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Evaluation and Implementation of Intervention Strategy for Health Information Deficiency among Inhabitants in Underserved Communities in Uburu, Ebonyi State, Nigeria

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Abstract
Health information remains a significant factor in informed health decision making and healthy behaviour. However, this information type seems to be inadequately available among the underserved population, resulting in Health Information Deficiency (HID). To evaluate the level of HID among an underserved population and evaluate the effectiveness of an intervention executed to address the identified deficiency across five health categories (family health, disease management & healthy living, drug usage & self-help, alternative medicine & health myths, and access to health information & providers). The study adopted a quasi-experimental research design for a population of 75 inhabitants in the underserved communities in Uburu, Ohaozara L.G.A, Ebonyi State. A questionnaire (HID Scale) was used to elicit data for both pre and post intervention. The intervention was a structured training program across the five health categories. Descriptive and comparative analysis were used as the methods of data analysis. The study found a high level of HID as indicated by a pre-intervention mean score of 2.75. This suggests that the underserved inhabitants lack adequate health information across the five health categories. After the intervention (training program), the HID mean score reduced to 1.91, depicting the intervention's effectiveness across each category. Also, the study found a statistically significant mean difference in the HID level between pre- and post- intervention, indicating that training program is an effective intervention for addressing HID. Training intervention is an effective strategy to lower the HID of underserved population towards informed health decision-making and better health outcomes.
Keywords: *Health information deficiency (HID), health literacy, health outcomes, underserved communities, underserved population*

1.1 Introduction

Health information is critical to making effective health-related decisions that impact on the tripartite (physical, cognitive, and behavioral) wellness of people. However, there seems to be a lack of access to health-related information with adverse effects on wellness and healthy living. The National Health Policy of 2016 reflects the essence of access to health information in promoting the health of Nigerians. Royston et al. (2020) affirmed that the universal access to essential health information is a prerequisite for universal health coverage (UHC) and is

critical for achieving health targets within the Sustainable Development Goals (SDGs). Royston et al added that this access to essential health information seems to be largely neglected. Such neglect could degenerate into Health Information Deficiency (HID), an health-dimension of information deficiency.

The concept of information deficiency connotes a gap or shortage between the information required to make informed decisions or undertake appropriate actions and the information that is actually available, accessible or usable to an individual at a given time. One of the foremost studies on information deficiency was carried out by Srinivasan and Kaiser in 1981, where the authors asserted that information deficiency is the gap that exists between the need strength and perception of availability of a particular category of information (Srinivasan & Kaiser, 1981). By implication, information deficiency is said to exist when people do not have the particular information that they perceive to be important to their lives. The level of information deficiency will be high when there is high perceived importance of information and a high perceived level of difficulty to access such information. Thus, providing access to the required information becomes an effective strategy to addressing information deficiency, especially as it relate to health and well-being. The need for healthy living by all and sundry has placed a high level of importance on health-related information, which is crucial for good health. This means a large proportion of the populace places a high-level priority on access to health information. However, Olaiya et al. (2022) noted that there are health disparities exacerbated by difficulties in accessing health information, especially among people in rural communities.

Health information deficiency is a condition characterized by the lack of requisite health information, both in quantity and quality, needed to make informed health decisions. When the health information supplied in response to specific needs does not match up with the information demanded or required, there is said to be HID. This lack of information is a hindrance to achieving good health and well-being as enshrined in Goal 3 of the United Nations sustainable development framework. There are indications of struggle to access health information for informed health decision-making by a large number of people across socio-economic levels (Obaremi & Olatokun, 2022), suggesting a high prevalence of HID, which impedes global efforts for sustainable health. This condition is even more severe among inhabitants of underserved communities who do not have access to healthcare services and are more affected by perennial issues like lack of internet access, high illiteracy level, prevalence of health myths and misconceptions, and poor health literacy level.

Poor health literacy is considered to significantly affect people's ability to access quality health information (Afolabi & Ilesanmi, 2022). They further noted that most of the health information resources are not tailored to the cultural, linguistic, and educational realities of people in most underserved communities, which adversely affect effective use of these resources. Poor healthy information literacy account for why people in such communities are unable to access and use health information resources (Obaremi & Olatokun, 2022). Therefore, dwellers of underserved communities seem disadvantaged with access to health information. They also find it difficult to understand health information and instructions from healthcare providers (Rural Health Information Hub, 2022), exposing them to health challenges.

There is therefore an urgent need for interventions, such as structured training program, aimed at improving the inflow of relevant, accurate, and timely health information to meet the information needs of inhabitants in underserved communities. Such intervention is expected to provide adequate

information on core aspects or categories of health like family health; disease and healthy living; drug administration and self-help; alternative medicine and health myths; & access to health information and providers. Such training programmes is expected to bridge the health information gap among dwellers in underserved communities in Uburu, which is one of the districts in Ohaozara Local Government Area (L.G.A), Ebonyi State, Nigeria. Although there is a dearth of documentation on the level of health literacy in the area, studies like that of Zibima et al. (2021) have generally shown a low level of health literacy in rural areas in Nigeria. This has implications for HID and the subsequent need for intervention. This study therefore evaluates the HID among inhabitants of the underserved communities and implements an intervention strategy (a well-structured training program) to address this deficiency as a stride towards increasing the supply of relevant and accurate health information for their good health and well-being.

Preliminary observation revealed that the inhabitants of the underserved communities in Uburu, Ebonyi State, lack health-related information, which creates a deficiency that requires intervention. Also, the majority of them are not familiar with health information systems and sources from which they can access health-related information. This further exposes them to all forms of health risks that could undermine their healthy living. Moreover, there is a dearth of studies on health information generally in Ebonyi State and particularly among rural dwellers, who are often more susceptible to health challenges. This lack of scholarly exploration makes it difficult to make policies and take informed decisions regarding the health information management of these dwellers. This is why Public Library of Science (PLOS) Medicine Editors (2013) advocated for the need to put a spotlight on the lack of access to health information. Despite the importance of health information and the need to fill existing health information gaps among people, the concept of HID has been neglected and has also not received adequate scholarly attention, which creates a knowledge gap. This study therefore fills such a gap in knowledge while implementing the intervention strategy necessary to increase the inflow of health information available to inhabitants of underserved communities in Uburu, Ebonyi State, Nigeria.

Uburu is one of the three districts in Ohaozara L.G.A. of Ebonyi State, with the other two being Okoposi, and Ugwu-Langwu. Each of the districts has villages under them and these districts vary in terms of population and access to basic healthcare services. In Uburu district which is the biggest in the L.G.A, and also the focus of this study, there are underserved communities (Ihenu, Urobo and Mgbom-Okposi) who are disadvantaged in terms of access to healthcare service, infrastructure and information.

1.2 Objectives of the Study

The main objective of the study is to examine the HID of inhabitants in underserved communities in Uburu, and to assess an intervention strategy that will address the deficiency. To achieve this, the specific objectives of the study are to:

i. Ascertain the level of HID (pre and post-intervention) among the inhabitants in the underserved communities in Uburu, Ebonyi St
ii. Evaluate the effectiveness of the intervention strategy (training programme) adopted to address the HID among the inhabitants in the underserved communities in Uburu, Ebonyi State, Nigeria.

2.1 Literature Review

It is noted at the introductory part of the study that there is a dearth of literature on the concept of HID, which makes it challenging to

have a handful of literature to review. However, certain concepts that serve as a pointer to HID or help describe HID will be examined, and inferences will be made accordingly. The study of Afolabi and Ilesanmi (2022) examined health literacy related to COVID-19 in both rural and urban communities in Nigeria. A descriptive cross-sectional design was adopted for a population of adults ($\geq$18 years) in Ondo State. The study, among other things, showed the urban-rural comparison in terms of health literacy. Health literacy was higher among urban dwellers (49.7%) compared to rural dwellers (40.6%), which shows a 9.1% discrepancy in favor of urban dwellers. The authors concluded that rural dwellers have limited access to health information sources when compared to urban dwellers. The study therefore implied that rural dwellers are not getting sufficient health information, a state of health information deficiency occasioned by their level of health literacy. This deduction is backed up by the assertion of Uzochukwu and Onwujekwe in Egbunu and Yunusa (2022) that health education promotes general access to health information.

It has been established that HID could occur when the health information needed in a particular category exceeds the health information available or received. This seems to have been the case in the study of Efe (2020) when the author examined the COVID-19 information-seeking strategies of rural dwellers in Delta North, Nigeria. The study revealed that the respondents' preferred sources of COVID-19 information were majorly family members/friends, mass media (television, radio, newspapers, etc.), and herbal doctors/traditional healers, accordingly. Their preference for close relatives and traditionalists as their preferred source of health information could inadvertently cause HID. This is because they will be deprived of the accurate or best possible information to make health decisions about COVID-19. No wonder the respondents indicated that too much fake news about COVID-19 was the most critical challenge that hindered their access to and use of COVID-19 information. It can be deduced that the fake news they were challenged with was the product of their preferred source of information. Such sources of information cannot provide the authentic and sufficient information the rural dwellers needed to combat and survive the COVID-19 pandemic. This implies that the rural dwellers had a high level of HID about COVID-19 during the pandemic. It is worthy of mention that such a situation could be applicable to other health-related issues confronting the rural dwellers.

On the socio-economic factors that predict health information deficiency among the rural dwellers, the Zhu et al. (2021) study is found insightful in making inferences. The study, which examined the factors that influence how health information is accessed, adopted a mixed-methods research design. For a population that cut across 435 Chinese rural residents. The study showed the correlation between some socio-demographic factors and access to health information among rural dwellers. Results revealed that age and education had positive relationships with access to health information. Also, the income level of the rural dwellers predicted their access to health information. The rural residents who worked or studied more from home had more tendency to access health information, implying that the nature of work or study mode can influence access to health information. Although the study was conducted in China, where their rural dwellers could vary in attributes when compared to rural dwellers in Nigeria, the study had, however, established that socio-demographic factors are capable of predicting access to health information and, as such, become a factor to consider in addressing HID.

Another study in China conducted by Tang et al. (2022) on the release and demand of

public health information affirmed that information release or supply is critical during periods of public health emergencies like the COVID-19 outbreak. The authors asserted that "when the supply of information is less than the demand, it means that released information cannot meet the demand from the public; therefore, the overall value is at a low level" (p.3), which is the underlying assumption of HID. The study, which explored 4,000 posts on social media platforms during the pandemic, revealed that there were severe mismatches between the information supplied and the public health information that was demanded during the pandemic. Thus, since the public health information supplied did not match what was demanded, HID is said to have occurred among the students' respondents.

Obaremi and Olatokun (2022) carried out a study for which one of the objectives was to examine the factors responsible for lack of access to health information required to meet the health needs of rural dwellers. The study, which purposively selected five rural communities in Oyo State, Nigeria, employed an interview technique to elicit data from the respondents. The analyzed responses revealed that socio-economic factors like money (financial condition) and illiteracy adversely affected the rural dwellers' access to health information. Money was a factor because they seek such information in healthcare centers and hospitals, which might be fee-based. The authors conclusively opined that medical library services in rural areas would promote access to health information and address health literacy issues among the dwellers.

The challenges faced by rural dwellers in accessing health information form the crux of Sokey and Adisah-Atta (2017)'s investigation. The case study, which was carried out using the Shai Osudoku District in Ghana, purposively sampled 210 rural dwellers in the District. Some of the challenges to the respondents' access to health information were language barriers, poor/unreliable information infrastructure, and lack of access to mobile phones, TVs, and new technologies. The rural dwellers search for information mainly through posters, healthcare providers, families/friends, and radio. The study also revealed that level of education was a determining factor in using the internet and television for health information access.

A study by Morgan-Daniel et al. (2020) carried out in the United States of America affirmed that the health disparities experienced by rural dwellers are due to the barriers that hinder access to reliable health information. The study, though conceptual, provides knowledge on resources and strategies for improving the accessibility to health information among rural dwellers, which would invariably close the information gap that causes HID. These strategies include assessing rural health information needs, making available information resources for specific rural population groups, making available information resources on specific health issues for the rural dwellers, and creating health websites for organizations working with rural populations. Moreover, perennial issues like lack of electricity, poor network connectivity, and lack of basic education can be manipulated to address HID among rural dwellers.

3.1 Research Methodology

The study adopted a quasi-experimental (one-group pretest–posttest) research design involving inhabitants of underserved communities in Uburu. Due to the absence of a clearly defined population or reliable sampling frame, a non-probability sampling approach was employed. Specifically, convenience sampling was used to recruit participants who were readily accessible, available, and willing to participate. Participants were drawn from workplaces and places of worship to ensure a heterogeneous sample, capturing variation across age groups, gender, and socio-economic backgrounds.

All potential participants were informed about the purpose and nature of the study, and only those who provided consent were included. A total of 75 participants completed both the baseline and post-intervention phases and were included in the final analysis. Given the pretest–posttest design, this sample size was considered adequate to detect within-subject changes over time. While the sample size may limit generalizability, it is consistent with community-based intervention and feasibility studies conducted in underserved settings, providing context-specific insights into addressing health information deficiencies in the study area.

In order to elicit data from the participants of the study, a structured questionnaire used to elicit data from the participants. The questionnaire was developed from a thorough perusal of relevant literature. The HID scale is a multi-dimensional scale with five subscales (family health scale; disease management and healthy living scale; drug usage and self-help scale; alternative medicine and health myths scale; and access to health information and providers scale). The HID scale was used for both the pre-intervention and post-intervention (pre- and post-assessment). The HID subscales contain five (5) items each with a three-point response format chosen for its conciseness and simplicity, considered most appropriate due to the nature of the respondents.

The HID scale was pretested ($\alpha = 0.81$) and administered to 75 participants in line with DUFUHS-UREC ethical guidelines. Baseline HID was assessed to guide a targeted training intervention, delivered twice. A post-test using the same scale evaluated changes in HID before and after the intervention. The questionnaire was analyzed using descriptive statistics (for demographics and objectives i) and comparative (difference) analysis (for objective ii). The descriptive statistics of frequency and percentage (%) were used to analyze the demographics, while mean (**x**) and Standard Deviation (SD) were used to analyze the level of HID. Comparative statistics of paired sample t-test was used to compare the pre- and post-intervention HID to ascertain the effectiveness of the intervention strategy. The analysis was achieved using Statistical Package for the Social Sciences (SPSS) Version 26.0.

4.1 Result Presentation and Interpretations

This section of the study presents the analysis of the data collected from the respondents. The result is presented according to the specific objectives of the study

Demographic Information of the Respondents

Table 1: Social-demographic variables of the underserved inhabitants of Uburu, Ebonyi State

Social-economic variable	Freq.	%	Social-economic variable	Freq.	%
Gender			Marital status		
Male	28	37.3	Single	25	33.3
Female	47	62.7	Married	46	61.3
Age			Divorce	4	5.3
18-22 years	1	1.3	Educational level		
23-27 years	16	21.3	No formal education	7	9.3
28-32 years	15	20.0	Primary education	10	13.3
33-37 years	16	21.3	Secondary education	36	48.0
38-42 years	9	12.0	Diploma	13	17.3
43-47 years	10	13.3	First degree	9	12.0
48-52 years	5	6.7	Income level/month		
53 years and above	3	4.0	Less than 50k	32	42.7
Nature of occupation			50k-100k	18	24.0
Unemployment	23	30.7	100k-150k	20	26.7
Self-employment	31	41.3	150k-200k	5	6.7
Civil servant	21	28.0	Total	75	100.0
Total	75	100.0			

Table 1 shows the social-demographic distribution of the underserved inhabitants of Uburu, Ebonyi State. The result suggests stronger female representation in the study population. Most of the participants are likely to have family responsibilities, which may influence their health information needs and decision making. The age distribution reveals that respondents are largely within the economically active population. The age distribution of the respondents indicated that the study primarily engaged young and middle aged adults. The respondents had varying levels of educational qualifications; however, most had attained only secondary education, suggesting predominantly low literacy levels in the study population. In terms of occupation, the respondents had mixed occupational profile with majority of them being self-employed, implying flexible schedules but variability in income level. This could corroborate why there was a relatively low income levels among a substantial proportion of respondents. In the overall, the socio-demographic profile of the respondents reflects a predominantly female, married, economically active, and moderately educated population with moderate income levels.

Research Objective 1: Ascertain the level of HID (pre and post-intervention) among the inhabitants in the underserved communities in Uburu, Ebonyi State, Nigeria;

Table 2: *Level of health information deficiency among underserved inhabitants of Uburu, Ebonyi State*

Categories of Health Information Deficiency (HID)	**Pre-intervention**		**Post-intervention**		**Decision**
	$\bar{x}$	**SD**	**$\bar{x}$**	**SD**	
Family health	2.74	.225	2.07	.515	Significant
Disease management and healthy living	2.75	.273	1.81	.471	Significant
Drug usage and self-help	2.78	.210	1.76	.430	Significant
Alternative medicine and health myths	2.78	.199	1.98	.389	Significant
Access to health information and providers	2.72	.254	1.92	.373	Significant
Average mean of HID	**2.75**		**1.91**		Significant
Weighted mean of HID = 2.33					

Rule*: If the mean of post-intervention of a construct is less than the mean of its corresponding pre-intervention, the intervention is significant.*

The result in Table 2 reveals the level of health information deficiency among underserved inhabitants of Uburu, Ebonyi State. The finding shows that in general, the weighted mean of 2.33 among the participants indicates high level of HID. Overall, the average mean of HID declined from 2.75 at pre intervention to 1.91 at post intervention, with statistical significance. The results indicate a substantial reduction in the level of HID among underserved inhabitants of Uburu, Ebonyi State following the intervention. Across all measured constructs, the post intervention mean scores are consistently lower than the pre intervention mean scores, and the decisions indicate statistical significance in each case. This pattern suggests that the intervention strategy was effective in improving health information and knowledge, and reducing health information gaps across the five categories of HID.

With respect to family health, the mean score declined from 2.74 (SD = 0.225) at the pre intervention stage to 2.07 (SD = 0.515) at the post intervention stage. This significant reduction implies that participants gained improved understanding of issues related to family health, including maternal and child health practices, hygiene, and preventive care. The increase in standard deviation at post intervention suggests some variability in the extent of improvement, although the overall direction remains positive. For disease management and healthy living, the mean decreased from 2.75 (SD = 0.273) to 1.81 (SD = 0.471). This represents one of the most pronounced improvements. The finding implies enhanced knowledge regarding prevention, recognition of symptoms, and lifestyle practices that promote wellbeing. The intervention appears to have strengthened participants' capacity to manage common health conditions and adopt healthier behaviours.

Similarly, the construct of drug usage and self-help recorded a reduction from 2.78 (SD = 0.210) to 1.76 (SD = 0.430). This substantial decline suggests that misconceptions regarding medication use, dosage, and self-medication practices were significantly reduced. Improved understanding in this domain is particularly important in underserved communities where inappropriate drug use and reliance on informal advice may be prevalent. In the area of alternative medicine and health myths, the mean score decreased from 2.78 (SD = 0.199) to 1.98 (SD = 0.389). This indicates that the intervention contributed to correcting misinformation and culturally entrenched health myths. Although the post intervention mean remains slightly higher than in some other constructs, the significant reduction demonstrates meaningful progress in addressing misinformation. Access to health information and providers also improved, with the mean decreasing from 2.72 (SD = 0.254) to 1.92 (SD = 0.373). This suggests increased awareness of available health information sources and health service providers, as well as improved ability to seek appropriate care. Such improvement is critical for long term health outcomes, as access to accurate information and professional services underpins effective health decision making.

Research Objective 2: Evaluate the effectiveness of the intervention strategy (training programme) adopted to address the HID among the inhabitants underserved communities in Uburu, Ebonyi State, Nigeria.

Table 3: Paired sample t-test of difference between pre- and post-intervention strategy for health information deficiency among underserved inhabitants in Uburu, Ebonyi state

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	PreHID	2.7536	75	.13966	.01613
	PostHID	1.9099	75	.27962	.03229

Paired Samples Correlations

	N	Correlation	Sig.

Pair 1	PreHID & PostHID	75	-.030	.795

Paired Samples Test

		Paired Differences						
					95% Confidence Interval of the Difference			
		Mean	Std. Deviation	Std. Error Mean	Lower	Upper	t	Sig. (2-tailed)
Pair 1	PreHID - PostHID	-.84373	.31634	.03653	-.91652	-.77095	23.098	.000

A paired samples t-test was conducted to determine the impact of the intervention strategy on HID levels, comparing the level of HID among inhabitants of underserved communities in Uburu, Ebonyi state, before and after the intervention strategy. The paired sample statistics revealed that, at pre-intervention stage (M = 2.75, SD =.140), the mean of HID level was decreased after the intervention (M = 1.91, SD =.280). The paired samples correlation indicates a non-statistical correlation between pre- and post- intervention strategy on HID levels (r =-.3, p > 0.05) underscoring the inconsistency in health information measurement across the paired observations (participants).

The paired samples test result reveal a statistically significant mean difference in HID level between pre- and post- intervention strategy on HID levels (M = -.844, SD =.316, 95% CI [-.917, -.771], t (74) = -23.1, p = . 000. This finding reveals a significant decrease in HID level following the intervention, emphasizing the effectiveness of the intervention strategy. Thus, the intervention significantly reduced HID, demonstrating its effectiveness, despite weak correlation between pre and post measures across participants.

5.1 Discussion of Findings

The outcome of the study suggests that training programs as an intervention strategy, aimed at equipping inhabitants of underserved communities with adequate and accurate health information, are effective in lowering HID. This implies that when these inhabitants have quality health information, they are better able to address issues relating to their family health, manage disease, and ensure healthy living. They are also able to engage in proper drug usage and better seek medical help, better understand the conditions surrounding the use of alternative medicine, and dispel culturally entrenched health myths. Also, they would have better access to health information and providers. These findings confirm earlier findings from Stormacq et al. (2020), where it was concluded through a systematic review of 21 studies that health information literacy intervention on socioeconomically disadvantaged people is a successful strategy to improve health-related outcomes. This intervention builds health information literacy competency among these people that translates into better preventive health practices and health-promoting behaviors.

The result of the study suggests that these inhabitants, through targeted interventions aimed at improving their health literacy, will likely demonstrate better preventive care practices encapsulated in most of the HID categories like family health, disease management & healthy living, drug usage & self-help, and access to health information and providers. This aligns with the study of Kanu et al. (2024), which revealed how community-based health education as an intervention

program for underserved populations helps address critical health issues like disease alleviation, encourages the practice of good health behavior, increases preventive care, and overall improvement in the health level of underserved populations.

At the individual construct level, the study revealed that the intervention successfully reduced HID related to family health. This finding corroborates previous studies that showed educational intervention and literacy training intervention have the potential to address family health issues like vaccination (Yazıcıoğlu et al., 2025), maternal health (Pérez-Wulff et al., 2024; Matovelo et al., 2022), emergency preparedness (Mulyana et al., 2024; Orkin et al., 2021), personal and household hygiene (Adebiyi et al., 2026; Widyasari et al., 2020), family nutrition (Mukarramah et al., 2026), and general health outcomes (Kanu et al., 2024). It is deduced that health information through organized training targeted at underserved populations is critical for ensuring their health and overall well-being. Moreover, this intervention could help the inhabitant improve disease management and promote healthy living. Prior studies (Zhang et al., 2025) showed significant improvement in people management and care for diseases and illness after similar interventions as evidence of the positive correlation between health literacy-based intervention and disease management. This has also significantly promoted a healthy lifestyle (Rani et al., 2025), implying that underserved populations with adequate, accurate, and relevant health information will make informed decisions and guided actions on health issues.

The post-intervention mean score for drug usage and self-help revealed that the intervention had the most effect across the five health categories. This suggests that the intervention would have a significant impact on how the underserved population better understands proper medication use, conditions for using prescribed and over-the-counter drugs, adherence to prescriptions, self-monitoring of health, and appropriately seeking help. This resonates with the study of Shalini and Solomon (2023), where a training program was used as an intervention for improved patient medication adherence. This implies that people are more likely to adhere to proper drug prescriptions and appropriate medication use when they have good health information (Kim et al., 2022; Silva et al., 2022), showing a significant correlation between training as an intervention strategy and drug usage & self-help category.

The study further revealed that the HID on alternative medicine and health myths decreased after the intervention, suggesting that the intervention was effective in addressing sociocultural and religious beliefs that contradict scientifically established health practices. Participants were furnished with accurate and evidence-based information concerning alternative medicine and treatments. The intervention exposes the myths surrounding alternative medicine to provide the underserved population with evidence-based health information for improved decision-making. This corroborates the study of Malik et al. (2022), where a training intervention significantly reduced COVID-19 myths among hospital sanitary workers. Similarly, health beliefs and practices on pregnancy among women were successfully changed through a medical education training program (Warner et al., 2024). While misconceptions on alternative medicine and health myths often flourish due to poor health literacy (Wilhelm & Euteneuer, 2021), such intervention offers the underserved population the right information to dispel falsehoods.

The difference in the pre- and post-intervention mean score also suggests that the knowledge gap on access to health information and providers for the participants was significantly bridged. The intervention program thus availed the participants the

required knowledge to identify credible sources of health information and appropriate healthcare services and providers for better health outcomes. Previous studies have affirmed that interpersonal training programs expand access to primary health care (Sieck et al., 2020) and significantly increase the health-information-seeking ability and self-efficacy of people within rural settings (Blaga et al., 2019). However, the finding contradicts that of Austin et al. (2024), which revealed that the training program did not significantly improve access to health information among underserved populations due to the limited sessions and poor attendance of participants. Thus, it suggests that the extent to which training intervention will have a significant impact on the underserved population, especially on the access to health information and providers category, could be influenced by program factors like duration and extent of participants' attendance. These factors and other implementation challenges need to be addressed for participants to optimize the intervention for improved health information literacy, which helps to lower HID for improved health and well-being.

Conclusion

The study set out to evaluate the level of HID among an underserved population and evaluate the effectiveness of an intervention executed to address the identified deficiency across five health categories. The study showed that the underserved populations had a significant gap in their knowledge-state due to inadequate health information which could compromise their health and well-being. This information gap in the health-domain of the underserved population requires information or knowledge-based interventions like training programs. This intervention provides them with need-based health information capable of reducing health information gaps, invariably stimulating informed health decision-making, encourage healthy behaviour and better health outcomes in the face of daunting perennial challenges faced by the underserved populations.

Limitations of the Study

The study seems to be the first training-based intervention targeted at addressing the HID of an underserved population in Nigeria. However, the study faced few limitations that need to be accounted for to guide further investigations in this area. First, the training was only conducted twice at different scheduled times which might not be sufficient to significantly boost the health information literacy of the participants enough to optimize the intervention. Other intervention-based investigations could provide a more robust training arrangements for better outcome. Also, the responses from the participants were perception-based as self-assessment HID scale was adopted for the study. Other studies could adopt an assessment test to validate participants' responses which could potentially reduce social desirability bias.

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