et al*, 2020). Sesame can be found in a wide range of food such as; Asian cuisine, baked goods, and dipping sauces, as of January, 2023 sesame must be labelled on all food containing sesame it is important to check packaging dates because products shelved before the above date may contain sesame but not have it on the label.

Symptoms of a food allergy

American college of Allergy, Asthma and Immunology 2021, listed the following symptoms of food allergy:

1. Feeling dizzy or lightheaded
2. Red itchy dry skin or a raised rash (hives)
3. Swelling of the lips, face and eyes (angioedema)
4. Coughing, wheezing, breathlessness, noisy breathing or a hoarse voice
5. Sneezing or an itchy, runny or blocked nose
6. Feeling sick or being sick
7. Tummy pain
8. Diarrhea
9. Watery eye

Severe Symptoms of a Food Allergy in Children

According to National Health Service (2023), Anaphylaxis is a severe allergic reaction; anaphylaxis is a life threatening allergic reaction that occurs immediately upon exposure to the allergen trigger. It affects the entire body. Symptoms can include:

- Trouble breathing, shortness of breath, or wheezing
- Feeling as if the throat is closing
- Hoarseness or trouble talking
- Suffocation by swelling of the face, lips, tongue, and throat
- Cool, moist, or pale blue skin
- Feeling faint, lightheaded, or confused
- Nausea, vomiting
- Fast and weak heartbeat
- Feeling dizzy, with a sudden drop in blood pressure
- Loss of consciousness
- Diarrhea
- Seizure
- Constricted airways in the lungs.

Symptoms of anaphylaxis may start out relatively mild but, if not treated promptly, it can become life threatening in a short amount of time.

Prevention of Food Allergy Reactions at School

According to UCDAVIS health (2023) the following are ways to prevent food allergy reactions at school.

Provide Information about your Child's Food Allergy

Prepare a complete list of foods your child is allergic to and give it to your child's school administration and teacher. Include the possible symptoms of a reaction and medications. Make sure your child's teacher can recognize an allergic reaction. Develop a written plan with your child's physician in case there's an emergency. This information should be shared with school staff and cafeteria workers.

Help Reduce Food Allergens in the Classroom

Parents can institute an "only-from-home" policy, in which the child knows to eat only food from their home. You can also provide teachers safe snacks to have on hand when other children get a special treat. Nuts and seeds are often hidden ingredients in cupcakes or cookies that come from stores or other people's homes. Even if nuts are not mentioned on a label, ingredients may be processed on machinery that previously handled nuts, leaving residues that can cause a reaction.

Teach Your Child How To Manage Their Food Allergy

It's important for parents to educate their child about their food allergies. Teach your child to recognize what is safe to eat. Practice ways to be assertive in discussing their problem, refusing foods they shouldn't eat and asking for help if they feel an allergic reaction coming on.

- Know what ingredients are in the foods at the restaurant where you plan to eat. When possible, get a menu from the restaurant ahead of time and review the menu items.
- Never assume you know the ingredients in an item. Always ask, even if you have been to the restaurant many times before.
- Let your server know from the start about your child’s food allergy. Ask how the dish is prepared and what's in it before you order. If your server do not know this information or seems unsure of it, ask to speak to the manager or the chef.

- Do not use buffet-style or family-style service. There may be cross contamination of foods from using the same serving utensils for different dishes.
- Do not let your child eat fried foods. The same oil may be used to fry several different foods.

Centers for Disease Control and Prevention, (2024) outlines the following guideline for prevention of allergies in children

If a child has food allergy, avoiding the ingestion of the allergen is the only effective way to prevent allergic reactions. Other steps may include;

1. Red food labels carefully
2. Watch out for cross-contamination
3. Early introduction of allergic food in children's food
4. Ensure the daily management of food allergies in individual children.
5. Prepare for food allergy emergencies.
6. Provide professional development on food allergies for staff members.
7. Educate children and family members about food allergies.
8. Create and maintain a healthy and safe educational environment.

Conclusion

Allergies are the body's reaction to normally harmless substances. Allergy symptoms range from mild to life-threatening. When one has allergies, the immune system makes antibodies that identify a particular allergen as harmful, even though it is not. When someone comes in contact with the allergen, the immune system's reaction can inflame the skin, sinuses, airways or digestive system. Food allergy is an immune system reaction that happens soon after eating a certain food. Even a tiny amount of the allergy-causing food can trigger symptoms such as

digestive problems, hives or swollen airways. Foods most commonly connected to food allergies include: fish, shellfish, tree nuts, peanuts, milk and eggs etc. Prevention of food allergy reactions at school; provide information about your child's food allergy; also, teach your child how to manage their food allergy.

Recommendations

Parent should also try to find out if their child suffers any allergic reaction; also they should try to avoid any food substance that produces allergy and also communicated their child allergic status to their teacher.

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FREQUENCY OF HANDWASHING POST-COVID-19 PANDEMIC AND REPORT OF DIARRHOEAL ILLNESSES AMONG A SAMPLE OF NIGERIANS

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Abstract

Background: Adequate frequency of handwashing is one of the non-curative interventions recommended to prevent any diarrhoea-related illnesses. This study investigated frequency of handwashing post-COVID-19 pandemic, and report of diarrhoeal illnesses among a sample of Nigerians with an intent to encourage handwashing to avert diarrhoea-related illnesses. **Methodology:** This study used a cross-sectional research design. The population of this study was 224,818,168, while the accessible population was 9813, yielding a sample size of 367. A self-developed questionnaire with three sections was used in this study. Four experts validated the instrument, and a reliability index of 0.82 was obtained using the split-half method of reliability. **Results:** The average age of the respondents in the total approach was 28 ±5 years of age as the young Nigerians (12-45 years) and 58 ± 0 years of age as the old Nigerians (46-70 years). The findings revealed that: 199 (54.22%) of the respondents were males 168 (45.78%) were females, 13 (3.54%) of them had no formal education, 91 (24.80%) had primary education, 203 (55.31%) had their secondary education, and 60 (16.35%) of them had tertiary education. This study's findings further revealed a poor frequency of handwashing among a sample of Nigerians post-COVID-19 pandemic, and it was inferentially significant ($x=1.54$: $p = 0.001$). There was a high level of diarrhoeal illnesses among a sample of Nigerians post-COVID-19 pandemic, and they significantly suffered diarrhoeal illnesses ($x=1.53$: $p = 0.001$). The descriptive proofs showed there was a gender difference in the frequency of handwashing, and diarrhoeal illnesses, but the hypothesis test showed the gender difference was not significant both in the frequency of handwashing, and diarrhoeal illnesses ($p = 0.424$ & $p = 0.300$) respectively. **Conclusion and Recommendations:** It was concluded that there was a poor frequency of handwashing, and a high level of diarrhoeal illnesses among a sample of Nigerians as gender did not produce much difference in the frequency of handwashing and diarrhoeal illnesses investigated. It is recommended among others that Nigerians should improve their daily frequency of handwashing to the recommended 6-10 times daily.

Keywords: frequency, handwashing, post, COVID-19, Pandemic, Diarrhoeal illnesses.

Introduction

Frequency of handwashing has long been accepted as the standard, supporting hand hygiene and protecting public health against pollutants (impurities) and pathogens causing diseases. It is a compulsion and desire to wash hands habitually to avert diseases or infections associated with dirty hands. In general, handwashing is one of the greatest ways to prevent illnesses for oneself and his family as it is an act of washing one's hands with any liquid, especially water, and either soap or no soap to get rid of dirt or microorganisms (Centers for Disease Control and Prevention (CDC), 2022; Paul, 2023). In this study, handwashing is social-centred and is a healthy habit that involves washing one's hands with water and any liquid or powdered soap to get rid of dirt that could be contaminated from direct or indirect contact with other people, animals, or public spaces like restrooms.

It is useful to note that handwashing has potential social, surgical, and antiseptic applications. According to Rogers (2021), there are three different types of handwashing practices: surgical handwashing (the most advanced type, performed before and after a surgical procedure or medical operation as the washing reaches the elbow), antiseptic handwashing (performed in a medical setting before and after seeing a patient), and social handwashing (performed before and after eating foods and coming into contact with others, including objects and animals in a setting). Martin (2023), noted that the materials for any type of handwashing could include soap or detergent, warm running water, paper towels, alcohol, antiseptic cleaner, fingernail brush, and plastic cuticle sticks. However, the frequency of handwashing is the focus of this study.

People who work with animals, food, children, and the elderly wash their hands more frequently than those who work in offices, dispelling no myth but affirming that people's

occupation determines how often they wash their hands (Medical Associates of Northwest Arkansas, 2023). Before the COVID-19 pandemic which is 2019 version of global acute virus attack, WINNS Services (2018), maintained that 6–11 times a day of handwashing was necessary to prevent viral infections. Given this, the frequency of handwashing would have been debatable, but University College, London study, as reported by Westbrook (2020) and Parsons (2020), found that handwashing 6-10 times a day was the best way to reduce the risk of acquiring any diarrhoeal infection. Thus, the ideal frequency of handwashing is 6-10 times per day, has automatically formed the basis of all arguments and inferences in this study. This will halt the spread of COVID-19 whose modes of transmission are the droplets from an infected person, direct contact, and perhaps feaco-oral pathway. Though, Zhang, Chen, Zhu, Shu, Wang, Song, Song, Zhen, Feng, Wu, Xu, and Xu (2020), stated that till date only one study had found COVID-19 virus from a single stool specimen. Meanwhile, faeco-oral route via ingestion of contaminated food or water is the sole mode of the typhoid fever transmission Clinic Barcelona (2025)**.**

Despite differences in the mode of disease transmission, the COVID-19 virus and diarrhoeal diseases such as typhoid appear to have a similar preventive strategy. Thus, "handwashing" is their go-to prophylactic technique. Handwashing is the fundamental health and hygiene practice to prevent COVID-19 infection and faecal-oral/diarrhoeal diseases, according to Martinez and Iftikhar (2020) and the CDC (2023). According to Felson (2021) and Mandal (2023), a complete handwash after using the restroom, interacting with others, and before preparing and eating meals can help reduce diarrhoeal illnesses. A similar method of transmission known as faecal-oral transmission is shared by the majority of bacteria (pathogens) that cause diarrhoea (CDC, 2019).

So, the pathogens are either directly or indirectly brought into contact with the mouth by objects, foods, drinks, handshakes, and faeces. It is crucial to understand from an operational standpoint that handwashing is what breaks the chain of transmission of diseases from the hands to the mouth mode. It is plausible and observed that individuals took handwashing very seriously during the COVID-19 pandemic and then regressed, which resulted in diarrhoeal diseases among people especially Nigerians. According to Cleveland Clinic (2023), diarrhoea is defined as having loose or watery faeces at least three times a day, or more frequently than usual for a person without an allergy. Diarrhoea may be acute, moderate, or chronic; where acute diarrhoea is a sudden condition of passing loose and watery stool (with or without blood) up to three times in a day for less than two weeks (Medicine Sans Frontieres, 2025). Moderate (mild) diarrhoea is passing loose or watery stool at least six times in a day, while chronic diarrhoea is passing loose stools repeatedly or often for more than four weeks (Cleveland Clinic, 2023; Ignite Healthwise, LLC Staff, 2024).

But the warning sign is that, if care is not given, it can cause serious health problems such as electrolyte imbalance, kidney failure, dehydration, organ damage, and even death with significant fluid loss and dehydration in a short amount of time (Cleveland Clinic, 2023). Diarrhoea is a common sign of gastrointestinal tract infections including typhoid fever, worm infestation and dysentery. Gastrointestinal tract diseases are caused by bacteria, viruses, and even protozoa. An increase in heart rate, dark and decreased urine production, irritability, nausea, headaches, and dizziness are some of the unique symptoms that accompany diarrhoea as a symptom of a disease (Cleveland Clinic, 2023; Medicine Sans Frontieres, 2025).

It is important to note that the degree (frequency) of handwashing practices and report of diarrhoeal illnesses can differ substantially throughout the world, within a country, and even

within a county. Zeduri, Sgueglia, Vigezzi, Ferrara, Lanave, Galvi, Abela, Novelli, Muzzi, and Odone (2022), in Europe, whose study was on hospital hand hygiene after COVID-19: has the pandemic heightened healthcare workers' awareness? Found that, among other places, general medicine wards had the lowest handwashing adherence rate at just 29 percent. Lopez-Quintero, Freeman, and Neumark (2009), who studied hand washing among school children in Bogota, Colombia, found that there was poor handwashing behaviour among the respondents. The World Bank (2020), found that over three billion people worldwide did not practice adequate daily handwashing for somereasons such as lack of clean water. According to the findings of a study conducted in Turkey by Rahmet, Imran, and Firdevs (2020), adequate frequency of handwashing was observed and the respondents agreed that it was an efficient way to stop the spread of COVID-19, and all other diarrhoeal illnesses in a community. Finding of a study conducted in Ethiopia by Tariuwa, Metadel, and Solomon (2022), revealed a poor handwashing practices among the hair salon employees. Emmanuel, Stanley, Moses, Evans, Dooshima, and Ephraim (2023), in Ghana, whose study was on decline of handwashing, found that only 64 out of 279 respondents consistently practiced proper handwashing, while the rest declined proper handwashing.

Finding of a study in Urban New Delhi, India by Khan, Chakraborty, Brown, Sultana, Colon, Toor, Upreti, and Sen (2021), revealed that the respondents did not observe a high frequency of handwashing. Finding of a study in Uganda by Dennis (2020), revealed a very high frequency of handwashing rates among Ugandans. The finding of Tariuwa *et al*. (2022), further revealed that male gender observed a high frequency of handwashing than the female gender in their investigation.

According to the finding of Apanga, Lettor, and Akunvane (2020), in Ghana, only 49.50 percent of the participants regularly washed their hands or sanitized them using alcohol-based hand sanitizers to prevent diarrhoeal illnesses. According to the finding of a different independent study by Wolf, Hubbard, Brauer, Ambelu, Arnold, Bain, Bauza, Brown, Caruso, Clasen, Colford-Jr, Freeman, Gordon, Johnston, Mertens, Pruss-Ustun, Ross, Stanaway, Zhao, Cumming, and Biosson (2022), often washing one's hands with soap will reduce his risk of diarrhoea by 30 percent. Hossain, Islam, Khokon, and Islam (2021), who studied the assessment of factors associated with effective handwashing facilities in Bangladesh, discovered that approximately 74.22 percent of Bangladeshi households frequently used their handwash facilities to combat diarrhoeal pathogens.

Two independent studies from distinct locations in South Africa and one from Senegal mutually revealed that diarrhoea-related illnesses were prevalent with some disparities in the areas (Thiam, Diène, Fuhrimann, Winler, Sy, Ndione, Schindler, Vounatsou, Utzinger, Faye & Cisse, 2017: Wong, Von-Mollendorf, Martinson, Norris, Tempia, Walaza, Variava, Mcmorrow, Madhi, Cohen & Cohen, 2018: Johnstone, Page, Thomas, Madhi, Mutevedzi, Myburgh, Herrera, & Groome, 2021). In the same vein, the United Nations Children's Fund (UNICEF) (2022), in her studies across the globe found that deaths attributed to diarrhoea among people particularly children under five years are more alarming in South Asia and Sub-Saharan Africa than others, and it reduced the world population by 1300 each day and 484000 in a year as of 2019.

The Centers for Disease Control and Prevention (2023), found that diarrhoeal infections roughly affected 1.8 million individuals worldwide. The findings of Singh, Shah, Singh, Saha, Das, Datt, and Gupta (2022) in India, revealed that a significant number of agents responsible for diarrhoea were discovered in the participants, including 18 percent enteropathogenic Escherichia

coli, 8 percent coli-enterotoxigenic Escherichia coli, 4 percent coli-enteroaggregative Escherichia coli, 7 percent mixed infections, 10 percent cryptosporidium, and 6 percent rotavirus. The participants had severe gastroenteritis.

In Ile-Ife, Nigeria, a study conducted by Omotade, Babalola, Anyabolu, and Japhet (2023), revealed that 63 (60.6%) of the participants had gastroenteritis. Their finding further showed that due to gastroenteritis, 22 percent of the subjects had a mono-infection with rotavirus and 45 percent had numerous bacterial infections. The finding of Bejide, Odebode, Ogunbosi, Adekanmbi, Akande, Ilori, Ogunleye, Nwachukwu, Grey-Areben, Akande, Okeke (2023), who investigated diarrhoeal pathogens in the stools of children living with HIV in Ibadan, Nigeria, showed that the subjects experienced severe diarrhoeal illnesses due to the discovery of 18 out of 65 (27.70%) enteroaggregative Escherichia coli, 10 (15.40%) enteroinvasive Escherichia coli, 8 (12.30%) Cryptosporidium parvum, and 7 (10.80%) cyclospora cayetanensis in the participants.

Africa, more specifically the West African region, is ideally positioned to have routine handwashing because it is a tropical region where diseases like cholera and typhoid are common. Given this, Nigerians should fare better than the previously mentioned Bangladesh in terms of handwashing against diarrhoeal infections because all levels of government, as well as private individuals, have made significant contributions in this area, including providing funds, resources, and staff to help the populace learn how to prevent and control diarrhoeal illnesses through proper and frequent handwashing.

For instance, Federal Capital Territory Abuja, Nigeria (2021), reported that during the COVID-19 outbreak, the Federal Government of Nigeria developed a road map for widespread frequent handwashing for the nation to prevent any diarrhoeal infection. Improvements to the budget are among the strategies. Other strategies include finance, institutional arrangements,

coordination, policies, strategies & frameworks, technical competence, capacity development, behaviour change, funding/support grants, and promotion/incentives. Ameh (2022), reported that the Nigerian Federal Government (FG) had collaborated with the National Task Group on Sanitation (NTGS) and other relevant parties to raise awareness of the importance of frequent handwashing as a fundamental measure for everyone's health and hygiene.

Notwithstanding efforts and donations from various organizations, the West African regions especially Nigeria continue to exhibit poor handwashing and suffer from a variety of preventable diarrhoeal illnesses. It seems that Abuja, in particular, in Nigeria is not exempt from this terrible condition. For instance, Jiwok, Adebowale, Wilson, Kancherla, and Umeokonkwo (2021), whose study was carried out in Nigeria asserted that the time series forecast indicated 16,256, 17,645, and 19,034 diarrhoeal illnesses in the years 2018, 2019, and 2020, respectively. Additionally, the researchers noticed that a large number of Nigerians were seeking treatment in medical facilities because of diarrhea-related illnesses such as typhoid, dysentery, and warm infestations post-COVID-19 pandemic. It is against this background that this study examined frequency of handwashing post-COVID-19 pandemic and report of diarrhoeal illnesses among a sample of Nigerians.

Research Questions

1. What is the level of frequency of handwashing among a sample of Nigerians post-COVID-19 pandemic?
2. What is the level of diarrhoeal illnesses Nigerians suffer after the COVID-19 pandemic?
3. What is the gender difference in the level of frequency of handwashing among a sample of Nigerians post-COVID-19 pandemic?

4. Is there gender difference in the diarrhoeal illnesses among a sample of Nigerians post-COVID-19 pandemic?

Hypotheses

H_{o1}. Poor frequency of handwashing post-COVID-19 pandemic is not significant among a sample of Nigerians.

H_{o2}. Nigerians have not significantly suffered diarrhoeal illnesses post-COVID-19 pandemic.

H_{o3}. There is no significant gender difference in the level of frequency of handwashing among a sample of Nigerians post-COVID-19 pandemic.

H_{o4}. There is no significant gender difference in the diarrhoeal illnesses among a sample of Nigerians post-COVID-19 pandemic.

Methodology

A cross-sectional research design was used in this study. The target population of this study was 224,818,168 Nigerians as of 9th September, 2023 (sourced: Worldometer, 2023), while Abuja, Nigeria formed that first accessible population whose population was 3,839,646 according to the World Population Review (2023), and the Wuse Market, Abuja Nigeria formed the second accessible population which was 9813 Nigerians as of 8th September, 2023 in which the sample of this study was drawn. The sample size of this study was 367 respondents, using the Research Advisors (2006) Sample Size Table which recommended that the population of a study that is up to 7500-10000 could use a sample size of 365-370. A multi-stage sampling procedure was employed in this study.

Stage 1. A homogenous purposive sampling technique was used to select Federal Capital Territory (FCT) Abuja, Nigeria into this study and exclude other States from this study. The

reason is that Abuja is the capital city of Nigeria where every State of the Federation is expected to be represented.

Stage 2. A total purposive sampling technique was used to include markets and exclude all other social places; that is places expected to meet a substantial number of persons at the same time from this study. The reason is that markets connote less anxiety (worry and fear) than schools and hospitals among others.

Stage 3. The same total purposive sampling technique was used to include Wuse Market, Abuja, Nigeria in this study and exclude others from this study. The reason is that it is the biggest market in Abuja, and the expectation is that all States of the Federation could be well represented.

Stage 4. An accidental sampling technique was used to reach out to the respondents hence their movement could not be stereotyped; they (buyers) were not stationed except for business owners.

A self-developed questionnaire was used. The instrument has sections A-C. Section A sought demographic information of the respondents. Section B sought information on the frequency of handwashing on a three-point Likert scale, while section C sought information on diarrhoeal illnesses among the respondents. For the easy analysis of the data generated, a criterion mean (x) of 3+2+13 = 2.00 was set for the decision rule for section B. A score of less than 2.00 was considered a poor frequency of handwashing, while a score equal to or above 2.00 was considered an adequate frequency of handwashing. Furthermore, in section C, a criterion mean (x) of 2+12 = 1.50 was set for the decision rule. Thus, a score that is less than 1.50; the mid-point was regarded as a low diarrhoeal illnesses, and a score equal to or above the mid-point was considered a high diarrhoeal illnesses among a sample of Nigerians. In testing the

hypotheses, both frequency of handwashing and diarrhoeal illnesses were considered to be significant and not significant when their p-values were less than, and equal to or above 0.05 level of significance respectively. The instrument for data collection was validated by three experts from the field of health. A reliability index of 0.81 was obtained, using the split-half method of reliability after a pilot test at the Zuba roadside market. The researchers used 10 business owners (7 males and 3 females), irrespective of distinctions in the language in the Wuse Market as the research assistants who of course, helped the researchers to administer the copies of the questionnaire, did follow-up, and collected the duly filled copies within four weeks.

Data analysis, frequency counts and percentages were used to display the demographic information of the respondents. Mean, and standard deviation were used to answer research questions 1 and 2. Frequency counts and percentages were used to answer research questions 3 and 4. One sample t-test was used to test hypotheses 1 and 2. Two sample (independent) t-test was used to test hypotheses 3 and 4, and all hypotheses were tested at 0.05 level of significance.

Results

The findings of this study were organized and presented in Tables 1-9.

Table 1. The demographic data of the respondents

S/n		Variables	Frequency	Percentage (%)
1.		**Age**		
	a.	Young age (12-45 years old); 28± 5	172	46.87
	b.	Old age (46-70 years old); 58 ± 0	195	53.13
		Total	**367**	**100.00**
2.		**Gender**		
	a.	Male	199	54.22
	b.	Female	168	45.78
		Total	**367**	**100.00**
3.		**Educational status**		
	a.	No formal education	13	3.54
	b.	Primary education	91	24.80
	c.	Secondary education	203	55.31
	d.	Tertiary education	60	16.35
		Total	**367**	**100.00**

Table 1 shows there were 172 (46.87%) young Nigerians and 192 representing 53.13 percent old Nigerians in this study. It shows that 199 (54.22%) were males and 168 (45.78%) were females. It further shows that only 13 (3.54%) of the respondents had no formal education, 91 (24.80%) had primary education, 203 (55.31%) had secondary education, and 60 (16.35%) of them had tertiary education. Secondary education was the highest followed by primary education because many Nigerians were convinced that there were no jobs for them after tertiary education. This is because many who had a tertiary education were yet to get a job.

Table 2. Frequency of handwashing among a sample of Nigerians post-COVID-19 outbreak

		Frequency					
S/n	**Information on handwashing**	**1-5 times daily**	**6-10 times daily**	**11 times and above daily**	**N**	x	**SD**
1.	I used to wash my hands	295	36	36	367	1.29	0.636
	Total x					**1.29**	**0.636**

Table 2 shows that the mean value is less than the criterion mean set for this investigation (1.29 < 2.00). This implied that there was a poor frequency of handwashing among a sample of Nigerians post-COVID-19 pandemic.

Table 3. Level of diarrhoeal illnesses among a sample of Nigerians post-COVID-19 invasion

S/n	**Information on diarrhoeal illnesses**	**Yes**	**No**	**N**	x	**SD**
1.	Have you suffered diarrhoea (a runny stomach) after the global COVID-19 invasion?	199	168	367	1.54	0.499
2.	Do you know anyone or persons who have suffered diarrhoea after the global COVID-19 outbreak in your network?	187	180	367	1.51	0.501
	Total x				**1.53**	**0.5**

Table 3 shows that the mean value is greater than the mean value set in this study (1.53> 1.50). This implied that there were high level of diarrhoeal illnesses among a sample of Nigerians post-COVID-19 pandemic.

Table 4. Gender difference in the frequency of handwashing post-COVID-19 outbreak

S/n	Gender	Poor frequency of handwashing	%	Adequate frequency of handwashing	%	Total	%
a.	Male	163	55.25	36	50.00	199	54.22
b.	Female	132	44.75	36	50.00	168	45.78
	Total	**295**	**80.38**	**72**	**19.62**	**367**	**100.00**

Table 4 shows that the males indicated lower frequency of handwashing than the females (163 [55.25%]> 132 [44.75%]). Meanwhile, male and female Nigerians were equal in the adequate frequency of handwashing post-COVID-19 outbreak (36 [50.00% = 36 [50.00%).

Table 5. Gender differences in diarrhoeal illnesses post-COVID-19 outbreak

S/n	Gender	Low diarrhoeal illnesses	%	High diarrhoeal illnesses	%	Total	%
a.	Male	71	54.20	128	54.24	199	54.22
b.	Female	60	45.80	108	45.76	168	45.78
	Total	**131**	**35.69**	**236**	**64.31**	**367**	**100.00**

Table 5 shows that the male indicated more both in the low and high diarrhoeal illnesses than the female (71 [54.20%: 128 [54.24%]> 60 [45.80%]:108 [45.76%]).

Table 6. Summary of t-test analysis on poor handwashing post-COVID-19 pandemic

Variable	N	Mean	SD	SEM	T	Df	p-value
Handwashing	367	1.20	0.398	0.21	57.627	366	0.001
Total	**367**						

Key: N = Number, SD = Standard Deviation, and SEM Standard Error Mean.

Table 6 shows that the p-value is less than the level of significance set for this study (p = 0.001< 0.05). This implied that the hypothesis which stated that poor frequency of handwashing post-COVID-19 pandemic was not significant among a sample of Nigerians is rejected. Therefore, poor frequency of handwashing post-COVID-19 pandemic was significant among a sample of Nigerians (p = 0.001).

Table 7. Summary of t-test analysis on diarrhoeal illnesses post COVID-19 pandemic

Variable	N	Mean	SD	SEM	T	Df	p-value
Diarrhoeal illnesses	367	1.64	0.480	0.025	65.609	366	0.001
Total	**367**						

Table 7 shows that the p-value is less than the level of significance set for this study (p = 0.001< 0.05). This implied that the hypothesis which stated that Nigerians had not significantly suffered diarrhoeal illnesses post-COVID-19 pandemic is rejected. So, the Nigerians had significantly suffered diarrhoeal illnesses post-COVID-19 pandemic (p =0.001).

Table 8. Summary of t-test analysis on gender difference on handwashing post-COVID-19 outbreak

Variable	N	Mean	SD	SEM	T	Df	p-value
Male	199	1.18	0.386	0.027	-.801	365	0.424
Female	168	1.21	0.412	0.032			
Total	**367**						

Table 8 shows that the mean value of the female whose number was less is greater than that of the male with a higher number (x =1.21> 1.18). It further shows that the p-value is greater than the level of significance set for this study (p = 0.424> 0.05). Based on this, the hypothesis which stated that there was no significant gender difference in the level of frequency of handwashing among a sample of Nigerians post-COVID-19 pandemic is not rejected. This implied that there was no significant gender difference in the level of frequency of handwashing among a sample of Nigerians post-COVID-19 pandemic (p =0.424).

Table 9. Summary of t-test analysis on gender difference in the diarrhoeal illnesses post-COVID-19 outbreak

Variable	N	Mean	SD	SEM	T	Df	p-value
Male	199	3.10	0.902	0.064	1.038	365	0.300
Female	168	3.00	0.848	0.065			
Total	**367**						

Table 9 shows that the mean value of the male is relatively above the mean value of the female (3.10>3.00). It further shows that the p-value is higher than the level of significance set in this study (p = 0.300 >0.05). So, the hypothesis that stated that there was no significant gender

difference in the diarrhoeal illnesses among a sample of Nigerians post-COVID-19 pandemic is not rejected. Hence, there was no significant gender difference in the diarrhoeal illnesses among a sample of Nigerians post-COVID-19 pandemic ($p = 0.300$).

Discussion

The findings of this study revealed pertinent data on levels of handwashing frequency post-COVID-19, which may be utilized to forecast diarrhoeal illnesses and encourage handwashing behaviour among communities to prevent all feaco-oral diseases that are associated with diarrhoea. The finding of this study revealed that there was a poor frequency of handwashing among a sample of Nigerians post-COVID-19 pandemic. ($1.29< 2.00$). In measuring it inferentially, it revealed that poor frequency of handwashing post-COVID-19 pandemic was significant among a sample of Nigerians ($p = 0.001$). The researchers opined that this is expected as Nigerians are adept at easing up on preventive measures like frequent handwashing, which were implemented and followed during the COVID-19 pandemic. The regressive handwashing practice may have resulted from localized attitudes towards health campaigns in Nigeria before this study.

Thus, the finding of this study is consistent with the findings of studies by Lopez-Quintero *et al*. (2009), the World Bank (2020), Zeduri *et al*., Khan *et al*. (2021), (2022), and Tariuwa *et al*. (2022), which revealed lower frequency of handwashing among the participants. Also, it was in an agreement with findings of Emmanuel *et al*. (2023) in Ghana, who found that only 64 out of 279 respondents consistently practiced proper handwashing, with the remaining 120 respondents (95) declining to do so regularly.

The poor frequency of handwashing among a sample of Nigerians post-COVID-19 pandemic this study revealed however, did not agree with that of Dennis (2020), who found that

handwashing rates in Uganda surpassed the 50 percent target set by the 2020 National Development Plan II by an astounding 86 percent in just the last three months. The reason for this contradictory outcome is that Ugandans can keep a positive attitude towards health programmes and initiatives.

The finding of this study showed that there were high diarrhoeal illnesses among a sample of Nigerians post-COVID-19 pandemic, and it was significant (p =0.001). The researchers attributed this finding (ill condition) to the poor frequency of handwashing habits among Nigerians. Thus, the finding of this study was consistent with the findings of Singh, Shah, Singh, Saha, Das, Datt, and Gupta (2022), Bejide *et al*. (2023), Centers for Disease Control and Prevention (2023) and Omotade *et al*. (2023), which revealed a high prevalence of diarrhoeal infections which had affected roughly 1.8 million individuals worldwide owing to lower frequency of handwashing among communities.

Furthermore, the finding of this study revealed that there was a gender difference in the frequency of handwashing among a sample of Nigerians post-COVID-19 pandemic. However, it was not inferentially significant (p =0.424). The investigators opined that both male and female respondents were in this surrounding with the same level of experience, and perhaps with the same level of awareness of handwashing which was why their effort could not reach a threshold to produce a significant difference at the testing of the hypothesis. The finding of this study conflicts with the finding of Tariuwa *et al*. (2022), which revealed that there was a significant gender difference in the frequency of handwashing as the female gender was less in the practice than the male gender.

Finally, the finding of this study descriptively revealed that there was a gender difference in diarrhoeal illnesses among a sample of Nigerians, but inferentially, there was no significant

gender difference in the diarrhoeal illnesses among the respondents post-COVID-19 pandemic (p = 0.300). The reason behind this result could be as aforementioned.

Conclusion

By the findings of this study, it was concluded that Nigerians' poor frequency of handwashing practices post-COVID-19 led to the diarrhoeal illnesses that respondents had suffered. However, the poor frequency of handwashing habits and diarrhoeal illnesses reported among Nigerians were not influenced by gender to create a difference.

Recommendations

1. There is a need to conduct regular Health Education campaigns on handwashing for Nigerians in all public places such as markets.
2. Nigerians should improve their frequency of handwashing up to 6-10 times daily to avert diarrhoeal illnesses.
3. The Nigerian males should do more to improve their frequency of handwashing as they wash less in the practice than their female counterparts.
4. Nigerian females should do more to prevent diarrhoeal illnesses as they suffer more than their male counterparts

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KNOWLEDGE OF NEONATAL JAUNDICE BY NURSING MOTHERS ATTENDING POST-NATAL CLINIC AT GOVERNMENT HEALTH FACILITIES IN OWERRI MUNICIPAL COUNCIL, IMO STATE NIGERIA.

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Abstract
Jaundice is one of the most common conditions needing medical attention in newborn babies. Jaundice may also be a sign of serious underlying illness this is why this study was designed to determine knowledge of neonatal jaundice by nursing mothers attending post-natal clinic at government health facilities in Owerri municipal council, Imo State Nigeria. The study adopted the survey research design; Owerri Municipal council was used as the study area. The population for this study consist of 200 registered nursing mothers who have experienced jaundice in one of their children or were currently experiencing jaundice. The population size was not large, no sampling was done. Reliability coefficients of 0.801 were obtained for the Test on knowledge of neonatal jaundice. Results includes; mean score shows that the level of knowledge on neonatal jaundice possessed by nursing mothers attending post-natal clinics is moderate; Nursing mothers in Owerri Municipal Council have moderate level of knowledge of neonatal jaundice across various parity levels. Conclusion and recommendations were made among others Regular health education of nursing mothers on the identification, causes, danger signs, complications, appropriate treatment procedures and the prompt step to take when neonatal jaundice is noticed should be made mandatory.

Introduction

The term “jaundice” was coined from a French word “jaune” meaning “yellow”. Jaundice is a condition due to an increased level of bilirubin in the blood of an infant resulting in liver disease. Bilirubin is a bile pigment that is formed from the breakdown of heme (a deep red iron containing blood pigment obtained from hemoglobin), mainly as a product of red blood cell degradation. If bilirubin cannot leave the body, it accumulates and discolours other tissues and results hyperbilirubinemia. The normal total level of bilirubin in the blood serum is 0.2mg/dL. When it rises to 3mg/dL or higher, the persons skin and the whites of the eyes become noticeably yellowish (Hicks, 2009).

Jaundice is one of the most common conditions needing medical attention in newborn babies. According to Demott, *et al*, (2009), jaundice may also be a sign of serious underlying illness. For instance, the acute bilirubin encephalopathy is the acute manifestations of bilirubin toxicity seen in the first weeks after birth. Approximately 60 percent of term and 80 percent of preterm babies develop jaundice in the first week of life, and about 10 percent of breastfed babies are still jaundiced at 1 month. Most of these cases are benign (they are not dangerous or malignant), but it is important to identify those babies at risk (although rare) of acute bilirubin (Canadian Paediatric Society, (CPS) 2017).

McDonald (2015) stated that there are two main types of jaundice. They are unconjugated or indirect jaundice which is also known as pathologic jaundice, and conjugated or direct jaundice which is also known as physiological jaundice. This pathologic jaundice is the one that manifest immediately or few minutes after the baby is born, it is noticeable and medical practioners take immediate action.

The physiologic / conjugated jaundice is the type of jaundice that manifest within 5 – 10 days and above. The physiologic or conjugated jaundice is the main focus of this study because as at the time of manifestation, the mother must have been discharged from the hospital and probably at home nursing the baby. The conjugation process of physiologic jaundice takes place in the liver, and produces a water-soluble conjugated bilirubin which is ready to be excreted from the body.

Physiologic jaundice is the common and normal type of jaundice in babies, it can affect upto 60 percent of full term babies in the first week of life. Physiologic jaundice is caused by a combination of increased bilibribin production, the destruction of erythrocytes and decreased

excretory capacity. The risk factors for physiologic/conjugated jaundice are genetics and familial risk, nutrition, maternal factor, birth weight, gestational age and congenital infections.

In newborn infants, jaundice can be detected by blanching the skin with digital pressure, revealing the underlying colour of the skin and subcutaneous tissue. The assessment of jaundice must be performed in a well-lit room or, preferably, in daylight at a window. Jaundice is usually seen first in the face and progresses gradually to the trunk and extremities, but visual estimation of bilirubin levels from the degree of jaundice can lead to errors (Bhutani, Johnson, Gourley and Adler 2010). In most infants with TSB levels of less than 15 mg/dL (257 μmol/L), noninvasive TCB measurement devices can provide a valid estimate of the TSB level (Ebbesen, Rasmussen & Wimberley 2012; Maisels & Ostrea 2014; Yasuda, Itoh, & Isobe 2013).

Severe neonatal jaundice represents perhaps the mostly disregarded cause of neonatal morbidity and mortality in the world, which accounts for 75 percent of hospital re-admission in the first week of life of most newborn babies (Olusanya, Ezeaka, Ajayi-Obe, Mukhtar-Yola, & Ofovwe, 2012). Neonatal jaundice and its complications still represent a major health challenge in many developing countries and contribute to infant deaths which have remained very high in Asia and Latin America (Zupan, 2015).

In sub-Saharan Africa, especially in Nigeria and Kenya, neonatal jaundice is a leading cause of death in newborn nurseries and is a major reason why infants are re-hospitalized. Efforts has been made by the ministry of health, hospitals and medical practitioners to create awareness on jaundice, its risk factors, health consequences and management procedures through seminars, workshops and health talks, but it seems that some nursing mothers do not have enough knowledge on jaundice.

The researcher witnessed four jaundice cases in three of her family relative, one of the cases was so severe that the newborn had to be treated and managed using exchange blood transfusion and phototherapy. In the end, the child was left paralyzed due to the adverse implication of chronic jaundice to the child's body.

The researcher observed that a lot of nursing mothers lack access to quality health care, a majority have their babies in community health centers, where many health workers lack adequate newborn care skills. Again, not all families can provide quality medical care for their newborn baby who had jaundice and may not be able to prevent the health consequences of jaundice which include cerebral palsy, mental retardation, congenital malformation, teeth problem, poor hearing and so on. All these health problems could be resolved or reduced if nursing mothers attend post-natal clinic and also if they put the knowledge they acquire into practice. The focus of this study is to determine the Knowledge of Neonatal Jaundice by Nursing Mothers Attending Post-natal clinic at Government Health Facilities in Owerri Municipal Council.

Purpose of Study

The main purpose of this study was to examine the knowledge of neonatal jaundice by nursing mothers attending post natal clinics at Government Health facilities in Imo State. Specifically, the study seeks to examine:

1. Level of knowledge of neonatal jaundice possessed by nursing mothers attending post natal clinics.
2. Differences in knowledge level on neonatal jaundice possessed by nursing mothers of different educational levels attending post natal clinics.

3. Differences in knowledge level on neonatal jaundice possessed by nursing mothers of various parity levels attending post natal clinics.

Research Questions

The following research questions guided the study:

1. What is the level of knowledge of neonatal jaundice possessed by nursing mothers attending post natal clinics?
2. What is the mean knowledge of neonatal jaundice possessed by nursing mothers of different educational levels attending post natal clinics?
3. What is the mean knowledge of neonatal jaundice as possessed by nursing mothers based on parity attending post natal clinics?

Hypotheses

The following hypotheses guided the study, and was be tested at 0.05 level of significance:

1. There is no significant difference in the mean knowledge scores of neonatal jaundice by nursing mothers of different educational levels of education attending post natal clinics.
2. There is no significant difference in the mean knowledge scores of neonatal jaundice by nursing mothers of various parity levels attending post natal clinics.

Methods

The study adopted the survey research design. Owerri Municipal council was used as the study area. It is one of the 27 local Government Areas in Imo State. The population for this study consist of 200 registered nursing mothers who have experienced jaundice in one of their children or is currently experiencing jaundice. These mothers were also attending post-natal clinics at Government Health Facilities (primary health centres and hospitals) in Owerri Municipal council of Imo State during the period of this study (post natal care register, 2018). The population size

is not large, no sampling was done. The reliability of the instrument was established through split half method. The Pearson product correlation coefficient was used to obtain the correlation coefficient f while Spearman- Brown Prophesy formula was used to convert the reliability of half test to reliability of full test. Reliability coefficients of 0.801 were obtained for the Test on knowledge of neonatal jaundice. The data collected from the field was analyzed using mean, standard deviation, frequencies, percentages, independent samples t-test, Analysis of Variance (ANOVA) and chi-square.

Results and Discussions

Research Question 1: What is the level of knowledge of neonatal jaundiced possessed by nursing mothers attending post-natal clinics?

Table 1. Mean score on knowledge of neonatal jaundice by nursing mothers attending post-natal clinics (N=150)

	Min.	Maxi.	Mean	SD	Remark
Level of knowledge of Neonatal Jaundice	8.00	23.00	14.89	3.01	**Moderate**

Table 1 show that the range of scores on knowledge of neonatal jaundice obtained by the nursing mothers was 8.00 to 23.00. While the mean score was 14.89, and the standard deviation was 3.01. The mean score shows that the level of knowledge on neonatal jaundice possessed by nursing mothers attending post-natal clinics was moderate.

Research Question 2: What is the difference in knowledge level of neonatal jaundice by nursing mothers of different educational levels attending post-natal clinics?

Table 2: Mean score of knowledge of neonatal jaundice by nursing mothers of different educational levels attending post-natal clinics

	Low Level of Education (n=73)			High Level of Education (n=77)		
	Mean	**SD**	**Remark**	**Mean**	**SD**	**Remark**
knowledge of neonatal jaundice	14.59	2.91	Moderate	15.18	3.10	Moderate

Table 3, shows that nursing mothers with low level of education had a mean score of 14.59 while those with high level of education had 15.18, the SD was 3.10. These mean scores indicate that the level of knowledge of neonatal jaundice for nursing mothers with low and high level of education is moderate. There was therefore no difference in the knowledge level of neonatal jaundice possessed by nursing mothers of different educational levels.

Research Question 3: What is the difference in knowledge level of neonatal jaundice of nursing mothers of various parity levels attending post-natal clinics?

Table 3: Mean score on level of knowledge of neonatal jaundice by nursing mothers of different parity attending post-natal clinics

Parity	N	Mean	SD	Remark
Once	10	15.40	2.17	Moderate
Twice	43	15.16	3.24	Moderate
3-5 Time	39	15.51	2.83	Moderate
6-8 Times	36	14.92	2.66	Moderate
9 times and above	22	13.00	3.22	Low

The analysis in Table 5 shows the mean scores on knowledge of neonatal jaundice by nursing mothers of different parity. Nursing mothers who had given birth once (mean=15.40; SD =2.17), twice (mean=15.16; SD= 3.24), 3-5 times (mean=15.5; SD = 2.83) and 6-8 times (mean=14.92; SD = 2.66) all had a moderate knowledge of neonatal jaundice. However, nursing mothers who had given birth 9times and above (mean=13.00; SD = 3.22) had low knowledge of neonatal jaundice. Although nursing mothers with only one birth had the highest mean score on knowledge of neonatal jaundice, they had the lowest standard deviation score while those with 9 births and above had the highest standard deviation considering their lower mean score. This suggests that mothers with just one birth are more homogenous in their individual scores than that with 9 births and above.

Hypothesis one: There will be no significant difference in the mean knowledge scores of neonatal jaundice by nursing mothers of different educational levels attending post-natal clinics.

Table 4: t-test comparison of mean knowledge of neonatal jaundice by nursing mothers of different education levels

Source of variation	N	Mean	SD	df	t-cal	*P*-val	Decision
Low Level of Education	73	14.59	2.91	148	1.21	.230	NS*
High Level of Education	77	15.18	3.10				

*Not Significant

The t-test analysis presented in table 7 shows that the calculated t-value of 1.21 has a corresponding *P*-value of .230. Since the *P*-value was greater than the stipulated 0.05 level of significance and degree of freedom (df) 148, it was decided that there is no significant difference in the mean knowledge of neonatal jaundice by nursing mothers of different educational levels.

The null hypothesis of no significant difference between the two groups was therefore not rejected.

Hypothesis two: There is no significant difference in the mean knowledge scores of neonatal jaundice by nursing mothers of various parity levels attending post-natal clinics.

Table 5: Analysis of variance on the mean knowledge of neonatal jaundice by nursing mothers of different parity

	Sum of Squares	**Df**	**Mean Square**	**F**	***P*-value**	***Decision***
Between Groups	1269.63	4	317.41	2.87.6	.02	S*
Within Groups	16004.516	145	110.38			
Total	17274.15	149				

*Significant

As observed in table 8, the F-ratio (df: 4/145) is 2.87.6 and the *P*-value (.02) was less than the stipulated 0.05 level of significance. It was therefore decided that there is a significant difference in difference in the mean knowledge of neonatal jaundice by nursing mothers of various parity levels. The null hypothesis was therefore rejected.

Discussion of the Findings

Knowledge of neonatal jaundice by nursing mothers attending post-natal clinics

From the result shown in Table 1, the mean scores indicate that the level of knowledge of neonatal jaundice for nursing mothers with low and high level of education is moderate. Their results showed a good knowledge in some aspect of jaundice but there are also some misconceptions, partial knowledge and poor knowledge in certain aspect of jaundice that must be focused. However, familiarity, awareness or understanding of neonatal jaundice is vital for

nursing mothers because if jaundice is left untreated and bilirubin levels reach limits exceeding 25mg, there is the probability of cerebral palsy, which may lead to certain forms of brain damages to occur. This result goes to show moderate knowledge of neonatal jaundice.

This is because neonatal jaundice is a common disorder worldwide and accounts for 75% of hospital re-admissions in the first week of life of most newborn babies, hence it is a cause of concern for both physician and parents. Moreover, neonatal jaundice and its complications still represent a major health challenge in many developing countries, and contribute to both neonatal mortality and morbidity which have remained very high in Sub-Saharan Africa, Asia, and Latin America (Zupan, 2015). This result collaborates with the findings of Alemu *et al* (2011) who assessed health workers knowledge, attitude and perception towards jaundice in Ethiopia. Their result showed that there is only partial knowledge about the manifestation of jaundice. Most respondents in this had positive perception towards jaundice and some have negative perception. The study recommended that education and training should be given to update the knowledge of the health workers.

On the test of hypothesis 1 and from the result as shown the statement of hypothesis 1 was not rejected. This implies that there is no significant difference in the mean knowledge of neonatal jaundice by nursing mothers of various educational levels. Thus, education and training should be given to update the knowledge of the nursing mothers irrespective of their level of education. This study therefore suggests the need to provide adequate access of maternal health services and more functional medical facilities to all the areas in Nigeria so as to take care of neonatal jaundice. It was therefore decided from hypothesis 2 that there is a significant difference in the mean knowledge of neonatal jaundice by nursing mothers of various parity levels. The null hypothesis was therefore rejected. There is a significant difference in the mean

knowledge of neonatal jaundice by nursing mothers who had given birth 3-5 times and those who had given birth 9 times and above. No significant difference was found in the mean knowledge of neonatal jaundice by nursing mothers of other parity levels. This is in agreement with the findings of Alemu *et al* (2011) who reported similar results. This by implication goes to show inconclusive result on the knowledge of neonatal jaundice by nursing mothers of various parity levels.

Conclusion

Based on the findings of the study, it was concluded that the level of knowledge of neonatal jaundice by nursing mothers is moderate. Level of education significantly influences the knowledge of neonatal jaundice by nursing mothers, while parity significantly influence the knowledge of neonatal jaundice by nursing mothers. It means that level of education is not a serious moderating variable in the knowledge of neonatal jaundice while parity is a serious factor to be considered.

Recommendations

Based on the findings of the study, the following recommendations are made:

1. Regular health education of nursing mothers on the identification, causes, danger signs, complications, appropriate treatment procedures and the prompt step to take when neonatal jaundice is noticed should be made mandatory.
2. Government and policy makers should make necessary provision for quality care on maternal and child health issues. They should also provide equipment or possibly improvise alternative equipment to counter the negative effects of neonatal jaundice. This would make way for improved management procedures and efficient post-natal health care services.

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RELATIONSHIP BETWEEN ENVIRONMENTAL POLLUTION AND RESPIRATORY DISEASES IN AWKA SOUTH, ANAMBRA STATE NIGERIA

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ABSTRACT

This study investigates the relationship between environmental pollution and respiratory diseases in Awka South Local Government Area (LGA) of Anambra State, Nigeria. Three research questions guided the study. The study employed correlational survey research design. The population consists of residents of Awka South LGA Anambra. Random sampling techniques was used to obtain 100 respondents from the population that formed the study. The instrument for data collection was 20 items questionnaire which was validated by three experts in the faculty of Education, Nnamdi Azikiwe University, Awka. Statistics mean was used to analyze the collected data. The findings of the study indicate that waste burning is a common practice that contribute significantly to pollution, noise pollution from vehicles is one of major issue in their community, improper waste disposal contributes to environmental pollution. The study further indicate that poor air quality contributed to the respiratory problems they had experienced, and also, that there is a strong correlation between waste burning and the occurrence of respiratory diseases.

Key Words: Relationship, Environmental Pollution & Respiratory Diseases

Introduction

More than 12 million people around the world die every year because they live or work in unhealthy environments. Environmental pollution, including air, water, and soil contamination, poses significant threats to human health (Smith *et al*., 2020). Respiratory diseases such as asthma, chronic bronchitis, and lung cancer have been increasingly linked to pollutants like particulate matter (PM2.5), nitrogen dioxide (NO2), and sulfur dioxide (SO2) (Tan, Jiayi,Yang and Jiang, 2023). The burden of respiratory diseases is compounded by factors such as poverty, inadequate sanitation, and limited access to health care (Fullerton, 2016) Environmental pollution is a pervasive issue affecting both developed and developing nations. It encompasses the contamination of air, water, and soil by harmful substances, leading to adverse effects on human health and the environment. Air pollution, in particular, has garnered significant attention due to its direct impact on respiratory health. Common air pollutants include particulate matter

(PM2.5 and PM10), nitrogen dioxide (NO2), sulfur dioxide (SO2), carbon monoxide (CO), and volatile organic compounds (VOCs). These pollutants originate from various sources, such as industrial activities, vehicular emissions, agricultural practices, and residential fuel burning (Smith *et al*., 2013).

Ighnibia, Wordu, and Saue (2017), opined that Respiratory diseases encompass a range of conditions that affect the lungs and other parts of the respiratory system. These include chronic obstructive pulmonary disease (COPD), asthma, bronchitis, emphysema, and lung cancer. The prevalence of these diseases has been rising globally, correlating with increased levels of air pollution. For instance, fine particulate matter (PM2.5) can penetrate deep into the lungs, causing inflammation and exacerbating conditions like asthma and bronchitis (Isabela, 2024) Awka South Local Government Area (LGA) is a rapidly developing region in Anambra State, Nigeria. The area has experienced significant urbanization and industrialization in recent years, leading to increased pollution levels. This development, while contributing to economic growth, has also resulted in heightened environmental challenges. The major sources of pollution in Awka South LGA include industrial emissions, vehicular exhaust, waste burning, and construction activities. These pollutants have the potential to degrade air quality and pose health risks to the local population (Nwankwo and Eze 2019).

The relationship between environmental pollution and respiratory diseases is a critical area of public health research. Numerous studies have demonstrated that exposure to pollutants is linked to adverse respiratory outcomes. For example, research conducted in various parts of the world has shown that areas with high levels of air pollution report higher incidences of respiratory diseases among their populations (Abumero,. Ebeniro and Ogbodo 2021) Understanding this relationship in the context of Awka South LGA is essential for developing

effective health interventions and pollution control strategies. Given the growing concerns about the health impacts of environmental pollution, this study aims to investigate the specific relationship between pollution levels and respiratory diseases in Awka South LGA. By identifying the sources and types of pollutants, and analyzing their correlation with respiratory health outcomes, the study seeks to provide evidence-based recommendations for mitigating the adverse health effects of pollution in the region. This expanded background provides a more detailed context for the study, including the sources of pollution, the types of respiratory diseases, and the specific situation in Awka South LGA.

Environmental pollution, particularly air pollution, poses a significant threat to public health globally, with pronounced effects in developing regions. Awka South Local Government Area (LGA) in Anambra State, Nigeria, has experienced rapid urbanization and industrialization, leading to increased levels of pollution. This rise in pollution has been paralleled by a growing incidence of respiratory diseases among the local population. Despite the evident increase in both pollution levels and respiratory health issues, there is a lack of comprehensive research investigating the direct relationship between these two variables in Awka South LGA. Understanding this relationship is crucial for formulating effective public health policies and interventions aimed at mitigating pollution and improving health outcome

Research Questions

1. What is the major environmental pollutants in Awka South LGA, Anambra state?
2. What is the prevalence level of respiratory diseases in Awka South?
3. What is the correlation between the levels of environmental pollutants and the incidence of respiratory diseases in Awka South LGA?

Methodology

The correlational research design was used for the study as it would enable the researcher to determine the relationship between environmental pollution and Respiratory disease in Awka South LGA in Anambra State. The population of this study comprises of 270,300-person, 149,993 Female and 120,307 Males. The data was gotten from National Population Census (2006-2022). A sample size of 100 was selected using the simple random sampling techniques. The L.G.A was divided into three clusters based on the nine towns in the area. Using the simple random Sampling techniques, two cluster was selected from the three clusters. The villages in the selected cluster was numbered and four villages was selected equally using simple random techniques. The household in the selected villages was numbered. A total of 100 household was selected for the study, from each household, one respondent was selected. Thus,100 respondents was gotten. The instrument for data collection was structured questionnaire designed by the researcher. The questionnaire was titled "Relationship between environmental pollution and Respiratory disease in Awka South L.G.A, Anambra State". The questionnaire consisted of twenty (20) questions. The instrument was structured with four-point Likert scale of Strongly Agree (SA)- 4 points, Agree (A)- 3 points, Disagree(D)- 2 points, Strongly Disagree (SD)- 1 point was used to weigh each of the options answered. For the reliability of the Instrument, the test-retest reliability method was used on three towns in Awka North L.G.A. The instrument was administered to ascertain its reliability before it was administered to the actual respondents in Awka South L.G.A. Cronbach Alpha Method was used to determine the internal consistency of the Instrument and the values 0.77,0.88, and 0.78 was obtained respectively. The instrument was administered objectively to the stipulated respondents by the researcher and two (2) research

assistants selected and briefed by the researcher to participate in carrying out this exercise. Data Collected was analyzed using descriptive statistics particularly the means score.

Result

Cluster One: What is the major environmental Pollutant in Awka South LGA, Anambra state?

S/N	Major Environmental Pollutants	N	SA	A	D	SD	MEAN	REMARK
1	Industrial activities are one of the sources of pollution in Awka South	100	30	40	20	10	2.90	Agree
2	Waste burning is a common practice that contribute significantly to pollution	100	75	20	5	-	3.70	Agree
3	Noise pollution from vehicles and industries are not a major issue in my community	100	35	40	15	10	3.00	Agree
4	Improper waste disposal contributes to environmental pollution	100	30	70	-	-	3.60	Agree
5	Water bodies in Awka South LGA are often polluted by improper waste disposal.	100	75	25	-	-	3.75	Agree
6	Air pollution is the most significant environmental issue in Awka South LGA.	100	35	40	15	10	3.00	Agree
7	Vehicular emissions contribute greatly to air pollution in my area.	100	60	30	10		3.50	Agree
	TOTAL MEAN						**2.96**	**Agree**

Data in Table 1 reveals that the respondents agree that industrial activities are one of the sources of pollution in Awka South, waste burning is a common practice that contribute significantly to pollution, noise pollution from vehicles and industries are not a major issue in my community, Improper waste disposal contributes to environmental pollution, water bodies in Awka South LGA are often polluted by improper waste disposal, air pollution is the most significant environmental issue in Awka South LGA, and vehicle emissions contribute greatly to air pollution in my area.

Cluster Two: What is the prevalence of respiratory diseases in Awka South LGA?

S/N	Prevalence of Respiratory Diseases	N	SA	A	D	SD	MEAN	REMARK
8	Respiratory disease such as cough is common among the residents of Awka South	100	70	20	10	-	3.60	Agree
9	I have experienced respiratory issues such as coughing or wheezing frequently in the last year	100	30	45	20	5	3.00	Agree
10	Children and elderly in my household often experience respiratory problem	100	30	50	10	10	3.20	Agree
11	Poor air quality contributed to the respiratory problems around my area	100	55	34	5	6	3.38	Agree
12	Respiratory diseases have not increased in my community over the past few years.	100	30	45	10	15	2.95	Agree
13	People in my community suffer from asthma or air-related respiratory conditions.	100	35	40	15	10	3.00	Agree
	TOTAL MEAN					**3.18**		**Agree**

Data in Table 2 reveals that the respondents agree that respiratory disease such as cough is common among the residents of Awka South, they have experienced respiratory issues such as coughing or wheezing frequently in the last year, poor air quality contributed to the respiratory problems they had experienced, respiratory diseases have not increased in my community over the past few years, people in their community suffer from asthma or air related respiratory conditions, and that children and elderly in their household often experience respiratory problem

Cluster Three: What is the correlation between the level of environmental Pollutants and the incidence of respiratory diseases in Awka South LGA Anambra State.?

S/N	Correlation between Environmental Pollutants and Respiratory Diseases	N	SA	A	D	SD	MEAN	REMARK
14	Living near industrial areas can negatively impact the respiratory health of residents	100	70	20	5	5	3.55	Agree
15	There is a strong correlation between waste burning and the occurrence of respiratory diseases	100	50	30	10	10	3.20	Agree
16	When air quality worsens, I noticed an increased in respiratory issues among my family members	100	30	45	20	5	3.00	Agree
17	During period of heavy pollution, the number of respiratory diseases cases increases in my community	100	50	20	20	10	3.10	Agree
18	Reducing pollution levels would significantly lower the incidence of respiratory diseases.	100	66	34	-	-	3.66	Agree
19	Higher pollution levels are directly linked to an increase in respiratory problems.	100	30	50	10	10	2.90	Agree
20	Poor environmental conditions can lead to an increase in the prevalence of respiratory diseases	100	50	20	10	20	3.00	Agree
	TOTAL MEAN				**3.20**			**Agree**

Data in Table 3 reveals that the respondents agree that there is a strong correlation between waste burning and the occurrence of respiratory diseases, when air quality worsens, they noticed an increased in respiratory issues among their family members, during period of heavy pollution, the number of respiratory diseases cases increases in my community, reducing pollution levels would significantly lower the incidence of respiratory diseases, higher pollution levels are directly linked to an increase in respiratory problems in my community, living near industrial areas can negatively impact the respiratory health of residents, and poor

environmental conditions can lead to an increase in the prevalence of respiratory diseases in Awka South LGA.

Discussion of Findings.

The major environmental pollutants in Awka South LGA

The findings of the study reveal that in Awka South, Industrial activities are one of the sources of pollution. Waste burning is a common practice that contribute significantly to pollution, noise pollution from vehicles is one of major issue in their community, improper waste disposal contributes to environmental pollution, water bodies in Awka South LGA are often polluted by improper waste disposal, air pollution is the most significant environmental issue in Awka South LGA, and vehicle emissions contribute greatly to air pollution in my area.

The prevalence level of respiratory diseases in Awka South

The findings of the study reveal that respiratory disease such as cough is common among the residents of Awka South, they have experienced respiratory issues such as coughing or wheezing frequently in the last year, poor air quality contributed to the respiratory problems they had experienced, respiratory diseases have not increased in my community over the past few years, people in their community suffer from asthma or air related respiratory conditions, and that children and elderly in their household often experience respiratory problem.

The correlation between the levels of environmental pollutants and the incidence of respiratory diseases in Awka South LGA.

The findings of the study reveal that there is a strong correlation between waste burning and the occurrence of respiratory diseases, when air quality worsens, they noticed an increased in respiratory issues among their family members, during period of heavy pollution, the number of respiratory diseases cases increases in their community, reducing pollution levels would

significantly lower the incidence of respiratory diseases, higher pollution levels are directly linked to an increase in respiratory problems in my community, living near industrial areas can negatively impact the respiratory health of residents, and poor environmental conditions can lead to an increase in the prevalence of respiratory diseases in Awka South LGA.

Conclusion

Based on the findings of the study, it was concluded that waste burning, improper waste disposal, noise from vehicles, and, vehicle emissions are the major environmental pollutant in Awka South LGA, Anambra state. The prevalence of respiratory diseases in Awka South is average and there is a strong correlation between waste burning and the occurrence of respiratory diseases.

Recommendations

Based on the findings of the study, the following recommendations were made:

1. Enhanced Air Quality Monitoring: Implement air quality monitoring systems in key areas of Awka South to continuously measure pollutants such as particulate matter (PM2.5, PM10), nitrogen oxides (NOx), sulfur dioxide (SO2), and carbon monoxide (CO). This will help track pollution sources and levels, providing real-time data.

2. Reduce Emissions from Transportation: Develop public transport infrastructure to reduce the reliance on private vehicles. Initiatives such as the introduction of buses and encouraging walking or cycling can reduce vehicle emissions, a major contributor to air pollution.Also Implementing and enforcing stricter emission standards for vehicles, especially in urban areas like Awka South, to reduce harmful pollutants from exhaust fumes.

3. Public Health Interventions: Implement periodic respiratory health screenings, especially for vulnerable groups such as children, the elderly, and those with pre-existing conditions, to

detect early signs of respiratory diseases. Also raise awareness about the link between environmental pollution and respiratory diseases. Educating the public on preventive measures (e.g., wearing masks during high-pollution days, avoiding outdoor activities when air quality is poor) can help reduce exposure.

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SOCIO-DEMOGRAPHIC INDICES OF CHILD SEXUAL ABUSE AMONG SCHOOL CHILDREN IN EDO SOUTH SENATORIAL DISTRICT OF EDO STATE

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Abstract
This study investigated socio-demographic indices of child sexual abuse among school children in Edo South senatorial district of Edo state. Four research questions were raised to guide the research. Four hypotheses were formulated and tested at 0.05 level of significance. Literatures related to the studies were reviewed. The study adopted the descriptive survey research design and the population of the study comprised 107,271 secondary school students in public and private registered senior secondary school children in Edo South senatorial district of Edo state. The multi-stage sampling technique was used to select 384 respondents for the study. A Self-structured questionnaire was used for the collection of data. The research instrument was content validated and a reliability coefficient of 0.73 was obtained using the test-retest reliability method. Data obtained were analysed using inferential statistics of chi-square. Some of the findings revealed that gender and age are socio-demographic determinants of child sexual abuse among school children in Edo South senatorial district of Edo state. With reference to the findings, the researcher recommended among others that a gender-sensitive awareness programmes should be developed and implemented in schools and communities to educate students, parents, teachers, and community members about the risks of child sexual abuse.
Keywords: Socio-demographic, sexual abuse, school type, gender, school location.

Introduction

Child sexual abuse (CSA) is a serious global public health problem with long-lasting negative consequences on the mental, physical and social wellbeing of victims. Child sexual abuse is a broad term that describes any act aimed at engaging a child directly or indirectly in non-age-appropriate sexual behaviours either through intimidation, coercion or inducement. This act is particularly worrisome because at this age, adolescents not fully understand the nature of the sexual act taking place and therefore lacks the cognitive, emotional and physical power to

decline such sexual behaviour. Specifically, the World Health Organization defined child sexual abuse as the involvement of a child in sexual activity that he or she does not fully comprehend, is unable to give consent to, or for which the child is not developmentally prepared or which violates the laws and social taboos of society (WHO, 2010).

CSA occurs worldwide and its occurrence is not restricted to any culture, location, age, or gender. According to WHO (2020), 1 in every 13 male and 1 in every 5 females suffered various forms of sexual violence during childhood. Specifically, an estimated 7.9% of males and 19.7% of females universally faced sexual abuse before the age of 18 years; the highest prevalence rate of child sexual abuse was seen in Africa (34.4%); Europe, America, and Asia had prevalence rate of 9.2%, 10.1%, and 23.9%, respectively; with regards to females, seven countries reported prevalence rates as being more than one fifth that is, 37.8% in Australia, 32.2% in Costa Rica, 31% in Tanzania, 30.7% in Israel, 28.1% in Sweden, 25.3% in the US, and 24.2% in Switzerland (WHO, 2020). Despite the high burden of sexual abuse and its adverse effects, child sexual abuse is one of the most underreported crimes (Mathews, Bromeld, Walsh, Cheng & Norman, 2017).

Similarly, several researchers have established a link between CSA and certain factors they believe are determinants of CSA. In investigating the prevalence of child sexual abuse among secondary school adolescents in Obio/Akpor Local Government Area of Rivers State, Nigeria Gabriel –Job, Alikor and Akani (2019) reported that gender significantly predicts CSA with girls more (2.7times) likely to be victims of CSA compared to their male counterparts. On the contrary, Modelli, Galvão, and Pratesi (2012) reported that boys are at greater risk for sexual abuse when they are below the age of 6.5. In addition, Ranney, Rennert-May, Spitzer, Chitai, Mamlin, and Mabeya (2011) hypothesized that boys might be more reluctant to report sexual abuse due to fears related to their identities as males or the possibility of being labeled as

homosexual. In other studies done in Nigeria, Ghana, Tanzania and Turkey, a higher prevalence of CSA among female as against their male counterpart was yet again reported (Chime, Orji, Aneke & Nwoke, 2021; Agu, Brown, Adamu-Isaah & Duncan, 2018). In contrast, CSA studies done in India, Saudi Arabia and other Arab countries showed that sexual abuse occurred more in boys than girls (Choudhry, Dayal, Pillai, Kalokhe, Beier, & Patel, 2018; Aleissa, Saleheen, Al-Wallan, AlKashan, AlSubaie & Almuneef, 2018; Beier). However, study done in Lebanon among secondary school students showed no gender difference (Usta & Farver, 2010).

In explaining the variance in CSA across gender, Agu, Brown, Adamu-Isaah and Duncan (2018) stated that the variance could be due to the fact that females are usually being used as domestic servants and victims of child labour. Again, females exhibit early sexual maturation compared to males and these physical features make them appear attractive, more vulnerable to unwanted advances, seduction by older and more experienced males (Akinsulire, 2017). The low prevalence of CSA among girls in Arab countries when compared to boys was attributed to their religion, cultural norms and values where girls are not allowed to go outside unattended making it difficult for them to be exposed to extra-familial perpetration though this does not affect the familial perpetration which is responsible for the majority of the CSA recorded in the Arab countries (Beier, 2017). However, the lower CSA prevalence among males in other countries particularly in Africa could be because the perception of sexuality in the conventional African society is enshrined in secrecy and boys may not report sexual abuse because of possible male ego grip (Gabriel –Job, Alikor & Akani, 2019). Hence, sexual abuse of the boy child may not be uncommon but perhaps under reported.

Also, childhood is a phase of rapid development with its biological maturity preceding its psychosocial maturity. Since children are still undergoing physical, neurodevelopmental and

psychosocial changes, their inquisitiveness and eagerness to explore their environment makes it easy for them to be preyed upon by CSA perpetrators. However, the prevalence of CSA seems to vary across some specific childhood age. While Chime, Orji, Aneke and Nwoke (2021) stated that there is a significant association between age and prevalence of CSA, Chinawa, Manyike, Aniwada, Odutola, & Chinawa (2015) stated that children younger than 10 years were the most frequently sexually abused. Some researchers are of the opinion that, as a risk factor, age operates differentially for girls and boys with males facing a greater risk of sexual abuse when they are young and the risk for females increase in adolescence (Hassan, Gary, Killion, Lewin & Totten, 2015). Aboul- Hagag and Hamed (2012) revealed that the average age of CSA for males was 9.20 years, compared to 10.03 years for female victims and also reported in higher rates in age group 10–15 years in comparison to other age groups.

Furthermore, a slightly higher rate of pre-pubertal CSA were observed among studies in Africa with some studies reporting to up to 60% of children being sexually abused before they had reached their teenage (Birdthistle, Floyd, Mwanasa, Nyagadza, Gwiza & Glynn, 2011). Similarly, in Nigeria, over 16% of children experienced their first incidence of CSA between the ages of 5 and 8 years and about 45% between 9 and 12 years of age (David, Ezechi, Wapmuk, Gbajabiamila, Ohihoin, Herbertson & Odeyemi, 2018), while 14% of male victims in Kenya reported to have experienced their first episode of CSA when they were 10 years and below (Sumner, Mercy, Buluma, Mwangi, Marcelin, Kheam, Lea, Brookmeyer, Kress & Hillis, 2016).

In addition, studies in Asia have also reported significant rates of CSA among children below 12 years of age. A study in Cambodia (Sumner *et al*., 2016) showed that 59.1% of male victims reported to have experienced their first episode of CSA when they were 10 years or

below. Another study in India reported 40% of victim's experienced first incidence of CSA between the ages of 5 and 12 years (Ministry of Women and Child Development, Government of India, 2007). However, the predominance of CSA among young children could be due to their lack of physical strength and psychological maturity which makes them defenseless and vulnerable.

Another determinant linked to CSA is the geographical location of the victim. There is a perception that learners living in rural areas face higher risk for sexual abuse than those living in urban areas, indicating there might be indeed a disproportionate risk burden of CSA in the rural areas (Maranga, Onyango & Omondi, 2020). Some reasons cited were: rural schools are in bushy areas and people in the rural areas were ignorant on child sexual abuse and the vastness of rural schools created more space under which child sexual abuse predators would commit the vice (Maranga, Onyango & Omondi, 2020). Similarly, Shumba, Shumba, Gwirayi, Shumba, Maphosa, Gudyanga, & Makura (2015) documented that rural school students are more vulnerable to child sexual abuse. Aboul-Hagaga and Hamed (2012) also reported higher prevalence of CSA among rural learners compared to urban learners thereby establishing a significant correlation between CSA and the geographical location of children. In contrast, Hagras, Moustafa, Barakat, Azza and El-Elemi (2011) reported a higher prevalence of CSA among urban children as against children living in rural areas.

The variation in the prevalence of CSA across geographical location may also be due to the difference in culture, education and social levels between rural and urban areas. On the type of school (public or privately owned school) predicting CSA, Maranga, Onyango and Omondi, (2020) reported no significant correlation between school type and the prevalence of CSA. On the contrary, Abera, Aliye, Tadesse and Guta (2021) stated that the odds of experiencing sexual

abuse among students of rural residence were 3.2 times higher than their urban counterpart. In justifying the variation in the prevalence of CSA across geographical location of victims, Warkov (2017) opined that cases of sexual abuse that take place in elite schools are infrequently reported as parents of these pupils pay high tuition fees and exposing such a vice in their schools taints the name of the school. Another reason for the variation could be because private school learners were in an environment that had good security and strict rules that may contribute to lower occurrences of child sexual abuse. On the other hand, public school pupils might be more predisposed to child sexual abuse for reasons such as: teachers did not care a lot about what happens to learners as theirs is only to teach; public schools are big geographically hence more spaces and opportunities for hiding, which together expose learners to sexual abuse as cited by learners (Maranga, Onyango & Omondi, 2020)

Despite efforts to combat this heinous crime, child sexual abuse remains a distressing concern. CSA comes with grave life-long outcomes irrespective of the victim's gender, age and location. CSA is associated with high-risk behaviour such as multiple sexual partners, prostitution, delinquency in later life, substance abuse and psychological problems like feeling of vulnerability, fear, shame, guilt, poor self-esteem and depression (Rimamnunra *et al*., 2021; Gabriel–Job & Alikor, 2019). Other consequences of CSA are academic problems that can arise due to child sexual abuse, including: high absenteeism and change in attitude towards school and lower performance on tests measuring cognitive ability, academic achievement, and memory assessment (Darkness to Light, 2020). These grave consequences that come with CSA could jeopardise the future self-actualization of victims if the society remains aloof to it. Also, while existing research has shed light on the prevalence of child sexual abuse on a global scale, there is a paucity of localized studies that specifically delve into the socio-demographic factors

underlying this issue in the context of Edo State. The absence of a comprehensive understanding of these determinants limits the effectiveness of prevention and intervention strategies tailored to this region. This study seek to uncover the intricate web of factors that may contribute to its perpetuation in order to bridge the gap in knowledge by exploring the socio-demographic dimensions associated with the occurrence of child sexual abuse in Edo South Senatorial District of Edo state.

The study was guided by the following research questions:

1. Does gender influence the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State?
2. Does age influence the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State?
3. Is there a relationship between school location (urban/rural) and the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State?
4. Is there a relationship between school type (private/public) and the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State?

Hypotheses

The following hypotheses were formulated and tested at 0.05 level of significance

1. Gender does not significantly influence the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State based on gender.
2. Age does not significantly influence the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State.

3. There is no significant relationship between school location (urban/rural) and the occurrence of child sexual abuse school children in Edo South Senatorial District of Edo State.
4. There is no significant relationship between school type (private/public) and the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State.

Methods

The study adopted the descriptive survey research design. The descriptive research design accurately and systematically describes, observes or validates aspects of groups collected through quantifiable information without manipulation of the variables (Siedlecki, 2020). Based on Siedlecki (2020) description of the descriptive survey research design, the researcher was able to use this design to effectively provide an in-depth investigation of the socio-demographic determinants of child sexual abuse among school children in Edo South senatorial district of Edo state. Furthermore, the population of the study is one hundred and seven thousand, two hundred and seventy-one (107,271) senior secondary school students in both public and registered private schools in the seven (7) Local Government Area that makes up the Edo South senatorial district of Edo state. The total population of senior secondary school students in public schools in the seven (7) Local Government Area that makes up the Edo South senatorial district of Edo state is thirty-one thousand, seven hundred and twenty-five (31,725) while that of registered private school is seventy-five thousand, five hundred and forty-seven (75,547) (Edo state Ministry of Education, 2022).

A sample size of 384 respondents was selected using the Cochran's formulae. The sample was selected using multi-stage sampling technique. In the first stage, three (3) Local Government

Areas was selected from the seven (7) Local Government Areas in Edo South senatorial district of Edo using simple random sampling technique of balloting by replacement. In the second stage, stratified random sampling technique was used to group the schools into rural school and urban school based on their location. In the third stage, two (2) schools (one public urban school and one public rural school) were selected from each of the three Local Government Areas using simple random sampling technique of balloting by replacement. Lastly, to reflect the gender distribution in the selected schools, simple random sampling technique of balloting by replacement was used to select 18 female respondents and 14 male respondents from each of the six selected schools. Same procedure was repeated to select respondents from the registered private schools.

Ethical approval was obtained and a formal permission to allow the selected schools to participate in the research was requested and granted through the Commissioner of Education and Principals of each of the selected schools. To maintain confidentiality of the respondents, respondents were asked not to indicate their names on the questionnaires.

Table 1: Sample distribution

School Type selected	**No. of schools selected**	**No. of school children**	
		Male	**Female**
Public Urban Schools	3	46	50
Public Rural Schools	3	46	50
Private Urban Schools	3	46	50
Private Rural Schools	3	46	50
Total	**12**	**184**	**200**
Grand total		**384**	

A self-structured questionnaire titled Child Sexual Abuse among Secondary School Students: Prevalence, Pattern and Predictors (CSAPPP)" was used for data collection. The instrument was content validated and a reliability index of 0.73 was obtained using the test-retest reliability method and thereafter subjecting the scores obtained from both administrations of instruments to Pearson's Product Moment Correlation Coefficient. The collected data was coded and analyzed using descriptive statistics of frequency counts and percentages and inferential statistics of chi-square.

Results

Research question 1: Does gender influence the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State?

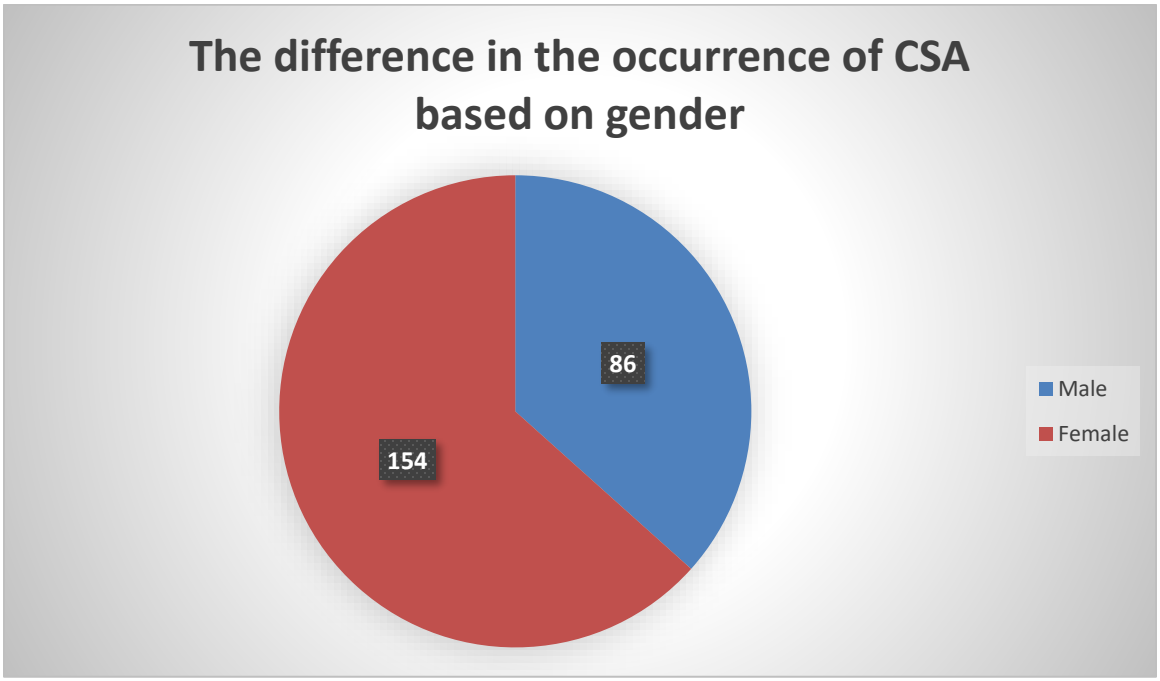

Figure 1: The occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State

Figure 1 shows the difference in the occurrence of CSA based on gender. Findings indicate reveals that 86 (22.40%) and 154 (40.10%) male and female respondents have been child sexual abuse respectively. To determine if gender influence the occurrence of child sexual

abuse among school children in Edo South Senatorial District of Edo State, hypothesis 1 was tested.

Research question 2: Does age influence the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State?

Figure 2 presents the occurrence of CSA among school children in the Edo South Senatorial District of Edo State across different age groups. Among children aged 9-11 years, 60 children reported experiencing CSA, while 26 did not. In the 12-14 years age group, 70 children experienced CSA, with 92 reporting no such experience. The highest incidence of CSA was observed in the 15-17 years age group, where 110 children reported CSA. These findings indicate a varying prevalence of CSA across age groups, with the 15-17 years group showing the most significant number of reported CSA cases. Hypothesis 2 was tested to determine if age influenced the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State.

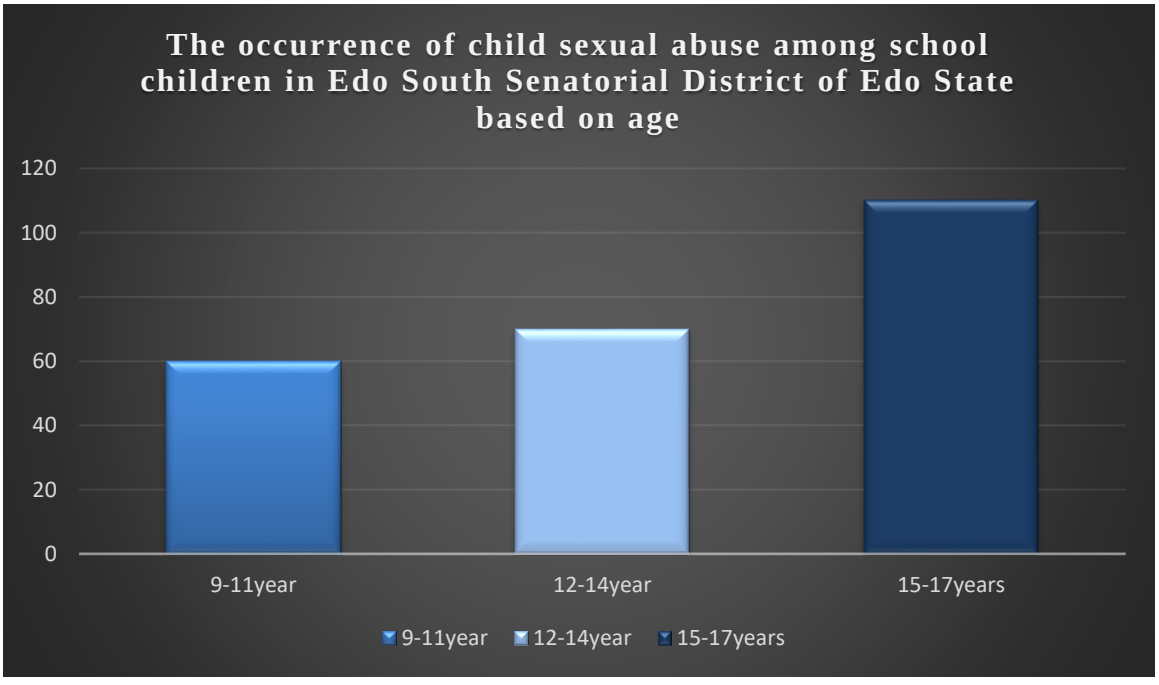

Figure 2: The occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State based on age

Research question 3: Is there a relationship between school location (urban/rural) and the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State?

Figure 3 shows the occurrence of child sexual abuse among secondary school students in Edo State, categorized by school location. The analysis indicates that in urban schools, 140 students reported experiencing CSA, while in rural schools, 100 students reported CSA. These results suggest a higher prevalence of CSA in urban schools compared to rural schools, with the relationship between school location and CSA being tested in hypothesis three to determine statistically significant.

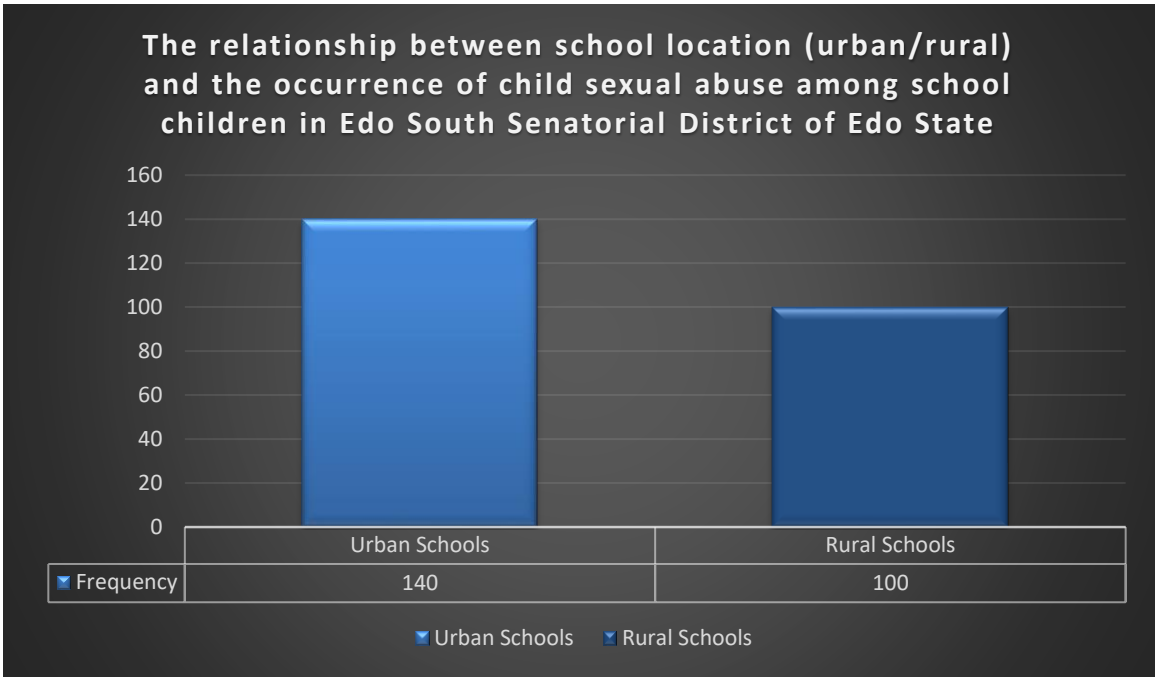

Figure 3: The relationship between school location (urban/rural) and the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State

Research question 4: Is there a relationship between school type (private/public) and the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State?

Figure 4 illustrates the occurrence of CSA among school children in the Edo South Senatorial District of Edo State, categorized by school type. The analysis shows that the in private schools, 145 students reported experiencing CSA, while in public schools, 95 students reported CSA. These results suggest that CSA is more prevalent in private schools than in public schools. The statistically significance of this relationship is tested in hypothesis four.

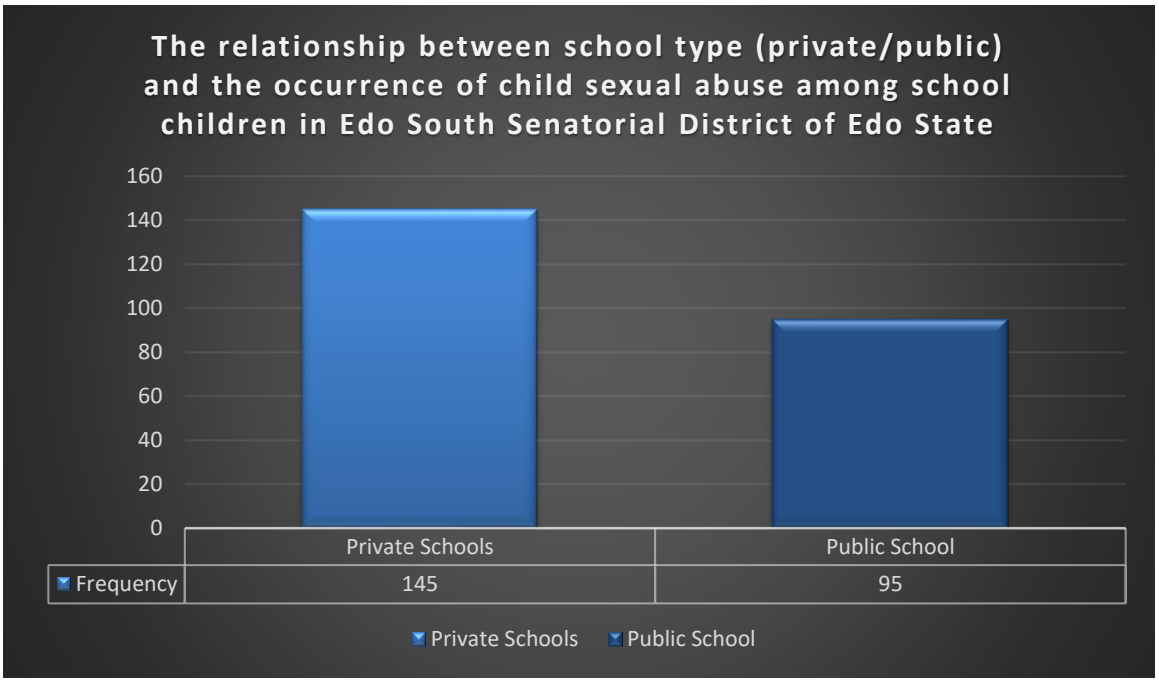

Figure 4: The relationship between school type (private/public) and the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State?

Hypothesis 1: Gender does not significantly influence the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State based on gender.

Table 2: Chi-square analysis on the influence of gender on the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State (n=384).

Gender	Child sexual abuse		χ^2	df	Sig.
	Yes O(E)	No O(E)			
Male	86(120)	106(72)	51.38	1	0.00
Female	154(120)	38(72)			

O-observed count; E-Expected count; χ^2 ***- Chi-square value; df-Degree of freedom; Sig.-Level of significance***

Table 2 shows the chi-square analysis showing the influence of gender in the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo state. The table reveals a calculated chi-square value of 51.38, degree of freedom 1 and level of significance of 0.00 which is lesser than the s*et al*pha level of 0.05. Thus, the null hypothesis which states that gender does not significantly influence the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State is rejected. In view of this, majority (154) of the female respondents indicated that they have been sexually abused as against 86 male respondents who indicated that they have been sexually abused. Therefore, it can be concluded that gender significantly influence the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State.

Hypothesis 2: Age does not significantly influence the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State.

Table 3: Chi-square analysis on the influence of age on the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State (n=384)

Age	First experience of child sexual abuse		χ^2	df	Sig
	O(E) Yes	O(E) No			
9-11 years	60(53.8)	26(32.3)			
12-14 years	70(101.3)	92(60.8)	47.26	2	0.01
15-17 years	110(85.0)	26(51.0)			

O- Observed count; E-Expected count; χ^2 ***- Chi-square value; df-Degree of freedom; Sig.-Level of significance***

Table 3 shows the Chi-square analysis on the influence of age on the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State. The table shows a calculated chi-square value of 47.26, degree of freedom 2 and level of significance of 0.01 which is lesser than the s*et al*pha level of 0.05. Thus, the null hypothesis which states age does not significantly influence the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State is rejected. In line with this, the table shows a significant variation in the number of respondents who experienced child sexual abuse across the different age groups, with majority (110) of the respondents experiencing their first child sexual abuses in their late childhood. Therefore, it can be concluded that age significantly influence the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State.

Hypothesis 3: There is no significant relationship between school location and child sexual abuse among secondary school students in Edo South Senatorial District of Edo State.

Table 4: Chi-square analysis on the relationship between school location and child sexual abuse among secondary school students in Edo State (n=384)

School location	Child sexual abuse		χ^2	df	Sig.
	Yes O(E)	No O(E)			
Urban schools	140(120)	52(72)	27.22	1	0.00
Rural schools	100(120)	92(72)			

O- Observed count; E-Expected count; χ^2 ***- Chi-square value; df-Degree of freedom; Sig.-Level of significance***

Table 4 shows the Chi-square analysis on the relationship between school location and child sexual abuse among school children in Edo South Senatorial District of Edo State. The table indicates a calculated chi-square value of 27.22, degree of freedom 1 and level of significance of 0.00 which is lesser than the s*et al*pha level of 0.05. Thus, the null hypothesis which states that there is no significant relationship between school location and child sexual abuse among school children in Edo South Senatorial District of Edo State is rejected. In line with this, majority (140) of the respondents in urban schools indicated that they have been sexually abused as against 100 respondents in rural school who indicated that they have been sexually abused. The conclusion here therefore, is that there is a significant relationship between school location and child sexual abuse among school children in Edo South Senatorial District of Edo State.

Hypothesis 4: There is no significant relationship between school type and child sexual abuse among school children in Edo South Senatorial District of Edo State.

Table 5: Chi-square analysis on the relationship between school type and child sexual abuse among school children in Edo South Senatorial District of Edo State (n=384)

School type	Child sexual abuse		χ^2	df	Sig.
	Yes O(E)	No O(E)			
Private schools	145(120)	47(72)	17.77	1	0.00
Public Schools	95(120)	97(72)			

O- Observed count; E-Expected count; χ^2 ***-Chi-square value; df-Degree of freedom; Sig.-Level of significance***

Table 5 shows the Chi-square analysis on the relationship between school type and child sexual abuse among school children in Edo South Senatorial District of Edo State. The table indicates a calculated chi-square value of 17.77, degree of freedom 1 and level of significance of 0.00 which is lesser than the s*et al*pha level of 0.05. Thus, the null hypothesis which states that there is no significant relationship between school type and child sexual abuse among school children in Edo South Senatorial District of Edo State is rejected. The table clearly indicates that majority (145) of the respondents in public schools indicated that they have been sexually abused as against 95 respondents in private school who indicated that they have been sexually abused. The conclusion here therefore, is that there is a significant relationship between school type and child sexual abuse school children in Edo South Senatorial District of Edo state.

Discussion of findings

The findings show a higher prevalence of child sexual abuse (CSA) among female students (40.1%) compared to male students (22.4%), supporting previous studies that highlight the greater vulnerability of girls to CSA (Finkelhor *et al*., 2014). The highest incidence of CSA

was found in the 15-17 years age group, which aligns with research indicating greater risk during adolescence (Radford *et al*., 2011). Respondents in urban schools reported more cases of CSA (140) compared to rural schools (100), which may be attributed to factors such as overcrowding and less supervision in urban areas (Briere & Elliott, 2019). Private schools had a higher number of CSA reports (145) than public schools (95), suggesting that private schools might face more challenges in monitoring and protecting students (McAlister *et al*., 2016).

The hypotheses tested revealed a link between respondent's socio-demographic variables and the occurrence of child sexual abuse among school children in Edo South Senatorial District of Edo State. The finding on the influence of gender on the occurrence of CSA revealed that girls were more likely to experience various forms of CSA than boys. This finding is similar to the findings of Gabriel –Job, Alikor and Akani (2019) who reported that gender significantly predicts CSA with girls more (2.7times) likely to be victims of CSA compared to their male counterparts. In contrast, CSA studies done in India, Saudi Arabia and other Arab countries showed that sexual abuse occurred more in boys than girls (Choudhry, Dayal, Pillai, Kalokhe, Beier, & Patel, 2018; Aleissa, Saleheen, Al-Wallan, AlKashan, AlSubaie & Almuneef, 2018; Beier, 2018). The high prevalence of CSA in girls may be due to the gender roles and norms in many cultures, including Nigeria, where traditional gender roles and norms may place girls in a more vulnerable position than boy for child sexual abuse. Also, the gender difference in anatomical features such as the onset of secondary sexual characteristics in girls may also make girls to have physical features that make them appear sexually appealing. Hence, girls become more vulnerable than boys to CSA perpetrators.

This study also revealed that age significantly influenced the occurrence of CSA as majority of the respondents experienced their first CSA during their late childhood. This finding

is similar to the findings of Chime, Orji, Aneke and Nwoke (2021) who reported a significant association between age and prevalence of CSA. However, while findings from this study indicated that majority of respondents experienced their first CSA during their late childhood, Chinawa *et al*. (2013) reported a contrary finding where he stated that children younger than 10 years were the most frequently sexually abused. The experience of first CSA during late childhood may be attributed to the fact that this age group coincides with the phase of rapid human development and biological maturity which can create inquisitiveness and eagerness to experiment with the body in respondents within this age group. This inquisitiveness and eagerness to experiment with the body can make them more vulnerable to CSA perpetrators.

Similarly, this study established that the occurrence of CSA was higher in urban schools as against rural school. Though Maranga, Onyango and Omondi (2020) corroborated the findings of this study on the significant relationship between school location and CSA, they reported a higher CSA in rural learners. However, Hagras, Moustafa, Barakat, Azza and El-Elemi (2011) reported a higher prevalence of CSA among urban children as against children living in rural areas. The variation in the prevalence of CSA across location may be due to the variations in the availability and effectiveness of child protection laws and regulation across different locations. The role of technology in accessing explicit content as well as online grooming and sexual exploitation may also increase the prevalence of CSA in Urban areas while its absence alongside strong societal culture and norms in rural areas may have contributed to the low prevalence of CSA.

In contradicting the findings of this study that there is a significant relationship between school type and CSA, Maranga, Onyango and Omondi, (2020) reported no significant relationship between school type and the prevalence of CSA. However, this study revealed that

CSA is higher among public school learners as against their counterparts in private schools. A possible explanation for this finding could be due to inadequate CSA reporting mechanisms as well as the higher student-to-staff ratios in public schools which make it easier for CSA to occur as against private schools.

Conclusion

Based on the findings of this study, the researcher concluded that:

1. Gender is a socio-demographic determinant of child sexual abuse among school children in Edo South Senatorial District of Edo state.
2. Age is a socio-demographic determinant of child sexual abuse among school children in Edo South Senatorial District of Edo state.
3. School type is a socio-demographic determinant of child sexual abuse among school children in Edo South Senatorial District of Edo state.
4. School location is a socio-demographic determinant of child sexual abuse among school children in Edo South Senatorial District of Edo state.

Recommendations

Based on the conclusions of this study, the following recommendations were made:

1. Gender-sensitive awareness programs should be developed and implemented in schools and communities to educate students, parents, teachers, and community members about the risks of child sexual abuse. These programs should emphasize the importance of recognizing and reporting abusive behaviours, irrespective of gender, while also addressing specific vulnerabilities that different genders may face.
2. Age-appropriate educational curricula that teach children about their rights, personal boundaries, and safe behaviours should be developed. Additionally, government in

collaboration with schools should provide specialized training for educators to effectively communicate with children of varying age groups about sensitive topics such as sexual abuse prevention, ensuring the content is tailored to the cognitive and emotional development of each age bracket.

3. Security measures should be enhanced in schools, particularly in areas with higher incidence rates of child sexual abuse. This may involve installing security cameras, improving physical infrastructure, and increasing the presence of trained personnel who can monitor and address any suspicious activities, thereby creating safer environments for students.
4. Diversified school models that take into account the influence of school location and type on child sexual abuse should be promoted. Also, school-based counselling services should be developed while forming and improving partnerships with local organizations to provide additional support and resources, particularly in areas where vulnerability to abuse is higher.

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THE IMPACT OF HEALTHCARE SERVICES UTILIZATION TOWARDS ACHIEVING HEALTH PROMOTION IN NIGERIA

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Abstract

Healthcare services utilization is essential for longevity and health promotion. The presence of healthcare facilities alone is not required for utilization, but depends on predisposing factors. Staying healthy by individual in a community to cope with life demands has been recognized since primitive times. However, everyone must strive hard to achieve this goal. This paper reviews how healthcare service utilization has been described as the product of interactions between healthcare professionals, patients and the generation of health services in Nigeria. The paper also reviewed positive and negative Impacts of Healthcare Services Utilizations in Nigeria and proffered way forward. Ways of Traditional/modern medicine and availability of Healthcare services utilizations were elucidated. Finally, the paper proffered some possible solutions to eliminate these identified problems and factors leading to effective utilization of Healthcare Services in Nigeria. Suggestions for promotion of Healthcare services utilizations in Nigeria included: Rehabilitating and equipping existing Primary Health Cares with modern equipment; employing more qualified healthcare professionals in PHCs; Community Involvement; Increasing Access and Affordability; Enhancing Quality and Relevance; Leveraging Digital Technologies; Raising Awareness and Community Participation is crucial to improving healthcare utilization in rural areas of Nigeria.

Key words: Primary Healthcares (PHCs), Services, Utilization, Impact, Health promotion.

INTRODUCTION

In Nigeria, Healthcare service organizations have a multifaceted impact, influencing both public health and the broader socio-economic landscape. However, they play a crucial role in providing healthcare services, challenges like weak infrastructure, inadequate funding, and staffing shortages hinder their effectiveness, potentially exacerbating inequalities and hindering public health advancements. The choice of healthcare facility among people may vary from person to person and from place to place depending on various factors pre-disposed to the end users (Abiodun, 2014). Athough good utilization of health services in any society serves to

improve the quality of people's health, studies have shown that healthcare utilization by people depends on availability, quality of service, socio-economic status of the people and personal characteristics of the users (Chakraborty *et al*., 2015; Manzoor *et al*., 2019; & Onah *et al*., 2019).

Globally, the healthcare delivery system is a blend of both public and private healthcare providers. Especially in Nigeria, healthcare provision is the responsibility of the three tiers of government with the private sector also playing along (Akhtaw, 2019). The federal government plays the role of controlling the affairs of the tertiary healthcare system while the state government manages the various secondary healthcare delivery systems and the local government focuses on supervision of primary healthcare services. In the private sector, healthcare delivery is broadly categorized into those that provide primary care (general practitioners), those that provide secondary care, and those that provide both primary and specialist care (Awoyemi, 2017).

People make use of health-care services to diagnose, cure, or ameliorate disease or injury; to improve function; or even to obtain information about their health status and prognosis. Many factors affect health-care utilization, including need (Krahn, 2015). The need for services affects differential use of health utilization for specific populations. Ideally, need is the major determinant of health-care utilization, but other factors clearly have an impact. They include poverty and its correlates, geographic area of residence, race and ethnicity, sex, age, language spoken, and disability status. The ability to access care—including whether it is available, timely and convenient, and affordable—affects health care utilization (Lagu, 2015).

The utilization of healthcares services is influenced by the need for care, or whether members of a society realize that they need care, or whether they want to obtain care, and or whether care can be accessed. Quality healthcare is a construct separate from access and is

related to the achievement of favorable outcomes associated with utilization, not to whether health-care utilization occurs at all or to difficulties in obtaining care(Kale, 2015). In theory, health-care utilization should correlate highly with the need, however defined, for services. But, some services are needed and not obtained, and others are utilized but not clearly indicated, or are indicated only after other protocols are followed (Kale *et al*., 2015; Kressin and Groeneveld, 2015; Lyu *et al*., 2017).

The concept of health promotion (HP) is well known to those in health and allied-health professions, especially the students of Public Health Technology and Health Education. Nevertheless, there is need to remind ourselves the definition of this important concept. In the Ottawa charter for health promotion, the world Health Organization (WHO-1986) define health promotion as as the process of enabling people increase control over and to improve their health. The definition encompasses not only disemination of health information, but also social changes in the life of people. Health promotion emphasizes the role of individual wellness and collective well-being (United States Department of Health and Human services, 2015). Therefore, the purpose of this discourse was to review the current literature pertaining to the impact of healthcare services utilization towards achieving health promotion. There are two major impacts on healthcare services utilizations which includes:

Positive Impacts

1) Economic Empowerment: Private health institutions contribute to economic growth by creating jobs and reaching a wider population, potentially reducing the burden on government hospitals.

2) Access to Care: The presence of private and public healthcare facilities, including primary health care centers, can improve access to essential services and reduce the risk of preventable diseases.

3) Disease Management: Effective healthcare organizations can manage infectious and chronic diseases, leading to improved health outcomes and reduced mortality rates (Tanimola, 2019).

Negative Impacts

1) Underfunding: Insufficient government funding leads to weak infrastructure, inadequate equipment, and shortages of essential supplies and personnel, impacting the quality of care.

2) Inequitable Access: The reliance on secondary and tertiary care facilities, due to inadequate resources at the primary level, creates disparities in healthcare access and affordability.

3) Infrastructure Deficiencies: Poor infrastructure, including inadequate roads, electricity, and telecommunications, can hinder the delivery of healthcare services, especially in rural areas.

4) Staffing Challenges: Low morale, inadequate training, and high turnover rates among healthcare workers can compromise the quality and efficiency of service delivery.

5) Social and Economic Disparities: The healthcare system's inability to effectively address social determinants of health contributes to inequalities in health outcomes (Uchendu, 2015).

Traditional/Modern medicine ways of Healthcare Services Utilization

Traditional medicine's competition with modern medicine is also a concern. A survey in Benin City, Nigeria found more traditional health facilities than modern ones. Theoretical explanations exist for healthcare facility utilization. Anderson (2019) identified three factors: propensity, enabling, and basic need. However, Anderson identified three basic factors in his Healthcare Utilization Model that may determine the utilization of health facility by people. The first one he identified is called the propensity factor, suggesting that an individual will likely

utilize a health facility if he/she believes that such health facility will be useful for his/her treatment. The second factor called enabling factor includes access to health insurance, family and community support, as well as the location of the individual, while the third factor, called the basic need factor, which entails perception of the need for health services, is socially evaluated(Anderson, 2019).

Modern medicine: The first record of modern medical services in Nigeria was discovered during the various European expenditures in the early-to-mid nineteenth century, as being provided by doctors brought by explorers and traders to cater for the well-being of the Europeans, while the natives were left to die from their diseases (Chukwani, 2016). Since independence in 1960, Nigeria has had a very limited scope of legal coverage for social protection besides over 90 percent of the Nigerian population being without health insurance coverage. The Nigerian health system has been evolving over the years through health care reforms aiming to address the public health challenges confronting it. This includes:

1) National Health Insurance Scheme (NHIS)

2) National Immunisation Coverage Scheme (NICS)

3) Midwives Service Scheme (MSS) and

4) Nigerian Pay for Performance scheme (P4P).

However, inability to address public health challenges contributes to poverty and weak health system. Political instability, corruption, limited capacity, and unstable economy hinder health services in Nigeria. Households and individuals in Nigeria face burden of dysfunctional health system, delaying care and paying for unaffordable services (Edlyne, 2020).

NHIS: After many attempts at implementing legislation on health insurance since 1960, NHIS, although established in 1999, was eventually launched only in 2005. The goals of the NHIS were to:

1) Ensure access to quality health care services and provide financial risk protection,

2) Reduce rising costs of health care services and esure efficiency in health care through programmes such as the:

3) Formal Sector Social Health Insurance Programme (FSSHIP), Mobile Health,

4) Voluntary Contributors Social Health Insurance Programme (VCSHIP),

5) Tertiary Institution Social Health Insurance Programme (TISHIP),

6) Community Based Social Health Insurance Programme (CBSHIP),

7) Public Primary Pupils Social Health Insurance Programme (PPPSHIP) (Androcare & Bamidele, 2024).

Primary healthcare (PHC) facilities are crucial in providing basic healthcare services at the grassroots level. However, studies indicate that PHC service utilization is often low, and perceptions of service quality can be a barrier. Conversely, people uses health care services to cure illnesses and health conditions. Utilization is determined by the need for care, awareness of the need, desire for quality care, etc. Health promotion is essential for society, but some barriers exist globally (Abiodun & Olu-Abiodun, 2014).

Avalability of Healthcare Services Utilizations in Promotion of Health in Nigeria

In Nigeria, while a significant portion of the population has access to healthcare services, utilization rates remain relatively low. Factors like geographical distance, perceived poor quality, and unavailability of resources can impact the utilization of available healthcare facilities.

Government and private facilities both play a role, with government hospitals being the most frequent source of care for many (Sule, *et al*, 2018).

1) Access vs. Utilization: Studies indicate that while a considerable percentage of the population has access to healthcare facilities (e.g., 58 percent in one study), the actual utilization of these services is lower (e.g., 42.5 percent in the same study).

2) Geographical Barriers: Distance and accessibility issues can impact healthcare utilization, particularly in rural areas. Some studies suggest that a significant proportion of people travel a considerable distance (e.g., 5-9 km) to reach healthcare facilities.

3) Perceived Quality and Resource Availability: Poor quality of services, unavailability of medical doctors, long waiting times, and lack of drugs can deter people from utilizing primary healthcare facilities.

4) Factors Influencing Utilization: Studies have identified various factors influencing healthcare utilization, including: Socio-demographic factors: Sex, age, and religious beliefs can influence healthcare choices.

5) Economic factors: Income and insurance coverage play a role in determining healthcare access and utilization.

6) Psychological factors: Perceptions of quality, trust in healthcare providers, and cultural beliefs can impact healthcare decisions.

7) Public vs. Private Healthcare: While government hospitals are a frequent source of care, private facilities are also utilized, with higher rates of utilization among younger individuals and males (Rosenstock, 2019).

Possible Ways to Promote Healthcare Services Utilizations in Nigeria

There are a number of strategies that can be used to promote healthcare service utilization in Nigeria. They are as follows:

1) Strengthening Primary Healthcare (PHC):

a) Position PHC as a central point of access and gatekeeper in the health system.

b) Community Involvement: Involve community members in the planning and management of PHC services, including village health committees.

c) Mobile PHC Services: Ensure PHC services are accessible to all, especially in remote and rural areas, through mobile units.

d) Adjusting Working Hours: Adjust working hours of PHC centers to accommodate the needs of specific groups, such as mothers, children, and the elderly.

e) Family Health Files: Develop and use family health files/cards to facilitate quick acceptance, access, and management of health information for families on the move.

2). Increasing Access and Affordability:

a) Expanding Healthcare Infrastructure: Establish more health centers in underserved areas, including remote populations.

b) Reducing Travel Costs: Address transportation barriers to health facilities, such as improving road infrastructure and offering subsidized transport.

c) Financial Protection: Promote health insurance and ensure access to affordable healthcare services, including the Basic Health Care Provision Fund.

3). Enhancing Quality and Relevance:

a) Regulatory Frameworks: Improve regulatory frameworks to ensure patient safety, effectiveness, and treatment responsiveness.

b) Focus on Specific Groups: Prioritize care for specific groups, such as mothers, children, and the elderly, and address the unique needs of nomadic communities.

c) Data Collection and Analysis: Collect and analyze data on health service utilization to identify gaps and tailor interventions.

4) Raising Awareness and Community Participation:

a) Public Awareness Campaigns: Increase awareness about the importance of preventive healthcare and utilize various channels for communication, including community radio and mobile phone messages.

b) Mobilization and Sensitization: Conduct sensitization and community mobilization activities to promote the use of healthcare services, especially among rural populations.

c) Community Health Workers: Deploy community health workers to reach out to individuals and families in remote areas and provide health education.

5) Leveraging Digital Technologies:

a) These includes using digital Health Tools; Utilize digital health tools, such as telemedicine and mobile health applications, to improve access to information and services, particularly in remote areas.

b) Telehealth: Expand access to telehealth services, including remote consultations and diagnosis, to improve access to specialist care.

b) Digital Health Literacy: Promote digital health literacy among the population to ensure effective use of digital health tools.

Conclusion

While healthcare services Utilization remains a global problem, its persistence in Nigeria is attributable to lack of funding and inadequate government investment in health sector to

improve infrastructure, staffing and training of professional health workers. Addressing these maladies with concerted efforts from governmental and non-governmental agencies, a great improvement can be achieved if the recommendations of this paper are implemented.

Recommendations

1) Rehabilitating and equipping existing PHCs with modern equipment and employing more healthcare professionals in PHCs.

2) Improving community engagement and participation to enhance health service access and uptake.

3) Implementing targeted interventions to address barriers to healthcare utilization cum availability, accessibility, and Utilization of Primary Health Care from time to time.

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AN EXAMINATION OF THE MEDICINAL USE OF CANNABIS: PROSPECTS AND CHALLENGES AND LESSONS FOR NIGERIA

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Abstract

Clinical studies have demonstrated many therapeutic benefits of cannabis, which has been used for medicinal purposes for over 6000 years. Despite its curative properties and therapeutic advantages, many countries especially in the Caribbean and even in the West Africa sub-region such as; Antigua and Barbuda, Jamaica, Barbados, St. Vincent and the Grenadines, St. Kitts and Nevis, The Bahamas, Belize, Cayman Islands and Nigeria and Ghana respectively impose strict regulations due to the stigma attached to cannabis associated with its use as a medicine. The majority of these Caribbean and West African countries until recently, forbid the use of cannabis for either recreational or therapeutic purposes and impose severe punishments such as life imprisonment or a long term of years. However, history and modern research show that cannabis was used as a medicine in the past by different societies. Therefore, this article intends to examine the practice of some societies in using cannabis for medicinal purposes and the prospects of finding a legal framework for the control and regulation of the use of cannabis in Nigeria. In achieving the objective, the researcher uses a qualitative and doctrinal research methodology by analyzing previous literature using content analysis and drawing on the legal regime for the use of cannabis in some identified Caribbean countries. The doctrinal methodology was used to examine relevant provisions of the law, while the qualitative approach was also adopted in this article to explore secondary sources of information. The article also explores the prospects for cannabis as a treatment for various medical conditions, including chronic pain, nausea, and inflammation. This article provides a comprehensive examination of the medicinal use of cannabis, exploring its therapeutic potential, regulatory frameworks, and challenges associated with its implementation. The article investigates the current state of cannabis research, highlighting its benefits and risks, and discusses the experience of countries that have established medical cannabis programs. The analysis reveals a complex landscape of laws, regulations, and cultural attitudes, with implications for public health, economic development, and human rights. The article identifies key challenges, including regulatory hurdles, lack of standardization, and concerns around safety and efficacy. The findings of this article have significant implications for policymakers, healthcare professionals, and researchers, and contribute to the ongoing debate about legalization and medicinal use of cannabis.

Keywords: Cannabis, Medicinal Cannabis, Therapeutic Uses, Regulatory Frameworks, Challenges, Public Health, Economic Development, Human rights, Medico-legal.

Introduction

Cannabis Sativa L. is one of the world's earliest cultivated plants and is widely used as a medicine, recreation, food, fiber and textile[1]. The plant has been one of the oldest medicinal

[1] S Aroonsrimorakot, M Laiphrakpam and O Metadilogkul, 'Social, religious, recreational and medicinal usage of cannabis in India and Thailand' *Journal of Thai Interdisciplinary Research* [2019] 14(4).

plants cultivated for 10,000 years for several agricultural and industrial applications[2]. It contains more than 450 active constituents and over 60 exclusive cannabinoids[3]. The legal reform inclosing cannabis is astoundingly multifaceted and unsettled. The major active constituent in cannabis is tetrahydrocannabinol (THC), which is principally responsible for its therapeutic and psychoactive effects[4]. It also contains cannabinoid, which purely has only medicinal purposes with zero effect on mind and behavior[5]. The use of cannabis as a medicine is one with a long tradition, which modern medical practice is increasingly re-examining. A wide variety of ailments has been identified as potentially ameliorable by cannabis's psychoactive constituents and there is growing interest in its use for largely neuropsychiatric conditions[6].

The earliest records of its medicinal use date back to China[7]. It spread quickly to Asia, the Middle East, and Africa. Cannabis was unknown among people in pre-Islamic Arabia. In the ninth century, cannabis appears to have entered Arabic countries via two routes. First, from India via Persia. Therefore, the Arabs called cannabis Indian hemp[8]. Secondly, it resulted from knowledge with Greek medical and cultural literature. Cannabis is also known as hashish, banj,

[2] T Hussain, G Jeena, T Pitakbut, N Vasilev and O Kayser, 'Cannabis sativa research trends, challenges and new age perspectives' *iScience* [2021] 24(12):103391 <https://doi.org/10.1016/j.isci.2021.103391> accessed 18 April 2025

[3] HJ Barrales-Cureno, LG Lopez-Valdez, C Reyes, VM Cetina-Alcala, I Vasquez-Garcia, OF Diaz-Lira and BE Herrera-Cabrera, 'Chemical characteristics, therapeutic uses, and legal aspects of the cannabinoids of Cannabis sativa: a review' *Braz Arch Biol Technol* [2020] 63 <https://doi.org/10.1590/1678-4324-2020190222> accessed 16 April 2025.

[4] Z Atazan, 'Cannabis, a complex plant: different compounds and different effects on individuals' *Ther Adv Psychopharmacol* [2012] 2(6) 241-254 <https://doi.org/10.1177/2045125312457586> accessed 16 April 2025.

[5] Y Mouhamed, A Vishnyakov, B Qorri, et al, 'Therapeutic potential of medicinal marijuana: an educational primer for healthcare professionals' *Drug Healthc Patient Saf* [2018] 10 45-66.

[6] National Academic of Sciences, Engineering and Medicine, *The Health Effects of Cannabis and Cannabinoids: The Current State of Evidence and Recommendation for Research* (National Academies Press, 2017) <https://doi.org/10.17226/24625> accessed 16 April 2025

[7] HL Li, 'An archaeological and historical account of cannabis in China' *Economic Botany* [1974] 28 437-448.

[8] JM Taha, 'Unknown contributions of the Arab and Islamic Medicine in the field of Anesthesia in the West' *Journal of the international society for the history of Islamic medicine (JISHIM)* [2010] 6(7) 1-134 <https://doi.org/10.1080/03085694.2018.1400268> accessed 16 April 2025.

in fiqh literature, shadanaj/shahdanj, ghonabv, qinnab and shartathd in the Nabataean language[9]. In the Caribbean vernacularism, cannabis is known as ganja, sensimilia (sensi), weed, grass etc. In Nigeria, cannabis is variously described as "igboe", "igboh", wee-wee, Indian hemp etc.

Cannabis sativa L. is a miracle species with over five hundred chemical compounds. The most studied chemical compounds are cannabinoids (CBD) and tetrahydrocannabinol (THC)[10]. THC is the cannabinoid that causes the psychoactive and euphoric effects desired by recreational users, such as high relaxation and enhanced sensory experiences6. There is also scientific proof that THC can be used medically to decrease nausea and vomiting, increase appetite, reduced cancer growth, and lessen chronic pain[11]. On the other hand, CBD is non-psychoactive and non-toxication and approved by World Health Organisation as a safe medicine[12]. CBD also has medicinal properties, such as reducing anxiety, depression, pain, epileptic seizures, and headaches[13]. However, these two cannabinoids were not discovered in Islamic medicine. Therefore, Muslim scientists used cannabis leaves or seeds, hemp seeds, stems, flowers, cannabis roots, or cannabis juice to treat illnesses.

That cannabis is widely used in the world is well known, largely for its pleasurable or religious psychoactive effects[14]. Reported rates of use vary significantly, although one in 20 people globally are reported to be illicit drug users, with cannabis being the commonest drug

[9]S Hamarneh, 'Pharmacy in medieval Islam and the History of Drug Addiction' *Medical History* [1972] 16(3) 226-237 <https://doi.org/10.1017/S0025727300017725> accessed 16 April 2025.
[10]EB Russo, 'Cannabis and epilepsy: An ancient treatment returns to the fore' *Epilepsy and Behavior* [2017] 70 292-297.
[11] LM Temple and JB Leikin, 'Tetrahydrocannabinol-friend or foe?-Debate' *Clinical Toxicology* [2020] 58(2) 75-81 <https://doi.org/10.1080/15563650.2019.1610567> accessed 16 April 2025.
[12] World Health Organisation, *Cannabinol critical review* report [2018]. <https://www.who.int/medicines/access/controlledsubstances/cannabinolcriticalreview.pdf> accessed 16 April 2025.
[13] S Pisanti, AM Malfitano, E Ciaglia, et al, 'Cannabinol: State of the art and new challenges for therapeutic applications' *Pharmocology and Therapeutics* [2017] 175 133-150 <https://doi.org/10.1016/j.pharmthera.2017.02.041> accessed 16 April 2025.
[14] W Hall, L Johnston and N Donnelly, 'Epidemiology of cannabis use and its consequences: In the health effects of cannabis' Ontario, Canada *Addiction Research Foundation* [1999].

used. Over the last eight years, there has been a trend for increasing cannabis use, a trend mirrored only by the other prescribed and illicit psychoactive substance: opioids[15]. In North America, cannabis use reaches 10% of the adult population, with almost a quarter of high school children using cannabis. Rates in the United States, where cannabis is legal for medical purposes in 23 states, have doubled from 2001 (when cannabis was not legal anywhere) to 2013[16]. Herbal cannabis use is also high in European and Australasian countries.

This begs the question that if cannabis use is already so prevalent, has the introduction of cannabis as a medication made any difference to date, and would it be expected to in the future? The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) and National Survey on Drug Use and Health (NSDUH) have been interrogated at a state level in the US to examine this question. This shows a near doubling of both cannabis use and abuse/dependence associated with state legislation allowing the use of cannabis as a medication. These results have, however, been challenged, at least within a subsample, highlighting the complexity of examining this question[17].

With increasing use of cannabis in the community, and this use potentially related to the acceptance of cannabis as medicine, the mental health problems likely to be related to use may increase. These are well documented and include psychosis, anxiety disorders, cognitive problems and addictions. The latter of these warrants an in-depth view as potentially as many as three in ten cannabis users develop addiction issues16. Psychotic mental disorder is a significant mental health and public health concern. High-quality epidemiological data has outlined a partial

[15] United Nations Office on Drugs and Crime, *World Drug Report. New York: United Nations* [2009].
[16] DS Hasin, TD Saha, BT Kerridge, et al, 'Prevalence of marijuana use disorders in the United States between 2001-2002 and 2002-2013' *JAMA Psychiat* [2025] 72 1235-42.
[17] S Harper, EC Strumpf, JS Kaufman, 'Do medical marijuana laws increase marijuana use? Replication study and extension' *Ann Epidemiol* [2012]22 207-12.

causal pathway between early cannabis use and later psychotic mental disorder, albeit the pathway is complex, and the mechanism of action in individuals poorly understood[18].

The medicinal benefits of cannabis cannot be underrated. This ranges from its potential use in managing Parkinson's diseases, opioid addiction, sleep problems, multiple sclerosis, epilepsy, Tourette Syndrome, acute and chronic pains to gastrointestinal disorders, among other conditions5. However, the available clinical trial data suggest that many purported indications of cannabis and cannabinoids are not evidenced by good clinical data[19]. Clinicians worldwide are also worried about the addiction potential and other adverse effects that cannabis can cause19. Despite this, Food and Drug Administration (FDA) has approved one cannabis-derived (Epidiolex) and three cannabis-related drug products (Marinol, Cesamet, and Syndros) for use in the United States and there is also a growing interest on cannabis use for medical purposes in some Caribbean Countries and Africa[20].

Recently, there has been an expanding fascination with the therapeutic benefits of cannabis and its growing utilization in contemporary medicine and for recreational purposes. However, due to the psychoactive component of cannabis, there is a stigma around the use of cannabis for medicinal purposes, especially the status of cannabis as a medicine in Islam[21]. In spite of the above, and against the backdrop of earlier prescription and criminalization of the use of cannabis, several Western and Caribbean Countries are now exploring the potential benefits of

[18]A Mustonen, S Niemela, T Nordstrom, GK Murray, P Maki, E Jaaskelainen, et al, 'Adolescence cannabis use, baseline prodromal symptoms and the risk of psychosis' *Br J Psychiatry* [2028]212 227-33.

[19] EA Levinsohn and KP Hill, 'Clinical uses of cannabis and cannabinoids in the United States' *J Neurol Sci* [2020] 411:116717 <https://doi.org/10.1016/j.jns.2020.116717> accessed 16 April 2025.

[20] WJ Maule, 'Medical uses of marijuana (Cannabis sativa): Fact or fallacy?' *Br J Biomed Sci* [2015] 72(2) 85-91 <https://doi.org/10.1080/09674845.2015.11666802> accessed 16 April 2025.

[21] M Reid, 'A qualitative review of cannabis stigmas at the twilight of prohibition'. *Journal of cannabis research,*2(1) <https://doi.org/10.1186/s42238-020-00056-8> accessed 16 April 2025.

cannabis such as; Antigua and Barbuda, Jamaica, Barbados, St. Vincent and the Grenadines, St. Kitts and Nevis, The Bahamas, Belize, and Cayman Islands.

The overall effects of the changes in cannabis laws and policies is multifaceted ranging from economic growth, increased investment to diversification of economy and cultural and social impact. Therefore, this article aims to examine the use of cannabis for medicinal, recreational and religious purposes, alongside the paradigmatic shift from criminalization and proscription to de-criminalization and legitimization in various countries. This shift is informed by recent research affirming the curative properties and therapeutic advantages in the use of cannabis. Thus, the thrust of the article is on medico-legal analysis of the use of cannabis in various countries in context.

In addition, this article discusses the existing legal practices with patent information for the use of Cannabis sativa L. in different countries. The article also discusses the new potential use of cannabinoids for treatment of different ailments. The article is divided into 6 sections. Section one deals with the medicinal, recreational and religious use of cannabis, section two deals with the regulatory frameworks of cannabis in the Caribbean, section three deals with cannabis legislation in Nigeria broadly and Ghana briefly, section four deals with the prospects and challenges in the use of cannabis, section five deals with summary, findings and conclusion, while section six deals with recommendations and suggestions.

(i) Medicinal, Recreational and Religious Use of Cannabis

Clinical studies have demonstrated many therapeutic benefits of cannabis, which has been used for medicinal purposes for over 6000 years[22]. History shows that cannabis was used as a medicine with curative properties and therapeutic advantages. Previous and existing literature

[22] KE Ekmil, MI Shahrul and N Rohaida, 'The medicinal use of cannabis documented by muslim scientists' *International journal of academic research in business and social sciences* [2023] 13 issue 2.

demonstrate that cannabis was and is used as a medicine for various types of illness by different societies22. It has also been reported that cannabis or its components can be used for surgical anesthetic as sedatives and analgesics and have been used since the ancient era[23]. Cannabis medical use is documented and is known to be utilized for various medical treatments such as surgical anesthetics, as painkillers to alleviate pain, treatment for ear diseases, depression, epilepsy, headache, cannabis for vermifuge and vermicide properties, and others23.

Classical Islamic literature suggests that there is substantial scientific data and proof to support the usage of medical cannabis as a traditional remedy by Muslim scientists. They were several centuries in advance of our current knowledge of the medicinal properties of cannabis. For many years, Muslim scientists have used Cannabis sativa as a medication, and this use has been supported by pertinent pharmacological evidence. This makes it plausible to imply that information contained in Arabic literature could be used as a preliminary step for future studies on the medicinal value of cannabis and hemp seeds. The current scientific evidence on the medical benefits of cannabis supports some Muslim scientists' knowledge of using cannabis as a medicine.

Furthermore, from pharmacological perspective, medicinal cannabis has also been proven to have a greater efficacy in some disease conditions than the present medicinal agents use in their management and has been suggested as an alternative therapy for these diseases5. Although most countries around the world, including some Caribbean and African countries, have a restriction on the medicinal use of cannabis20. There are emergent facts on the safety and efficacy of medicinal cannabis in pharmacotherapy. With the increasing role of pharmacists in

[23] MS Takrouri, 'Historical essay: An Arabic surgeon, Ibn al Quff's (1232-1286) account on surgical pain relief' *Anesthesia: Essays and Researchers* [2010] 4(1) 4 <https://doi.org/10.4103/0259-1162.69298> accessed 16 April 2025.

public health[24], the role of pharmacists in the successful use and access to medical cannabis/marijuana has accentuated understanding of the importance of cannabis in terms of the medical use of cannabis in Africa and the Caribbean.

The Medicinal cannabis use involves utilizing cannabis or its compounds to treat various medical conditions, offering potential therapeutic benefits such as pain relief in terms of managing chronic pain, especially neuropathic pain6; nausea and vomiting in terms of reducing symptoms in chemotherapy patients[25]; muscle spasticity in terms of relieving muscle stiffness and spasms in conditions like multiple sclerosis[26]; seizure control in terms of reducing seizure frequency and severity, particularly in epilepsy; anxiety and stress relief in terms of potential benefits for anxiety disorders6. However, medicinal cannabis use also carries risks, including adverse effects like dizziness, drowsiness, and cognitive impairment; dependence and addiction in terms of the potential for cannabis use disorder and interactions with other medications are also possible, highlighting the need for careful consideration and medical supervision.

In Africa and the Caribbean, cannabis commonly known as marijuana is widely used by many people especially adolescents for recreational purposes. Several empirical studies suggest that recreational cannabis/marijuana is popularly perceived as an essentially harmless rite of passage that ends as young people settle into their careers and their adult intimate relationships[27]. The question may arise as to whether this perception accurate. In order to answer this question, the article evaluates the morality of recreational cannabis use from a virtue perspective guided by

[24] AO Bamgboye, IA Hassan, YA Adebisi, RO Farayola and T Uwizeyimana, 'Towards improving community pharmacy-based mental health services in Nigeria' *J pharm policy pract* [2021] 14(1) 34 <https://doi.org/10.1186/s40545-021-00316-9> accessed 16 April 2025.
[25] PF Whiting, RF Wolff, S Deshpande, et al, 'Cannabinoids for medical use: Asystematic review and meta-analysis' *JAMA* [2015] 313(24) 2456-2473.
[26] BS Koppel, JC Brust, T Fife, et al. 'Systematic review: Efficacy and safety of medicinal marijuana in selected neurologic disorders'. *Neurology* [2014] 82(17) 1556-1563.
[27] S Ezra, and A Nicanor, 'A virtue analysis of recreational marijuana use' *The Linacre quarterly* [2016] 83(2) 158-173.

the theological synthesis of St. Thomas Aquinas. Since the medical data reveals that recreational cannabis use is detrimental to the well-being of the user, the article concludes that it is a vicious activity, an instance of the vice of intoxication, and as such would be morally illicit27.

For example, cannabis holds a prominent position in the cultural and socioeconomic fabric of Jamaica. Historically rooted in the practices of the Rastafarian movement, its use has expanded beyond religious rituals to become a part of recreational activities among various age groups, particularly adolescents[28]. The leading Jamaican musicians such as Peter Tosh, Bob Marley and Bonny Wailers glamourized and promoted the use of marijuana (ganja) in their various songs, such as, "Legalize It", "Se Me Nah Go a Jail", "Buckingham Palace", etc. The lyrics and meaning of these songs express their frustration with the injustice of the Jamaican justice system particularly regarding the treatment of people caught with ganja (marijuana). The title "Se Me Nah Go a Jail" roughly translates to "They can't take me to jail" or "I am not going to jail".

"Se Me Nah Go a Jail" by Peter Tosh is a powerful reggae song that speaks to the struggles of the oppressed and the injustices of the system. The song's cultural significance lies in its message of resistance and defiance against oppressive forces, particularly in the context of Jamaica's history. Viewed from a cultural context, the song is deeply rooted in Jamaican culture and the Rastafarian movement, which emphasizes social justice, equality, and resistance to oppression. Tosh's lyrics reflect the frustrations of the marginalized and the struggles of the Rastafarian community. In the same vein, "Legalize It" is an iconic reggae song by Peter Tosh, released in 1976. The song's cultural significance lies in its powerful message advocating for the legalization of marijuana, as well as its impact on social justice and cultural identity. From

[28] AA Bernard, 'The material roots of Rastafarian marijuana symbolism' *Hist Anthropol Chur* [2007]18 89-99 <https://doi.org/10.1080/02757200701234764> accessed 16 April 2025.

cultural context, "Legalize it" was released during a time when marijuana was heavily criminalized and stigmatized in Jamaica. Tosh's song was a bold statement in favor of decriminalizing cannabis, which was seen as a sacred herb by many Rastafarians.

With the increasing discussions surrounding the potential benefits and harms of cannabis use, understanding its prevalence and the factors associated with its consumption becomes particularly critical. Adolescence, marked by the age group of 13-17 years, is a crucial development phase characterized by physical, psychological, emotional and social changes[29]. During this period, the propensity for risky behaviors, including substance use, tends to rise due to a combination of curiosity, peer pressure, and brain development processes[30].

Cannabis is one of the most widely consumed psychoactive substances globally, with the United Nations World Drug Report (UNWDR) stating that 183 million people, or 3.8% of the world's population, used it in 2014, and its cultivation was reported by 129 countries[31]. Under the United Nations System for International Control of Narcotic Drugs and Psychotropic Substances, cannabis is the most consumed of all controlled drugs and is subject to the strictest legal status due to its perceived harm and lack of control over its recreational use, making it one of the most prohibited substances31. Psychoactive substances, refers to substances which affect the mind, emotions, or behavior by producing changes in mood in terms of altering feelings of happiness, sadness, or anxiety[32]; perception in terms of changing the way one experiences the world, such as through hallucinations; cognition in terms of affecting thought processes,

[29] J Jacobus and SF Tapert, 'Effects of cannabis on the adolescent brain' *Curr Pharm Des* [2014]20 2186-93 <https://doi.org/10.2174/13816128113199990426> accessed 16 April 2025.
[30] KN Balogh, LC Mayes and MN Potenza, 'Risk-taking and decision-making in youth: relationships to addiction vulnerability'. *J Behav Addict* [2013]2 1-9 <https://doi.org/10.1556/JBA.2.2013.1.1> accessed 16 April 2025.
[31] United Nations Office on Drugs and Crime, *World Drug Report. Executive Summary* Vienna UNODC [2016]. <http://www.unodc.org/doc/wdr2016/WDR_2016_ExSum_English.pdf> accessed 16 April 2025.
[32] National Institute on Drug Abuse, *DrugFacts: Understanding Drug Use and Addiction (*Bethesda, MD: NIDA, August 2018) <https://nida.nih.gov/pub;ications/drugfacts/understanding-drug-use-addiction> accessed 17 April 2025.

judgment, or memory; or behavior in terms of influencing actions, reactions, or decision-making. Cannabis containing tetrathydrocannabinol (THC) is an example of psychoactive substance and these substances can offer recreational uses but also carry risks of addiction, side effects or interactions32 .

There are numerous potential explanations for the observation of greater recreational cannabis use among men, mostly rooted in gender norms, roles, and relations[33]. One likely explanation for sex/gender differences in recreational cannabis use relates to early opportunities- boys tend to have more opportunities to use cannabis than girls[34]. Boys may be less supervised by parents, more likely to engage in outdoor activities that increase exposure to drug use opportunities or more likely to affiliate with older peers who have access to cannabis34. Qualitative studies indicate that recreational cannabis use is positively associated with adherence to traditional masculine gender norms[35], whereas adherence to traditional feminine gender norms tends to have a negative association with cannabis use[36], for both boys and girls. Using cannabis recreationally might be a way for boys and girls expressing masculinity to demonstrate "toughness"[37]. Qualitative studies support this showing that adolescents and adults may use recreational cannabis to reinforce masculinity or resist femininity, while regular use by girls is often seen as inappropriate, unlike use by boys, which is perceived as "cool"[38].

[33] N Hemsing and L Greaves, 'Gender norms, roles and relations and cannabis-use patterns: a scoping review' *Intl J EnvironRes Public Health* [2020] 17:947 <https://doi.org/10.3390/ijerph17030947> accessed 17 April 2025
[34] ML Van Etten and JC Anthony, 'Comparative epidemiology of initial drug opportunities and transitions to first use: marijuana, cocaine, hallucinogens and heroin' *Drug Alcohol Depend* [1999] 54:117-25.
[35] HB Shakya, B Domingue, JM Nagata, et al, 'Adolescent Gender norms and adult health outcomes in the USA: a prospective cohort study' *Lancet Child Adolesc Health* [2019]3 529-38.
[36] AL Wilkinson, PJ Fleming, CT Halpern, AH Herring and KM Harris, 'Adherence to Gender-typical behavior and high frequency substance use from adolescence into young adulthood' *Psychol Men Masculinity* [2018] 19 145-55.
[37] S Kulis, FF Marsiglia, BL Nuno-Gutierrez, MD Lozano and ME Medina-Mora, 'Traditional gender roles and substance use bahaviors, attitudes, exposure and resistance among Early adolescent in large cities of Mexico' *J Subst Abus* [2018] 23 471-80.
[38] RJ Haines, JL Johnson, CI Carter, K Arora, 'I couldn't say, I'm not a girl' *Soc Sci Med* [1982] 2009:2029-36.

In terms of the religious use of Cannabis, almost all the three major monotheistic religions or faiths- Islam, Christianity and Judaism- forbid the use of cannabis. For example, the majority of Muslim nations forbid the use of cannabis for either recreational or therapeutic purposes and impose punishments such as imprisonment or death sentences22. However, in some Caribbean countries like Jamaica, the religious use of cannabis, particularly within Rastafarianism, holds a significant and sacred place. In Rastafarian spirituality, the smoking of cannabis commonly known as "ganja" is considered a sacred act of religious worship, deeply intertwined with their belief system[39]. Rastas view ganja (cannabis) as the "holy herb" or "wisdom weed," citing Bible verses such as Genesis 1:29, which states, "And God said, Behold I have given you every herb bearing seed, which is upon the face of the earth, and every tree, in which is the fruit of a tree yielding seed; to you it shall be for meat," and Revelation 22:2, "…the leaves of the tree were for the healing of the nation"39. They believe that God reveals Himself through herbs, with ganja (cannabis) being chief among them, intended not only to heal but also to foster a deeper understanding of Jah. The act of smoking is categorized into recreational use, healing, and religious worship, with the latter being the most prominent, symbolizing communion and a connection to the divine[40].

The ritual surrounding ganja in Rastafarianism underscores its sacramental significance. Before smoking, whether alone or communally, Rastas engage in a careful preparation of the herb, often using a chalice or kochi, a type of water pipe constructed from materials like gourds or bamboo[41]. The lighting of the chalice is preceded by a moment of silence, removal of caps, and prayers, frequently drawn from Psalms 19 and 121, offering blessings and praise to Jah

[39] NL Erskine, *From Garvey to Marley, Rastafari Theology* (Gainesville:University Press of Florida 2005).
[40] EB Edmonds, *Rastafari* (New York: Oxford Unviversity Press, 2003)
[41] K Bilby, 'The Holy Herb: Notes on the Background of cannabis in Jamaica' *in Caribbean Quarterly Rastafari Monograph* [2000].

Rastafari. Rastas compare this act to the communion cup, believing that puffing deeply on the pipe fulfills Jesus' command to partake of the cup, symbolically sipping of Jesus Himself39. This practice is seen as the purest form of attaining communion with God, distinct from other religious traditions like Roman Catholicism, where incense is burned in buildings rather than within the "true temple" of the believer's body[42].

Ganja's (cannabis) role extends beyond ritual to facilitate contemplation, inspiration, and insight, serving as a medium for spiritual and psychological growth. Rastas believe that smoking the holy herb intensifies the reasoning faculty, opening a "new world of illumination, vision and enlightenment" and allowing them to reach into the "depths of wisdom" to discover divine revelation39. It is viewed as incense offered to God, a sacred act of worship that frees the mind from the constraints of colonialism, referred to as "Babylon." Through ganja, Rastas achieve an "I-and-I" consciousness, a transformative intersubjective experience uniting the individual with Jah, marking a shift from the dehumanization of slavery to personhood42. This underscores ganja's role in transcending societal inequalities and fostering a sense of spiritual liberation.

The use of ganja also induces an altered state of consciousness, aligning with Rastafarian spiritual goals. Described as a psychoactive drug, ganja influences thinking processes, enhances understanding, and promotes feelings of rejuvenation and hope[43]. Rastas report that it facilitates a sense of transformation, freeing them from the bonds of Babylon and instilling a conviction in truths such as the reverence for Haile Selassie and Ethiopia as a spiritual homeland. These experiences correlate with characteristics of altered consciousness, including changes in meaning, insights, and a sense of divine presence, which Rastas interpret as profound spiritual

[42] J Owens, *Dread: The Rastafarians of Jamaica* (Kingston Sangster's Publishing, 1975)
[43] N Hayes, *Psychology* (Illinois: Contemporary Books, 2002)

encounters[44]. Despite skepticism from some researchers about the transcendent claims of such states, Rastas maintain that ganja's use in their faith provides not only spiritual enlightenment but also a means to address the deeper societal issues of poverty, inequality, and oppression in Caribbean countries like Jamaica.

(ii) The Regulatory Frameworks of Cannabis in the Caribbean

Until recently, many Caribbean countries such Barbados, Jamaica, Antigua and Barbuda, St. Vincent and the Grenadines, St Kitts and Nevis, Belize, Cayman Islands and the Bahamas, had different laws that prohibits or forbid the use of cannabis with strict legal sanction for its contravention. For example, in the Caribbean island of Barbados, the use, sale, possession, and cultivation/production of cannabis and its derivatives was illegal[45] until 2019. The Barbados Drug Abuse (Prevention And Control) Act46 represents the prohibitive stance of the Government of Barbados towards the use, possession, cultivation, sale, and trafficking of cannabis in any form45. The Laws of Barbados refer to cannabis as 'any plant of the genus Cannabis from which the resin has not been separated and includes any part of that plant by whatever name it may be designated'[46]. Sections 4–9 and 11 of the Act make C. Sativa cultivation, possession, import, export, sale/supply, misuse, and possession of any equipment for its use as well as its resin illegal in the island45. Furthermore, the possession of cannabis on or near school premises, the inclusion of a child or young person in the drug trade, and the purchase of cannabis from a child or young person was illegal and on indictment could result in imprisonment for life45. Thus, Barbados legalized medical cannabis in 2019 and since then has a

[44] RT Carroll, *Altered State of Consciousness* [2006] <https://skepdic.com/altstates.html> accessed 17 April 2025.
[45] DD Griffith and DH Cohall, 'Conceptualizing a policy framework for the implementation of medical marijuana in the Caribbean territory of Barbados' *Drug science policy and law* [2018] <https://doi.org/10.1177/2050324518796349> accessed 19 April 2025
[46] *Drug Abuse* (*Prevention and Control) Act* (Chapter 131) (Barbados: Government Printing Department, 1990).

licensing regime for cultivation, processing and distribution. They have also explored the potential for cannabis tourism.

Other territories in the Anglophone Caribbean like Jamaica, Belize, and Antigua and Barbuda have decriminalised marijuana. For example, in 2019, Antigua and Barbuda approved the Misuse of Drugs (Amendment) Bill allowing possession of up to 10 grams of cannabis without a criminal charge45. They also established a medical cannabis industry. Jamaica decriminalized cannabis in 2015 and has since established a thriving medical cannabis industry. The country exports cannabis products to countries like Canada, Australia and Germany. In 2018, St. Vincent and the Grenadines decriminalized possession of up to 2 ounces of cannabis and has established a regulatory framework for medical cannabis. St. Kitts and Nevis, one of the small countries in the Caribbean in the same vein has initiated a National Marijuana Commission (NMC) to investigate the potential benefits and risks of cannabis. Furthermore, other Caribbean countries such as The Bahamas, Belize and Cayman Islands have considered the benefits of medical cannabis and have enacted legislations and laws decriminalizing and the proscribing the use of cannabis in their countries. Even Trinidad and Tobago, US Virgin Islands and Panama have decriminalized cannabis and legalized medical cannabis since 2019 and 2022.

Initially, all member states of CARICOM had prohibitive laws and policies against the use of cannabis in any form and for any purpose. Of these CARICOM countries, Jamaica was the first to amend its Dangerous Drugs Act in 2015 and decriminalize cannabis to make the possession of up to two ounces or 56 grams a minor offence. Subsection 3(a) of Section 7D of the Jamaica Dangerous Drugs (Amendment) Act also created the legal framework to cultivate ganja for scientific and medical research[47]. Section 6(2) makes provision for those who have been prescribed marijuana by a registered medical practitioner or health practitioner as approved

[47] *Dangerous Drugs (Amendment) Act* [2015] Jamaica.

by the Ministry of Health as published in the Gazette. In 1999, the Government of Jamaica established a National Commission on "ganja" to investigate the complexities of the cannabis situation, addressing disparities in government approaches, inequities in justice administration, cultural insensitivities, health-related facts and opinions, and global shifts in cannabis perspectives[48] [49].

The 2001 commission chair reported in the Gleaner[50] that most individuals favored decriminalization, though legalization was strongly advocated by the Rastafari community for religious purposes, noting that eradicating cannabis use was futile and that legal farming could be economically beneficial48. In 2014, the death of Mario Deane in police custody after arrest for possessing a "ganja" spliff reignited discussions, with Minister of Justice Hon. Mark Golding emphasizing decriminalization of small quantities48. The Dangerous Drugs (Amendment) Act 2015, effective April 15, decriminalized possession of two ounces (56.6 grams) or less, allowing a J$500 fine payable within 30 days, mandatory counseling for dependency, and permitting households to grow up to five cannabis plants, while possession over two ounces remained a criminal offense[51]. The Act also established the Cannabis Licensing Authority (CLA) to regulate a lawful cannabis industry for medical, therapeutic, or scientific purposes, including hemp, and granted Rastafari provisions for sacramental cannabis use in registered worship locations48.

Fellow CARICOM Member state Belize on 2 November 2017 decriminalized the possession of up to 10 grams of cannabis. The Belizean Misuse of Drugs (Amendment) Act 2017 also allows

[48] MA Emmanuel, AY Haughton and KA K'nife, 'Policy analysis and implications of establishing the Caribbean Cannabis Economy (CCE): lessons from Jamaica' *Article in Drugs and Alcohol* [2018] <https://doi.org/10.1108/DAT-09-2017-0052> accessed 19 April 2025

[49] Chevannes, B. (2001), "Report of the national commission on Ganja", Jamaica Information Service, available at: www.cannabis-med.org/science/Jamaica.htm (accessed 19 April 2025).

[50] The Gleaner (2014), "Government saddened by death of St James man beaten in police custody", Jamaica Gleaner News Online, available at: http://jamaica-gleaner.com/article/news/20140807/gov't-saddeneddeath-st-james-man-beaten-police-custody (accessed 19 April 2025).

[51] Ministry of Justice (2015), "Dangerous Drugs (Amendment) Act", available at: www.japarliament.gov.jm/attachments/339_The%20Dangerous%20Drug%20bill%202015.pdf (accessed 19 April 2025).

for private consumption in one's home or other accommodation where the owner has given permission. The possession of amounts over 10 grams, and possession on school premises and other educational facilities still remain criminal offences. In its definition of cannabis, Section 2 specifically excludes medicines derived from the C. Sativa plant[52]. A distinction was also made between industrial hemp and cannabis.

Antigua and Barbuda's amendment of its Misuse of Drugs (Amendment) Act 2018 allows for the possession of up to 15 grams and aims to reduce the burden on the criminal justice system and the potential of young people obtaining criminal records. Caribbean Community (CARICOM, 2017) countries have established a regional marijuana commission to investigate the status of marijuana in its member states[53]. CARICOM (2017) has embraced marijuana policy reform and has established its Regional Commission on Marijuana that is presently investigating whether the prohibitions on the drug should be removed for religious, research, recreational, and/or medicinal use45.

On the global level, global prohibitive policies are evidenced in The United Nations Office on Drugs and Crime Single Convention on Narcotic Drugs 1961 and its Convention on Psychotropic Drugs 1971[54]. These international treaties govern the control of drugs and have informed laws on cannabis use in Barbados and categorise marijuana as Schedule I classifying it as a dangerous drug. Article 4(c) of the Single Convention on Narcotics 1961 under General Obligations states, 'The parties shall take such legislative and administrative measures as may be necessary … subject to the provisions of this Convention, to limit exclusively to medical and

[52] Misuse of Drugs (Amendment) Act [2017] Belize
[53] CARICOM, *Regional Marijuana Commission: Terms of Refernce* [2017] <https://caricom.org/tor_marijuana_commision.pdf> accessed 17 April 2025.
[54] United Nations Convention on Psychotropic Substances [1971].

scientific purposes the production, manufacture, export, import, distribution of, trade in, use and possession of drugs[55].'

The incrementalist model of policymaking acknowledges that attempting rational approaches result in consumption of time and in reality, government decisions are made in small steps[56]. It is posited that marginal adjustments to existing policy ensure that a faster response can be made to unanticipated consequences with there being greater ease for securing agreement on small changes although being a conservative approach to change[57]. It is this reason that the gradual approach towards implementing medical marijuana laws is favoured for Barbados and other Caribbean countries. Marginal adjustments to existing policy can be done in at least two phases. Phase one could see the addition of approved marijuana-derived medicines to the drug formulary while phase two would see the introduction of different formulations of raw forms, tinctures, and oils that have shown bioequivalence to established forms of medical cannabis products.

(iii) Cannabis Legal Frameworks in Nigeria and Ghana

Cannabis policy liberalizations have been one of the most significant reforms over the last 15 years. These reforms have been a key part of what has been termed the fractured consensus of global drug control, which has meant a move away from dominant prohibitionist thinking[58]. Over this period, a wide range of cannabis policy reforms were implemented in many regions of the world. Yet, most of the popular and academic focus has been on cannabis reforms in the

[55] United Nations Single Convention on Narcotic Drugs [1961]
[56] R Mayer, 'Policy and program planning: A development perspective' *Eaglewood cliffs, NJ: Prentice Hall, inc [1985].*
[57] A Walker, *Social planning: A strategy for socialist welfare* (Basil Blackwell Publisher ltd, [1984])
[58] DR Bewley-Taylor, *International Drug Control: Consensus Fractured.* Cambridge: Cambridge University Press [2012].

global North, especially in Europe and North America[59]. Few studies have explored cannabis liberalizations in Southern countries, although examples from Uruguay[60] and Jamaica[61] offer some insights. This section addresses this imbalance in existing research by adding a critical Southern perspective, focusing specifically on Nigeria's cannabis legislation landscape.

Research that emphasizes Northern jurisdictions ensures Northern experiences where liberalization dominate the global policy debate. While it is important to critically examine developments in Europe and North America, they are not necessarily always applicable elsewhere, especially in Southern countries exploring cannabis policy reform. This continued pre-dominance of Western-focused research and models is even more problematic when considering the history of global drug control, which has shown that Western and especially US-inspired models of drug control have led to considerable harm in the global South[62]. In Nigeria, these dynamics are particularly relevant, as the country grapples with its own cannabis policy framework amid global shifts towards liberalization, criminalization and proscription.

African states and their experiences with cannabis policy reforms remain particularly under-studied, and existing knowledge on this topic is often based on official or corporate gray literature[63]. These publications frequently laud the economic benefits of cannabis legalization, especially for governments or corporations[64], and rarely address the challenges associated with implementing legal markets. The paucity of critical academic research on cannabis policy

[59] H Bodwitch, M Polson, E Biber, GM Hickey and V Butsic, 'Why comply? Faemer Motivations and Barriers in Cannabis Agriculture' *Journal of Rural Studies* [2021]86 155-70.
[60] D Corva and J Meisel, *The Routledge Handbook pf Post-Prohibition Cannabis Research.* New York: Routledge [2021].
[61] A Klein, M Rychert and MA Emmanuel, 'Towards Social Justice and Economic Empowerment? Eploring Jmaica's Progress with implementing cannabis law reform' *Third World Quarterly* [2022] 43(11) 2693-711.
[62] P Andreas and E Nadelman, *Policing the Globe: Criminalizatiin and Crime Control in International Relaytions.* London, UK: Oxford University Press [2008].
[63] Prohibition Partners, 'African Cannabis Report' [2019] <https://prohitionpartners.com/reports/the-african-cannabis-report/> accessed 17 April 2025.
[64] United Nations Office on Drugs and Crime, *Nigeria Cannabis Survey: 2019 Baseline Assessment in Six States.* Vienna, Austria: UNDOC [2022].

liberalization in Africa has remained, even though countries such as Morocco, Nigeria, and South Africa are some of the largest producers of cannabis in the world[65]. Nigeria's significant role in global cannabis production underscores the need for a deeper examination of its legislative approach.

The research gap has also persisted despite the key role that cannabis has played in the livelihoods of communities in many parts of the continent[66]. Changes to cannabis policies in African countries are thus destined to have a significant effect not only on local economies but also on the global cannabis market65. In Nigeria for example where cannabis cultivation and trade are deeply embedded in certain communities, legislative reforms could reshape economic and social structures, yet the country remains largely prohibitionist.

To some extent, African experiences of cannabis policy liberalization remain understudied because relatively few countries have shifted away from the prohibitionist norm[67]. Furthermore, African countries (e.g., Egypt and Nigeria) are some of the staunchest supporters of the prohibitionist approach on the international level (IDPC 2024). Nevertheless, since 2017, a growing number of African countries (e.g., Ghana, Lesotho, Morocco, South Africa, and Zimbabwe) have made significant moves away from cannabis prohibition[68]. These reforms have often b een cautious and slow and have generally focused on legalizing medical and industrial cannabis for export markets65. Nigeria, however, has not followed this trend, maintaining stringent anti-cannabis laws.

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[65] EU Nelson, G Klantschnig, 'Contesting Cannabis Leglization in Nigeria: Hidden Narratives of Illicit Farmers and Traders. *Sociological Inquiry* [2025] <https://doi.org/10.1111/soin.12649> accessed 18 April 2025.

[66] J Clemencot, 'Cannabis: An African Green Gold Rush' [2019] <https://www.theafricareport.com/19723/cannabis-an-african-green-gold-rush> accessed 17 April 2025.

[67] N Carrier and G Klantschnig, 'Illicit Livelihoods: Drug Crops and Development in Africa' *Review of African Political Economy* [2016] 43(148) 174-89.

[68] C Rusenga, G Klantschnig, N Carrier and S Howell, 'Cannabis and Livelihoods in Africa: A call for Policy Reform that is inclusive, equitable and evidence-based' *PolicyBristol Policy Rport* [2024] <https://www.bristol.ac.uk/policybristol/policy-briefings/cannabis-africana-drugs/> accessed 17 April 2025.

In debates about these reforms in African countries, cannabis is often portrayed as the new "green gold," and emerging reforms in the region are usually driven by potential economic benefits for governments[69], especially as these benefits are touted in the gray literature65. On the other hand, due to the role that cannabis has long played in rural economies, there has been vigorous debate about cannabis policy reform in some African countries, including Nigeria, where there has been no change in cannabis laws yet. In Nigeria and Kenya, there have even been politicians who have included cannabis legalization in their campaign promises in recent elections[70]. While some of these debates have been described in the news and gray literature, they have not been studied systematically, and little is known about what African cannabis farmers, traders, and users think about proposed policy reforms. In fact, these key market actors have routinely been excluded from policy debates and reforms in Nigeria and across Africa, with few exceptions[71].

Nigeria plays a prominent role in the international production and trade of cannabis today, with an estimated 10.6 million past-year users according to the most recent national survey[72]. Cannabis has a long history in the country, and its use and cultivation expanded significantly since the 1960s in the context of changing consumer cultures[73]. A recent survey conducted by the UN Office on Drugs and Crime (UNODC) found an estimated 8900 ha of cannabis in six states in Nigeria, notably the Southwest region64 65. Nigeria's role in the

[69] EUE Nelson, *Between Prohibition and Regulation: Narrative Analysis of Cannabis Policy Debate in Africa.* Policy Brief 17. Swansea: Global Drug Policy Observatory [2021].
[70] E Peralta, 'In Kenya, Promise of Marijuana Paradise Electrify the Electorate' [2022] <https://www.npr.org/2022/08/08/111638338/kenya-election-marijuana-wajackoyah> accessed 17 April 2025.
[71] C Rusanga, G Klantschnig, N Carrier and S Howell, 'Business as Usual? Cannabis legalization and Agrarian Change in Zimbabwe' *Journal of peasant studies* [2024] 51(4) 982-1001.
[72] United Nations Office on Drugs and Crime, *Drug use in Nigeria.* Vienna, Austria: UNODC [2019].
[73] G Klantschnig, 'Histories of Cannabis Use and Control in Nigeria, 1972-1967' *Drugs in Africa: Histories and Ethnographies of use, trade and control,* [2014] 69-88.

production and trade of cannabis further consolidated itself in the 1980s[74], during a period of rapid economic decline owing to foreign donor-imposed Structural Adjustment Programs (SAPs) and government mismanagement[75]. SAPs, which entailed drastic reductions in public spending and downsizing the public sector, plunged many Nigerians into poverty and incentivized illegal economic activities, which expanded as the state's regulatory capacity weakened.65

The illegal drug market in Nigeria is still shaped by conditions of severe poverty and social marginalization that are a detriment to the lives of large segments of the Nigerian populace69. An estimated 82.9 million Nigerians live in poverty (World Bank Group 2022), where poverty is multi-dimensional and includes inadequate employment, food, healthcare, sanitation, education, and housing (Federal Government of Nigeria 2022). Illicit activities such as cannabis cultivation and trading became a livelihood strategy for many people struggling with unemployment and obtaining income. Reductions in government spending on agriculture and declining prices for key commodities also encouraged local farmers to resort to cannabis cultivation for income diversification67. Felbab-Brown[76] has described how, in Africa, endemic corruption, widespread poverty, and limited opportunities for upward social mobility have created a context where illegal activities are seen as legitimate undertakings to secure livelihoods in challenging circumstances.

Nigeria, a signatory to the three main UN drug control conventions, has historically relied on repression to control illegal cannabis markets. Nigerian drug laws promote punitive law enforcement, including raids on cannabis farming communities, burning of plantations, seizures

[74] S Ellis, 'West Africa's International Drug Trade' *African Affairs* [2009] 108(431) 171-96
[75] A Olukoshi, *The politics of structural adjustment in Nigeria.* London, UK: James Currey [1993].
[76] V Felbab-Brown, 'The west African Drug Trade in the Context of the Region's illicit economies and poor governance' [2010] <https://www.brookings.edu/wp-content/uploads/2016/06/1014_africa_drug_trade_felbabbrown.pdf> accessed 17 April 2025.

of cannabis, and arrest of farmers and sellers[77]. Nevertheless, farmers and sellers can often negotiate with law enforcement by bribing officials. The Nigerian state and its National Drug Law Enforcement Agency (NDLEA) have remained vehemently opposed to cannabis legalization even though there have been reforms in other areas of drug policy, such as harm reduction services for people who inject drugs65[78]. In fact, there has recently been an intensification of enforcement-based responses, including attempts to remove judicial discretion in sentencing for drug offenses, as well as an attempt to reintroduce the death penalty for drug trafficking65[79].

The production and trade of cannabis by Nigerians has long been an issue of concern to international drug control agencies, which often view these activities through the narrow prism of drug trafficking (rather than as a livelihood strategy) and are often more concerned about the interests of Western consumer markets rather than those of the transit and producer countries[80]. This concern buttresses international cooperation with the Nigerian state to interdict cannabis cultivation and trade. It also helps to explain international support for crop-substitution programs for illicit cannabis farmers[81], a top-down approach that involves replacing cannabis with other cash crops, which are often not as economically viable as cannabis65. These programs fail to address the broader socioeconomic marginalization that drives many Nigerians to engage in the illegal cannabis market as a means of survival.

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[77] O Ajayi, 'Drug control officer's perception of Nigeria's narcotics control policy' Doctoral Dissertation. Waldon University.

[78] EUE Nelson, *Harm Reduction programmes for people who inject drugs in Nigeria: Challenges in implementation and sustainability.* Policy brief 20. Swansea: Global Drug Policy Observatory [2024]

[79] T Obiezu, 'Nigeria lawmakers, activists divided over drug abuse penalties' [2024] <https://www.voanews.com/a/nigerian-lawmakers-activists-divided-over-drug-abuse-penalties/761.3084.html> accessed 17 April 2025.

[80] G Klantschnig, *Crime, drugs and the state in Africa: The Nigerian Connection.* Leiden: Brill [2013]

[81] MM Abdalla, 'Operational recommendations an alternative development, regional, inter-regional and international cooperation on development-oriented, balanced drug policy: Addressing socio-economic issue'. Commission on narcotic drugs, Vienna [n.d.]

In the context of Nigeria's stringent cannabis legislation, this section has attempted to address the Nigerian approach and policy on cannabis production, use regulation and control. It appears that the Nigerian masses just like their Caribbean counterparts are entertaining hopes for the legalization, production and use of cannabis and freedom from the punitive actions of the Nigerian state and its National Drug Law Enforcement Agency (NDLEA), as well as their concerns about a future legal cannabis market fraught with inequities, which they know too well from other legal markets in Nigeria. It can be said here that the findings of this article trouble extant views on cannabis legalization, which simply laud their economic benefits without understanding the broader context of socioeconomic marginalization that many current illicit market actors face in such countries such as Nigeria and Ghana and which is rarely addressed by policy reforms by their respective governments. The article findings advocates for a more inclusive policy reform process that actively engages these market actors to chart the way forward for a more bottom-up approach, adding a needed Nigerian perspective on cannabis policy reform grounded in the voices of currently criminalized and hard-to-access market actors.

Unlike Nigeria, cannabis legislation in Ghana has undergone significant changes, reflecting global trends toward legalization and decriminalization. Historically, cannabis was introduced to Ghana by ex-servicemen who served in the Second World War[82]. Its criminalization began with the Pharmacy and Drugs Act 1961 (Act 64), which prohibited possession, cultivation, use, and trafficking of narcotic drugs, including cannabis, in fulfillment of Ghana's obligations under the 1961 Single Convention on Narcotic Drugs[83]. This was replaced by the Narcotics Drugs (Sanctions, Enforcement and Control) Act, 1990 (PNDCL 236), which imposed harsher penalties

[82]H Bernstein, 'Ghana's drug economy: some preliminary data' *Review of Africa Political Economy*, (1999 79 13-32 <https://doi.org/10.1080/03056249908704358> accessed 17 April 2025.

[83] J Agboli, 'Implications of legalization of cannabis cultivation in Ghana: a critical review' *Article in drugs habits and social policy* [2023] <https://doi.org/10.1108/DHS-06-2023-0023> accessed 18 April 2025

and established the Narcotics Control Board to enforce its provisions83. PNDCL 236 remained the regulatory framework until 2020, when Parliament passed the Narcotics Control Commission Act, 2020 (Act 1019), marking a shift by legalizing cannabis cultivation for medical and industrial purposes under strict conditions83.

Under Act 1019, cannabis cultivation, possession, and use remain criminalized without a license from the Minister of Health83. Section 43, a key provision, allows the Minister of Interior, upon the Narcotics Control Commission's recommendation, to grant licenses for cultivating cannabis with no more than 0.3% THC content for industrial purposes (e.g., fiber or seed production) or medicinal use, explicitly excluding recreational use83. Violators face fines of 200 to 25,000 penalty units (GHC 12 per unit, approximately US$1.2), imprisonment from 15 months to 25 years, or both, with imprisonment including hard labor unless otherwise stated. Research indicates that illegally cultivated cannabis in Ghana far exceeds the 0.3% THC limit, with samples showing THC levels of 4.496% to 15.146%[84]. Currently, no licenses have been issued, as the necessary Legislative Instrument (LI) to regulate the application process is pending, and the required forensic laboratory for testing THC content has not been established83.

The passage of Act 1019 aimed to align Ghana with global and continental trends, as seen in Uruguay (2013), Lesotho (2017), and numerous countries across Europe, Africa, Asia, The Caribbean and the Americas. Industrial hemp, as noted by Owusu[85], offers potential in health, fashion, and manufacturing, though some uses, like biofuel or construction, are currently

[84] M Agyepong, 'Determination of the contents of three major cannabinoids in cannabis samples found in Ghana' [2019] <http://ugspace.ug.edu.gh/handle/123456789/33068> accessed 17 April 2025

[85] NO Owusu, B Arthur. And EM Aboagye, 'Industrial hemp as an agricultural crop in Ghana' *Journal of Cannabis Research*, [2021]3 1-8 <https://doi.org/10.1186/s42238-021-00066-0> accessed 17 April 2025.

impractical in Ghana. Unlu[86] highlight scientific evidence supporting cannabinoids' medicinal benefits, driving interest in medical cannabis. However, the Supreme Court in Ezuame Mannan v. Attorney General [2022] declared Section 43 unconstitutional due to its improper insertion into the Bill without adequate debate, rendering it null and void83. On review, the Court upheld this procedural flaw but did not challenge the section's substance. The Ghanaian Parliament subsequently re-passed Section 43, leaving the passage of the LI as the final step for implementation83.

Ghana's policy shift promises significant economic and medicinal benefits83. The Minister for the Interior in Ghana estimates annual exports could generate $3 billion, with excise taxes and levies boosting revenue[87]. Legalization is expected to spur industrial growth, creating jobs through factories producing cannabis-based goods like medications and beverages[88]. Medicinally, cannabis-derived products could treat conditions like epilepsy and rheumatism, though evidence for some uses remains limited[89]. Ghana's reluctance to legalize cannabis earlier stemmed from public health concerns, including its potential as a gateway drug and neuropsychiatric effects on youth[90]. Despite these concerns, the government's commitment

[86] A Unlu, T Tammi, and P Hakkarainen, 'Drug decriminalization policy literature review: models, implementation and outcomes', *Finnish Institute for Health and Welfare Report*, [2020] 9 1-92 <https://www.julkari.fi/bitstream/handle/10024/ 140116/URN_ISBN_978-952-343-504-9.pdf> accessed 17 April 2025.

[87] S Riley, N Vellios, and C Walbeek, 'An economic analysis of the demand for cannabis: some results from South Africa', *Drugs: Education, Prevention and Policy,* [2019]27 No. 2, 123-130 <https://doi.org/10.1080/09687637.2019.1581139> accessed 17 April 2025

[88] M Doussard,'The other green jobs: legal marijuana and the promise of consumption-driven economic development', *Journal of Planning Education and Research,* [2019]39 No. 1, 79-92, <htpps://doi.org/ 10.1177/0739456X17719498> accessed 17 April 2025.

[89] Odieka, A.E., Obuzor, G.U., Oyedeji, O.O., Gondwe, M., Hosu, Y.S. and Oyedeji, A.O, 'The medicinal natural products of Cannabis sativa Linn.: a review', *Molecules (Basel, Switzerland),* [2022]27 No. 5, 1689, <https://doi.org/10.3390/molecules27051689> accessed 17 April 2025

[90] KB Mensah, and PKT Adu-Gyamfi, 'To legalise cannabis in Ghana or not to legalise? Reviewing the pharmacological evidence', *Archives of Pharmacy and Pharmaceutical Sciences,* [2019]3 No. 1, 82-88, <htpps://doi.org/10.29328/journal.apps.1001018> accessed 17 April 2025

suggests licenses for cultivation will soon be issued, enabling Ghana to capitalize on these opportunities83.

However, legalization poses challenges. Clinicians globally worry about addiction and other adverse effects[91]. Although Act 1019 prohibits recreational use, the risk of abuse remains high, as observed in South Africa[92]. Illegal cultivation persists in places like Washington despite legalization (Washington State Institute of Public Policy, 2019), and Ghana already faces a significant drug abuse problem, with cannabis being the most commonly abused substance[93]. Legalization may increase availability, social acceptance, and demand, straining regulatory capacity and exacerbating health and social issues92. With an estimated 8% to 21.5% of Ghanaians using cannabis—higher than the global 3.8% average90—effective regulation will be critical to balance the benefits and risks of this policy change83.

(iv) Prospects and Challenges in the Use of Cannabis

Cannabis has been documented for its therapeutic potential across various medical conditions since the medieval Islamic civilization era. Hemp seed oil was noted for alleviating neuropathic pain, a finding validated by recent clinical investigations[94]. In medieval texts, cannabis was described as a pain reliever for conditions such as dysentery and intestinal worms. Cannabis

[91] YA Adebisi, and QD Olaoye, 'Medical use of cannabis in Africa: the pharmacists' perspective', *INNOVATIONS in Pharmacy*, [2022]13 No. 1, 10-24926, <https://doi.org/10.24926/iip.v13i1.4430> accessed 17 April 2025.

[92] K Mokwena, 'Social and public health implications of the legalisation of recreational cannabis: a literature review', *African Journal of Primary Health Care & Family Medicine*, [2019]11 No. 1, e1-e6, <https//doi.org/10.4102/phcfm.v11i1.2136> accessed 17 April 2025

[93] Cadri, A., Nagumsi, B.A.A., Twi-Yeboah, A., Yeboah, L.D., Adomah-Afari, A., Ane-Loglo, M.G. and Aboagye, R. G, 'Facilitators and barriers to health seeking among people who use drugs in the Sunyani municipality of Ghana: an exploratory study', *BioMed Research International,* [2021] 1-11, <https://doi.org/10.1155/2021/2868953> accessed 17 April 2025.

[94] Russo, E. B. (2017). Cannabis and epilepsy: An ancient treatment returns to the fore. Epilepsy and Behavior, 70, 292–297. https://doi.org/10.1016/j.yebeh.2016.09.040

seeds, leaves, and roots were utilized to treat toothaches[95]. For ear ailments, a 17th-century Persian medical text highlighted cannabis' benefits, while in antiquity, cannabis seeds and juice were prescribed for earaches[96]. Arabic physicians further documented its use for ear infections and otalgia, advocating hemp seed oil for such conditions[97].

In psychiatric care, cannabis was recognized as an effective tranquilizer or antidepressant during medieval times. Medieval medical texts recorded cannabis, alongside hellebore and mandrake, as treatments for depression, functioning as purgatives, sedatives, digestive aids, and emetics95. This historical use aligns with modern explorations of cannabis in mental health, suggesting its potential and prospects to address psychiatric disorders. The calming properties noted in these texts indicate an early understanding of cannabis' psychoactive effects, which are now being studied for their therapeutic applications in mood regulation and anxiety management. For epilepsy, medieval Arabic texts provide some of the earliest accounts of cannabis use. Its application in treating seizures was described, with one case noting immediate relief for a patient using cannabis leaf and music therapy94. In the 10th and 11th centuries, insufflating cannabis leaf juice was recommended to prevent seizures, a method potentially advantageous for acute attacks97. A 15th-century case documented hashish resin completely curing an epileptic child, though addiction developed[98]. These historical insights align with contemporary research

[95] Taha, J. M. (2010), 'Unknown Contributions of the Arab and Islamic Medicine in the Field of Anesthesia in the West'. *Journal of the International Society for the History of Islamic Medicine (JISHIM),* 6–7, 1–134. https://doi.org/10.1080/03085694.2018.1400268

[96] Dioscorides. (2000). De Materia Medica (Being An Herbal With Many Other Medicinal Materials) (R. T. Gunther (ed.)). IBIDIS PRESS.

[97] Lozano, I. (2001). The therapeutic use of Cannabis sativa (L.) in Arabic medicine. Journal of Cannabis Therapeutics, 1(1), 63–70. https://doi.org/10.1300/J175v01n01_05

[98] Zuardi, A. W. (2006). History of cannabis as a medicine: A review. Revista Brasileira de Psiquiatria, 28(2), 153–157. https://doi.org/10.1590/S1516-44462006000200015

supporting cannabis, particularly CBD, for reducing seizure frequency in conditions like Dravet and Lennox-Gastaut syndromes[99].

Cannabis also shows prospects in treating headaches and migraines, with over a thousand years of use in Islamic medicine. Ninth-century Persian practices of applying cannabis juice intranasally to prevent vomiting and treat migraines were highlighted[100]. A compound medicine, derived from cannabis flowers and seeds, was noted for relieving headaches, uterine pain, and preventing miscarriage94. Cannabis was further endorsed for head and ear pain[101]. Modern studies corroborate these findings, showing significant pain relief in chronic pain patients using cannabis or cannabinoids[102].

Beyond pain and neurological conditions, cannabis was valued for its antiparasitic and antitumor properties. Its vermicidal and vermifugal effects were documented, noting its ability to eradicate worms in the human body, a practice supported by later texts advocating hemp seeds for tapeworm treatment97. Cannabis' potential to dissolve hardened tumors using hemp seed oil was also described, a practice echoed in 17th-century treatments for uterine tumors97. These historical uses suggest early recognition of cannabis' bioactive compounds, which are now under investigation for their anticancer potential and ability to combat parasitic infections.

In dermatology and gynecology, cannabis demonstrated versatile applications. Its use for skin rashes, inflammation, joint diseases, and wounds was recorded, while benefits for skin

[99] Fiani, B., Sarhadi, K. J., Soula, M., Zafar, A., & Quadri, S. A. (2020). Current application of cannabidiol (CBD) in the management and treatment of neurological disorders. In Neurological Sciences (Vol. 41, Issue 11, pp. 3085–3098). https://doi.org/10.1007/s10072-020-04514-2

[100] Russo, E. (2001). Hemp for headache: An in-depth historical and scientific review of cannabis in migraine treatment. Journal of Cannabis Therapeutics, 1(2), 21–92. https://doi.org/10.1300/J175v01n02_04

[101] Golshani, S. A., & Mosleh, G. (2015). Drugs and Pharmacology in the Islamic Middle Era. Pharmaceutical Historian, 45(3), 64--69.

[102] Abrams, D. I. (2018), 'The therapeutic effects of Cannabis and cannabinoids: An update from the National Academies of Sciences, Engineering and Medicine report'. *European Journal of Internal Medicine*, 49, 7–11. <https://doi.org/10.1016/j.ejim.2018.01.003> accessed 19 April 2025

conditions were noted[103]. In obstetrics, cannabis seed juice mixtures were described to alleviate uterine pain and prevent miscarriage, though hemp seeds were cautioned to reduce milk production[104]. Current research continues to explore cannabis' role in treating skin disorders and gynecological conditions, building on these historical foundations to validate its anti-inflammatory and analgesic properties across diverse medical fields[105].

Despite the promising prospects of cannabis for medical and economic benefits, its widespread global use, primarily for psychoactive effects, poses significant challenges. One in 20 people are reported as illicit drug users, with cannabis being the most common[106]. Over the past eight years, its use has increased, a trend paralleled only by opioids[107]. In North America, 10% of adults and nearly a quarter of high school students use cannabis, with rates in the United States doubling from 2001 to 2013, coinciding with its legalization for medical purposes in 23 states[108]. High usage is also noted in European and Australasian countries. This prevalence raises the question of whether introducing cannabis as a medication has impacted use or will in the future. The National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) and National Survey on Drug Use and Health (NSDUH) show a near doubling of cannabis use and

[103] Fakhry, B., Abdulrahim, M., & Chahine, M. N. (2021), 'Medical Cannabis in Lebanon : History & Therapeutic , Ethical , and Social Challenges' . *A Narrative Review*. 5(2), 137–157.
[104] Russo, E. (2002). 'Cannabis treatments in obstetrics and gynecology: A historical review'. *Journal of Cannabis Therapeutics*, 2(3–4), 5–35. https://doi.org/10.1300/J175v02n03_02 accessed 19 April 2025
[105] National Academies of Sciences Engineering and Health. (2017), 'The health effects of cannabis and cannabinoids: The current State of Evidence and Recommendations for Research'. *In The National Academies Press*. <https://doi.org/10.17226/24625> accessed 19 April 2025
[106] Hall W, Johnston L, Donnelly N, 'Epidemiology of cannabis use and its consequences. In The Health Effects of Cannabis'. Ontario, Canada: *Addiction Research Foundation*, 1999.
[107] United Nations Office on Drugs and Crime. World Drug Report. New York: United Nations, 2009.
[108] Hasin DS, Saha TD, Kerridge BT, Goldstein RB, Chou SP, Zhang H, et al, 'Prevalence of marijuana use disorders in the United States between 2001–2002 and 2012–2013'. *JAMA Psychiat* [2015]; 72: 1235–42.

abuse/dependence in states with medical cannabis legislation[109], though these findings have been challenged in subsamples, underscoring the complexity of this issue[110].

The rising community use of cannabis, potentially linked to its acceptance as medicine, may amplify mental health problems. These include psychosis, anxiety disorders, cognitive issues, and addiction, with up to three in ten users potentially developing addiction108. Psychotic mental disorder is a significant concern, with epidemiological data suggesting a partial causal link between early cannabis use and later psychosis, though the mechanisms remain poorly understood[111]. This association complicates the use of cannabis as a medicine, particularly in youth and early adulthood, where the risk of long-term psychotic disorders is notable. As cannabis is investigated for conditions like childhood epilepsy and pain management, clinicians may face scenarios where young patients demand trials despite these risks, posing burdens on both individuals and society if mental disorders develop.

An association between cannabis and anxiety disorders is also reported, particularly pronounced in teenagers[112]. This may relate to tetrahydrocannabinol levels, while CBD is being trialed as an anxiety treatment[113]. Cannabis, whether prescribed or illicit, may act as the 'stress' in a diathesis-stress model of mental disorder, with outcomes like psychosis or anxiety depending on individual predispositions and the hierarchical nature of psychopathology[114]. This

[109] Cerdá M, Wall M, Keyes KM, Galea S, Hasin D, 'Medical marijuana laws in 50 states: investigating the relationship between state legalization of medical marijuana and marijuana use, abuse and dependence'. *Drug Alcohol Depend* [2012]; 120: 22–7.
[110] Harper S, Strumpf EC, Kaufman JS, 'Do medical marijuana laws increase marijuana use? Replication study and extension'. *Ann Epidemiol* [2012]; 22: 207–12.
[111] Fergusson DM, Horwood LJ, Ridder EM. 'Tests of causal linkages between cannabis use and psychotic symptoms'. *Addiction* [2005] ; 100: 354–66.
[112] Patton GC, Coffey C, Carlin JB, Degenhardt L, Lynskey M, Hall W,
'Cannabis use and mental health in young people: cohort study'. *BMJ [*2002]; 325: 1195–8.
[113] Blessing EM, Steenkamp MM, Manzanares J, Marmar CR,
'Cannabidiol as a potential treatment for anxiety disorders'. *Neurotherapeutics* [2015]; 12: 825–36.
[114] Kotov R, Krueger RF, Watson D, Achenbach TM, Althoff RR,

suggests that medical cannabis use could inadvertently exacerbate mental health issues in vulnerable populations, especially adolescents, where sensitivity to cannabis' psychoactive effects is heightened. Balancing therapeutic benefits with these risks remains a critical challenge for prescribers.

Cognitive problems linked to cannabis use present another hurdle, as their nature and long-term impact are unclear. While not strongly tied to younger age, they may contribute to lower life satisfaction in chronic users. For prescribers, weighing cannabis' benefits for conditions like spasticity, pain, or seizures against potential reductions in life satisfaction is challenging, with no current evidence to guide this balance. Close attention to functional outcomes may mitigate this dilemma, but it underscores the difficulty of prescribing cannabis for neuropsychiatric conditions. Ensuring that therapeutic improvements outweigh cognitive or quality-of-life detriments requires careful monitoring, a task complicated by the lack of standardized protocols.

Sociologically, the growing acceptability of cannabis as a medicine may drive increased use, particularly among youth, who face the greatest risks[115]. Liberal policies are linked to rising use, and as cannabis gains medical legitimacy, even if restricted to specific conditions or older adults, it may implicitly encourage youth consumption. This is concerning given the mental health risks in this group. Additionally, individuals with severe mental illnesses, like schizophrenia, where cannabis worsens outcomes, may view it as 'medicine' to justify use, prioritizing short-term highs over long-term stability. This creates a dilemma for psychiatrists, who may become gatekeepers, weighing the harm of prescribing cannabis to ensure a safe

Bagby RM, et al, 'The Hierarchical Taxonomy of Psychopathology (HiTOP): a dimensional alternative to traditional nosologies'. *J Abnorm Psychol* [2017]; 126: 454–77.

[115] Berg CJ, Stratton E, Schauer GL, Lewis M, Wang Y, Windle M, et al, 'Perceived harm, addictiveness, and social acceptability of tobacco products and marijuana among young adults: marijuana, hookah, and electronic cigarettes win'. *Subst Use Misuse* [2015]; 50: 79–89.

product against the risks of patients sourcing illicit supplies, akin to methadone use for opioid dependence but without supporting evidence.

Clinicians and policymakers face multifaceted challenges with cannabis as a medication, from rising use and worsening psychopathology to its pervasive acceptance among vulnerable groups. Understanding the risks, especially for youth, requires screening for mental disorder risk factors, addiction, and early monitoring to ensure functional benefits outweigh harms. Modeling this on practices for psychoactive drugs like methylphenidate or methadone could help, including minimizing diversion. Medical practitioners will manage these issues directly, but scientists, clinicians, and policymakers must address them as cannabis moves toward global regulation as a medicine. Ongoing observational and interventional research is essential to navigate this complex landscape.

(v) Summary, Findings and Conclusion

The article explores the multifaceted use of cannabis for medicinal, recreational, and religious purposes, tracing its historical and contemporary significance while highlighting the global shift from criminalization to decriminalization and legitimization. The article finds that- historically, cannabis has been utilized for over 6,000 years across various cultures22, with substantial evidence especially from classical Islamic literature and medieval Arabic scholars documenting its therapeutic benefits for conditions such as neuropathic pain, epilepsy, and depression23. These early insights align with modern clinical studies that validate cannabis's efficacy in managing chronic pain, nausea in chemotherapy patients25, muscle spasticity in multiple sclerosis, and seizure control in epilepsy26. However, the article underscores that alongside these benefits, medicinal cannabis carries risks, including dizziness, cognitive impairment, and potential dependence, necessitating careful medical supervision. This historical and scientific

foundation supports the ongoing paradigmatic shift toward legitimizing cannabis for medical purposes in various countries, as its therapeutic potential gains recognition.

The recreational use of cannabis, particularly among adolescents, presents a contrasting perspective, often perceived as a harmless rite of passage but deemed morally problematic from a virtue ethics standpoint, drawing on St. Thomas Aquinas's theological synthesis27. The article finds that recreational cannabis use, associated with intoxication, can be detrimental to well-being, underscoring some obvious risks such as psychosis, anxiety disorders, and cognitive issues, particularly in young users. In Caribbean countries such as Jamaica and some other Caribbean countries, where cannabis is deeply embedded in cultural practices28, its recreational use extends beyond the Rastafarian religious context, driven by social factors like peer pressure and gender norms, with boys engaging due to greater social opportunities and expectations of "toughness37." This widespread recreational use, coupled with increasing global consumption (183 million users reported in 2014 by the UN)31, complicates the shift toward decriminalization, as countries grapple with balancing individual freedoms against public health concerns, prompting reforms in places like Jamaica, Barbados, Belize, and Antigua and Barbuda, where possession of small amounts has been decriminalized.

Religiously, cannabis holds a sacred role in Rastafarianism, particularly in Jamaica, where it is revered as the "holy herb" or "wisdom weed," believed to facilitate spiritual communion, divine revelation, and liberation from societal oppression39. The article detailed the ritualistic preparation and use of cannabis in Rastafarian practices, drawing on biblical references to justify its sacramental significance. This religious legitimization contrasts sharply with the prohibitive stance of many Muslim nations, where cannabis use, even for medicinal purposes, faces severe penalties22. The religious dimension underscores the complexity of cannabis policy

reform, as cultural and spiritual values influence the move toward decriminalization in Caribbean nations, where religious use is increasingly accommodated alongside medical and scientific applications, reflecting a broader global trend of reevaluating cannabis's legal status.

The article examined the regulatory frameworks in the Caribbean and Africa, illustrating the shift from prohibition to decriminalization and legitimization. In Jamaica for example, the 2015 amendment to the Dangerous Drugs Act decriminalized possession of up to 56 grams and permitted cultivation for medical research, while Belize and Antigua and Barbuda followed with reforms allowing limited possession52. In Africa, Nigeria upholds a stringent prohibitionist stance despite its significant role in global cannabis production, while Ghana's 2020 Narcotics Control Commission Act legalized cultivation for medical and industrial purposes, aligning with global trends84. These reforms reflect a fractured consensus in global drug control, moving away from the prohibitionist norms of the UN's 1961 and 1971 conventions54, driven by economic potential and recognition of cannabis's medicinal value, though challenges like regulatory capacity and public health risks persist.

The prospects and challenges of cannabis use highlight the tension between its therapeutic promise and societal risks, central to the global shift toward legitimization. The article notes that cannabis's medical applications, supported by historical and modern evidence, offer significant benefits, yet its rising recreational use, particularly among youth, raises concerns about mental health issues, including psychosis and addiction114115. The growing acceptance of cannabis as a medicine may inadvertently increase recreational use, especially in liberalized regions, complicating policy efforts to balance therapeutic access with harm prevention. In Nigeria, repressive enforcement continues to marginalize cannabis farmers and traders77, while Ghana's legalization efforts face hurdles like inadequate regulatory

infrastructure. The article advocates for inclusive policy reforms that engage local communities and address socioeconomic factors, ensuring that the shift toward decriminalization and legitimization prioritizes both medical benefits and public health, aligning with the evolving global perspective on cannabis.

This article has also delved into the multifaceted nature of cannabis, tracing its historical medicinal applications from ancient and Islamic civilizations to its contemporary roles and challenges in regions such as the Caribbean, and Africa. By evaluating its therapeutic potential, cultural significance, regulatory frameworks, and socioeconomic impacts, the article illuminated cannabis's intricate position in global health, policy, and society. Historical accounts from medieval Islamic scholars94, substantiated by modern clinical research, confirm cannabis's efficacy in treating conditions like neuropathic pain, epilepsy, and psychiatric disorders. However, its widespread recreational use, particularly among adolescents, raises critical public health concerns, including risks of addiction, cognitive impairment, and mental health disorders. The article also highlighted diverse regulatory approaches, from Jamaica's decriminalization and Rastafarian sacramental use to Nigeria's stringent prohibition and Ghana's cautious steps toward medical and industrial legalization.

Exploring these dynamics within the context of global and regional shifts in cannabis policy, this analysis underscored the need for balanced, evidence-based approaches to regulation. By integrating historical, pharmacological, cultural, and policy perspectives, it advocated for frameworks that reconcile cannabis's therapeutic benefits with the risks of misuse, particularly in vulnerable populations. These frameworks must also address socioeconomic inequities faced by communities engaged in illicit cannabis markets, ensuring their inclusion in policy reform processes. Moving forward, collaboration among policymakers, clinicians, and researchers

would be vital to establish systems that promote safe access to medical cannabis, mitigate public health risks, and reflect the voices of marginalized stakeholders. Sustained research and vigilant monitoring will be essential to navigate the evolving global landscape of cannabis use, fostering equitable and sustainable outcomes for societies worldwide.

(vi) Recommendations and Suggestions

The multifaceted nature of cannabis, encompassing its medicinal promise, cultural significance, and public health challenges, necessitates comprehensive and evidence-based policy approaches. The following recommendations address the diverse regulatory landscapes in regions like the Caribbean and Africa aiming to maximize therapeutic benefits, mitigate risks associated with recreational use, and promote socioeconomic equity. These suggestions are designed to foster evidence-based, inclusive, sustainable, equitable approaches, and culturally sensitive frameworks that balance global trends with regional realities.

Adopt Phased Regulatory Reforms

Countries with stringent cannabis prohibitions, such as Nigeria, should consider incremental liberalization models, drawing on Jamaica's and Ghana's experiences. A phased approach could begin with approving cannabis-derived medicines for specific conditions, such as epilepsy or chronic pain, followed by regulated cultivation and distribution of raw forms, tinctures, or oils. Robust licensing systems, aligned with Ghana's Narcotics Control Commission Act, should enforce THC limits (e.g., 0.3% for industrial hemp) and ensure compliance. Investments in forensic laboratories for quality control and mandatory prescriptions by registered practitioners will enhance safety and efficacy, minimizing risks like dependency or cognitive impairment.

Strengthen Public Health Interventions

The risks of recreational cannabis use, particularly among adolescents, demand proactive public health measures. Governments should launch targeted education campaigns to dispel myths about cannabis as a harmless substance, highlighting risks of addiction, psychosis, and cognitive effects, as evidenced by studies like the National Epidemiologic Survey on Alcohol and Related Conditions. Screening programs in schools and healthcare settings can identify at-risk individuals, especially those predisposed to mental health disorders, enabling early interventions. Harm reduction strategies, modeled on opioid dependence programs, should provide counseling and access to regulated products in legal markets to support individuals with cannabis use disorders.

Integrate Cultural and Religious Contexts

In Caribbean countries like Jamaica, where cannabis holds deep cultural and religious significance within Rastafarianism, policies must respect these practices. Regulated exemptions for sacramental use, as permitted under Jamaica's Dangerous Drugs Act, can balance spiritual needs with oversight to prevent diversion to recreational markets. Engaging cultural and religious leaders in policy design will foster community trust and reduce resistance to reforms. Such consultations ensure regulations align with traditional practices, enhancing their legitimacy and effectiveness in diverse sociocultural contexts.

Address Socioeconomic Inequities

To support communities engaged in illicit cannabis markets, particularly in Nigeria, reforms must prioritize economic inclusion. Policymakers should involve farmers, traders, and users in policy dialogues to reflect their livelihood needs, as Nigerian research emphasizes. Replacing ineffective crop-substitution programs with sustainable initiatives, such as training for legal cannabis cultivation or alternative agricultural ventures, can transition illicit actors into regulated

economies. Leveraging cannabis legalization for economic growth, as Ghana projects with potential $3 billion in exports, requires investments in local industries like pharmaceuticals and textiles to create jobs and alleviate poverty.

Advance Research and Data Collection

Bridging knowledge gaps in African and Caribbean contexts requires robust research investment. Clinical trials should validate historical uses of cannabis (e.g., for ear infections or antiparasitic effects) and assess long-term medical outcomes, building on medieval Islamic insights and modern evidence. Region-specific epidemiological surveys, addressing the data scarcity noted in UNODC (2022), can track usage patterns and health impacts. Policy impact assessments in decriminalized regions like Jamaica and Belize will inform adaptive reforms, ensuring policies respond to unintended consequences and local needs.

Foster Regional and Global Collaboration

Caribbean and African nations should leverage regional bodies like CARICOM and the African Union to harmonize cannabis policies. Expanding CARICOM's Regional Commission on Marijuana to share best practices on medical cannabis regulation and public health strategies will promote coordinated approaches. Globally, advocating for revisions to outdated UN drug control conventions, such as the 1961 Single Convention on Narcotic Drugs, will reduce barriers to research and access in prohibitionist countries like Nigeria. Such collaboration ensures policies reflect current evidence and regional priorities, enhancing their effectiveness.

Empower Pharmacists and Clinicians

As pharmacists and clinicians play pivotal roles in public health, specialized training and guidelines are essential for managing medical cannabis. Integrating cannabis pharmacology and risk management into medical and pharmacy curricula will equip professionals to counsel

patients effectively. Standardized clinical protocols for prescribing cannabis, specifying dosage, indications, and contraindications, will minimize adverse effects and ensure therapeutic benefits. These measures, coupled with ongoing monitoring, will support safe and informed use of medical cannabis in diverse healthcare settings.

Ensure Effective Implementation

Successful implementation requires adequate resources for enforcement, monitoring, and evaluation, alongside public-private partnerships to develop infrastructure like testing labs and cultivation facilities. Incremental reforms, as proposed for Barbados, allow policymakers to assess impacts and adapt to local contexts. Transparency through public reporting on licensing and enforcement will build trust and ensure equitable access. By prioritizing evidence, inclusivity, and cultural sensitivity, these recommendations can harness cannabis's therapeutic and economic potential while safeguarding public health and addressing inequities in global drug policy.