HEALTH INFORMATION UTILIZATION AMONG DIABETIC PATIENTS FOR MANAGING DIABETES MELLITUS IN TEACHING HOSPITALS IN THE NORTHWEST GEOPOLITICAL ZONE OF NIGERIA

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Abstract

This study examined health information utilization among diabetic patients for managing diabetes mellitus in the Northwest Geopolitical Zone of Nigeria. Specifically, the study sought to determine the health information sources available to diabetic patients, assess the extent to which the available health information sources were utilized, and identify the challenges associated with the utilization of health information for managing diabetes mellitus in the Northwest Geopolitical Zone of Nigeria. The study adopted a descriptive survey research design. The population comprised 30,265 diabetic patients registered with teaching hospitals in the Northwest Geopolitical Zone of Nigeria. The Krejcie and Morgan sampling technique was used to determine a sample size of 380 diabetic patients from seven teaching hospitals in the zone. Data were collected using a self-designed questionnaire and analysed using descriptive statistics, including frequency counts and percentages. The findings revealed that diabetic patients obtained health information from various sources, particularly booklets, leaflets, and brochures provided by clinics and healthcare professionals, as well as radio and television. The study also revealed that major challenges associated with the utilization of health information resources included inadequate hard-copy materials, insufficient health professionals, difficulty understanding health information, and reluctance to rely solely on reading for managing diabetes mellitus. The study concluded that health information resources play a critical role in supporting the health and management of diabetic patients. It therefore recommended that the management of teaching hospitals should continue to provide informative booklets, brochures, and leaflets in diabetic units and hospital libraries, while also strengthening access to reliable digital and broadcast health information.

Keywords: Diabetes mellitus, diabetic patients, teaching hospitals, health information, utilization, Northwest Geopolitical Zone

Introduction

Diabetes, commonly referred to by medical professionals as diabetes mellitus, is a group of metabolic diseases characterized by elevated blood glucose levels over a prolonged period. Diabetes significantly increases the risk of premature death (WHO, 2013). According to the International Diabetes Federation (2019), diabetes contributes substantially to mortality worldwide. The increasing prevalence and associated complications of diabetes have attracted considerable attention from researchers and healthcare professionals globally.

People living with diabetes are commonly referred to as diabetic patients. Since diabetes is associated with persistently elevated blood glucose levels, access to relevant and reliable health information is essential for supporting the health and well-being of affected individuals. Diabetes is sometimes considered an under-resourced and under-valued component of chronic disease management, partly because of inadequate attention to its complications, insufficient knowledge, and limited access to appropriate support, advice, and treatment. These factors can have significant implications for the quality of life of people living with diabetes.

Health information utilization refers to the process through which individuals, patients, or healthcare professionals access, understand, evaluate, and apply health-related information to make informed decisions concerning health promotion, disease prevention, treatment, and disease management. The utilization of health information sources equips diabetic patients with knowledge about potential complications of diabetes and preventive measures for reducing associated risks (Addo & Agyepong, 2024). By understanding the importance of routine medical check-ups, eye examinations, foot care, dietary practices, and other preventive strategies, individuals can take proactive steps to minimize the effects of diabetes-related complications and maintain optimal health.

Effective utilization of health information can also empower diabetic patients to participate actively in decisions concerning their health. Patients who possess relevant information are better positioned to engage in discussions with healthcare professionals, ask appropriate questions, seek clarification, and express their concerns. Therefore, this study investigates the utilization of health information for managing diabetes mellitus among diabetic patients in teaching hospitals in the Northwest Geopolitical Zone of Nigeria.

Statement of the Problem

Effective management of diabetes mellitus depends largely on patients' ability to access, understand, evaluate, and utilize relevant health information. However, despite the critical role of information in disease management, there is growing concern that diabetic patients in teaching hospitals in Northwest Nigeria may not have adequate access to the information required to manage their condition effectively. Many patients remain uncertain about essential aspects of diabetes management, including appropriate dietary practices, prevention of complications, medication adherence, and lifestyle modifications. This suggests that important information needs of diabetic patients may remain inadequately addressed.

Obera (2023) reported that many Nigerians have lost their lives as a result of diabetes-related complications, including heart attacks and kidney failure, while others have experienced blindness. Such outcomes have been associated with inadequate disease management, limited access to medical check-ups, insufficient awareness of diabetes complications, and inadequate knowledge of appropriate health behaviour. Many of these complications can potentially be reduced through appropriate health education, increased awareness, early detection, and effective disease-management practices.

Observations also suggest that some diabetic patients in the region experience difficulties accessing resources and sources containing

relevant health information. These difficulties may be associated with illiteracy, limited access to information resources, discouraging previous experiences, and perceived nonchalant attitudes of some healthcare professionals or providers. Some patients may also lack awareness of the existence of relevant information resources, making it difficult for them to articulate their information needs or identify appropriate sources.

These challenges may limit the ability of diabetic patients to obtain and utilize appropriate health information for effective disease management. Consequently, there is a need for empirical investigation into the sources of health information available to diabetic patients, the extent to which such information is utilized, and the challenges associated with its utilization in teaching hospitals in the Northwest Geopolitical Zone of Nigeria.

Research Questions

The study seeks to answer the following research questions:

1. What sources of health information are available to diabetic patients to satisfy their information needs in the Northwest Geopolitical Zone of Nigeria?
2. To what extent are the available health information sources utilized by diabetic patients to satisfy their information needs?
3. What is the frequency of utilization of health information for managing diabetes mellitus among diabetic patients in the Northwest Geopolitical Zone of Nigeria?
4. What challenges are associated with the utilization of health information for managing diabetes mellitus in teaching hospitals in the Northwest Geopolitical Zone of Nigeria?

Literature Review

Health Information and Its Utilization

The increasing application of computer technology in healthcare has transformed the management and utilization of health information. The computerization of health records has gradually replaced traditional paper-based records with electronic health records, giving rise to the broader concept of health information management. Health information management involves the acquisition, analysis, storage, protection, and appropriate use of digital and traditional health information required for quality patient care (Janssen & Donnelly, 2024).

The availability of health information does not necessarily guarantee its effective utilization. Patients must be able to locate, understand, evaluate, and apply information appropriately to their health conditions. The Internet has become increasingly popular as a source of health information. However, failure to discuss information obtained online with healthcare providers may create problems, particularly where patients encounter inaccurate, misleading, or contradictory information.

Empirical Studies on Health Information Utilization among Diabetic Patients

Iorver (2020) assessed the utilization of health information resources by diabetic patients in Benue State, Nigeria. The objectives of the study were to investigate the types of health information resources available to diabetic patients, identify the sources through which they accessed health information, and determine the extent to which such information was utilized. The study adopted a descriptive research design, and the population comprised 1,698 registered diabetic patients in 2017 and 2018. A total of 324 copies of a structured questionnaire were administered by the researcher with the assistance of research assistants.

The findings revealed that some health information resources were highly utilized, including treatment fact sheets, medical posters, medical billboards, medical pamphlets, medical journals, and medical videos. However, medical books, brochures, medical cassettes, and microform resources were less utilized. The study concluded that the overall level of utilization of health information among diabetic patients in Benue State was relatively low. The study further revealed that medical practitioners, nurses, other health workers, television programmes, and radio programmes were the major sources of diabetes-related information for the patients.

The study by Iorver (2020) is related to the present study because both examine health information utilization among diabetic patients. However, the two studies differ in geographical coverage and study population. The present study focuses on diabetic patients in teaching hospitals within the Northwest Geopolitical Zone of Nigeria.

Methodology

The study adopted a quantitative research approach using a descriptive design of the cross-sectional survey type. The population comprised 30,265 diabetic patients registered with seven government-owned teaching hospitals in the Northwest Geopolitical Zone of Nigeria. A questionnaire was used as the instrument for data collection. The data collected were analysed using descriptive statistical tools, particularly frequency counts and percentages.

Results and Discussion of Findings

This section presents the findings of the study based on the analysis of the data collected from the respondents.

Response Rate

Table 1: Response Rate

Response Rate	Frequency	Percentage
Administered	380	100.0
Returned	342	90.0
Not Returned	38	10.0

A total of 380 copies of the questionnaire were distributed to the respondents. Of these, 342 copies, representing 90.0%, were returned and found suitable for analysis, while 38 copies, representing 10.0%, were not returned. The high response rate was achieved through consistent reminders and repeated visits to the respondents. Mugenda and Mugenda (2023) stated that a response rate of 50% is adequate for analysis and reporting, 60% is good, and 70% or above is excellent. Therefore, the 90.0% response rate achieved in the present study was considered adequate for analysis. Consequently, the analysis was based on the 342 usable copies of the questionnaire.

Demographic Characteristics of Respondents

Age of Respondents

Table 2: Age Distribution of Respondents

Age Range	Frequency	Percentage
10–19	63	18.4
20–29	64	18.7

Age Range	Frequency	Percentage
30–39	79	23.1
40–49	75	21.9
50 and above	61	17.8
Total	**342**	**100.0**

Table 2 shows the age distribution of the respondents. The largest proportion, 79 (23.1%), were aged 30–39 years. This was followed by 75 (21.9%) respondents aged 40–49 years, 64 (18.7%) aged 20–29 years, and 63 (18.4%) aged 10–19 years. The smallest proportion, 61 (17.8%), comprised respondents aged 50 years and above.

The findings indicate that the respondents represented different age categories, with those aged 30–39 years constituting the largest group.

Gender of Respondents

Table 3: Gender Distribution of Respondents

Gender	Frequency	Percentage
Male	163	47.4
Female	179	52.6
Total	**342**	**100.0**

Table 3 shows that 179 (52.6%) of the respondents were female, while 163 (47.4%) were male. Females therefore constituted the majority of the respondents. The findings also indicate that the study captured the views of both male and female diabetic patients.

Sources of health information available to diabetic patients

Table 4: Information Sources Available to Diabetic Patients

Information Source	Yes	No	Mean	Std. Deviation
Healthcare professionals	251 (73.7%)	91 (26.9%)	3.36	.501
Books, brochures, leaflets, etc. from clinics/healthcare professionals	182 (53.2%)	160 (46.8%)	1.48	.500
Magazines/Newspapers/News magazines	178 (52.0%)	164 (48.0%)	1.47	.500
Internet	172 (50.3%)	170 (49.7%)	1.50	.501
WhatsApp/Facebook groups	171 (50.0%)	171 (50.0%)	1.50	.501
Blogs	162 (47.4%)	180 (52.6%)	1.46	.500
Twitter/Instagram	171 (50.0%)	171 (50.0%)	1.50	.501
Diabetic Patients Association	153 (44.7%)	189 (55.3%)	1.55	.498
Other patients with diabetes	174 (50.9%)	168 (49.1%)	1.49	.501
Nutritionists	181 (52.9%)	161 (47.1%)	1.47	.500
Friends	182 (53.2%)	160 (46.8%)	1.47	.500
Family members	170 (49.7%)	172 (50.3%)	1.50	.501
Colleagues	158 (46.2%)	164 (53.6%)	1.54	.499
Radio/television	285 (84.1%)	67 (15.9%)	3.51	.501
NGOs	180 (52.6%)	162 (47.4%)	1.47	.500

Table 4 shows that radio and television were the most widely available sources of health information, with 285 (84.1%) respondents indicating that they had access to them. This was followed by healthcare professionals, reported by 251 (73.7%) respondents. Other notable sources included books, brochures and leaflets from clinics and healthcare professionals, reported by 182 (53.2%) respondents; friends, 182 (53.2%); nutritionists, 181 (52.9%); NGOs, 180 (52.6%); magazines and newspapers, 178

(52.0%); and other patients with diabetes, 174 (50.9%).

The Internet was reported by 172 (50.3%) respondents, while WhatsApp/Facebook groups and Twitter/Instagram were each reported by 171 (50.0%) respondents. Family members were reported by 170 (49.7%) respondents, while blogs were reported by 162 (47.4%). The Diabetic Patients Association was reported by 153 (44.7%) respondents, making it one of the less frequently reported sources.

The findings demonstrate that diabetic patients obtained health information from both formal and informal sources. Healthcare professionals and broadcast media emerged as particularly important sources of health information. This finding supports Anyaoku and Nwosu (2022), who emphasized the importance of access to health information in promoting appropriate self-care among patients.

Extent of Utilization of Available Information Sources

Table 5: Extent of Utilization of Information Sources

Extent of Utilization	Frequency	Percentage
Annually	14	5.1
Bi-annually	20	7.2
Monthly	27	8.1
Weekly	123	35.4
Daily	158	44.2
Total	**342**	**100.0**

Table 5 shows the extent to which respondents utilized available information sources. The largest proportion, 158 (44.2%), reported utilizing health information sources daily. This was followed by 123 (35.4%) respondents who reported weekly utilization. Furthermore, 27 (8.1%) utilized information sources monthly, 20 (7.2%) bi-annually, while 14 (5.1%) utilized them annually.

The findings indicate that a substantial proportion of the respondents utilized health information sources frequently, with daily and weekly utilization accounting for the largest proportions. This suggests a relatively high level of engagement with health information sources among the diabetic patients.

Frequency of Use of Health Information Sources

Table 6: Frequency of Use of Health Information Sources

Health Information Source	Multiple Times	Daily	Weekly	Monthly	Quarterly	Mean	Std. Deviation
Books	61 (17.6%)	77 (22.5%)	76 (22.2%)	72 (21.1%)	56 (16.4%)	3.04	1.344
Journal articles	65 (19.0%)	61 (17.6%)	81 (23.7%)	81 (23.7%)	54 (15.8%)	3.01	1.346
Brochures, leaflets, etc. from clinics/healthcare professionals	62 (18.1%)	69 (20.2%)	67 (19.6%)	69 (20.2%)	75 (21.9%)	2.92	1.416
Magazines/Newspapers/News magazines	74 (21.6%)	64 (18.7%)	73 (21.3%)	67 (19.6%)	64 (18.7%)	3.05	1.414
Internet	75 (21.9%)	72 (21.1%)	73 (21.3%)	62 (18.1%)	60 (17.5%)	3.12	1.401
WhatsApp groups	75 (21.9%)	76 (22.2%)	75 (21.9%)	58 (17.0%)	58 (17.0%)	3.15	1.389
Facebook pages/groups	63 (18.4%)	78 (22.8%)	69 (20.2%)	52 (15.2%)	80 (23.4%)	2.98	1.435
Blogs	77 (22.5%)	68 (19.9%)	72 (21.1%)	52 (15.2%)	73 (21.3%)	3.07	1.451
Twitter	58 (17.0%)	68 (19.9%)	78 (22.8%)	79 (23.1%)	59 (17.3%)	2.96	1.342
Instagram	70 (20.5%)	73 (21.3%)	61 (17.8%)	72 (21.1%)	66 (19.3%)	3.03	1.421
Health professionals	71 (20.8%)	63 (18.4%)	80 (23.4%)	56 (16.4%)	72 (21.1%)	3.01	1.423
Broadcast media (television/radio)	80 (23.4%)	72 (21.1%)	75 (21.9%)	61 (17.8%)	54 (15.8%)	3.18	1.388
Diabetic Patients Association	65 (19.0%)	65 (19.0%)	62 (18.1%)	85 (24.9%)	65 (19.0%)	2.96	1.389
Family and friends	57 (16.7%)	67 (19.6%)	72 (21.1%)	68 (19.9%)	78 (22.8%)	2.87	1.401
Diabetes seminars	60 (17.5%)	67 (19.6%)	66 (19.3%)	81 (23.7%)	68 (19.9%)	2.91	1.388
Other patients with diabetes	73 (21.3%)	60 (17.5%)	75 (21.9%)	67 (19.6%)	67 (19.6%)	3.01	1.419

Table 6 shows that ten of the sixteen information sources recorded mean scores equal to or above the criterion mean of 3.0. These included books (M = 3.04), journal articles (M=3.01), magazines/newspapers/news magazines (M = 3.05), Internet (M = 3.12), WhatsApp groups (M = 3.15), blogs (M = 3.07), Instagram (M = 3.03), health professionals (M = 3.01), broadcast

media (M = 3.18), and other patients with diabetes (M = 3.01).

However, six sources recorded mean scores below the criterion mean of 3.0. These were brochures and leaflets from clinics or healthcare professionals (M = 2.92), Facebook pages/groups (M = 2.98), Twitter (M = 2.96), Diabetic Patients Association (M = 2.96), family and friends (M = 2.87), and diabetes seminars (M = 2.91).

The overall weighted mean score of 3.01 was slightly higher than the criterion mean of 3.0. This indicates that the overall frequency of utilization of health information sources among the diabetic patients was relatively high.

Challenges Associated With the Utilization of Health Information for Managing Diabetes

Table 7: Challenges Associated with the Utilization of Health Information

Challenges	Yes	No	Mean	Std. Deviation
Lack of understanding of information due to scientific and medical terms	166 (48.5%)	176 (51.5%)	1.51	.501
Insufficient health professionals	176 (51.5%)	166 (48.5%)	1.49	.501
Lack of knowledge about information that can help with psychological problems	161 (47.1%)	181 (52.9%)	1.53	.500
Inability to read printed information	170 (49.7%)	172 (50.3%)	1.50	.501
Mistrust of modern health information sources	163 (47.7%)	179 (52.3%)	1.52	.500
Reluctance to rely on “just reading” for managing diabetes	178 (52.0%)	164 (48.0%)	1.48	.500
Lack of information resources related to diabetes	169 (49.4%)	173 (50.6%)	1.51	.501
Inadequate time to use bibliotherapy for managing diabetes mellitus	161 (47.1%)	181 (52.9%)	1.53	.500
Psychological issues	158 (46.2%)	184 (53.8%)	1.54	.499
Difficulty understanding the language of information	185 (54.1%)	157 (45.9%)	1.46	.499
Unfavourable attitudes of healthcare workers concerning the provision of needed information resources	166 (48.5%)	176 (51.5%)	1.51	.501
Lack of adequate diabetes programmes on radio and television	171 (50.0%)	171 (50.0%)	1.50	.501

Table 7 shows the challenges encountered by respondents in utilizing health information to satisfy their information needs. Difficulty in understanding the language of information was reported by 185 (54.1%) respondents and constituted the most frequently reported challenge. This was followed by insufficient health professionals, reported by 176 (51.5%) respondents, and reluctance to rely on "just reading" for managing diabetes, reported by 178 (52.0%) respondents.

Psychological issues were also identified as a challenge by 158 (46.2%) respondents. These findings suggest that challenges to effective health information utilization include both information-related factors, such as the complexity and availability of information, and patient- and service-related factors, such as literacy, trust, time, and access to healthcare professionals.

The finding is consistent with Lewis et al. (2015), who established that illiteracy can constitute a setback to bibliotherapy. The authors further reported that the prevalence of superstitious beliefs and preferences for surgical therapy, injections, or drugs among patients or their relatives may limit the recognition of bibliotherapy as a viable therapeutic approach.

Discussion of Findings

The findings of the study revealed that the major sources of health information available to diabetic patients included radio and television, healthcare professionals, colleagues, blogs, family members, other diabetic patients, WhatsApp and Facebook groups, the Internet, nutritionists, and friends. The prominence of these sources may be attributed to their accessibility and convenience.

Other challenges included inability to read printed information, lack of adequate diabetes programmes on radio and television, lack of information resources related to diabetes, lack of understanding of information because of scientific and medical terminology, mistrust of modern health information sources, and unfavourable attitudes of healthcare workers concerning the provision of needed information resources.

During data collection, the researchers observed that diabetic patients often received brochures, booklets, and leaflets from clinics when attending scheduled appointments. Similarly, the use of Internet-based platforms, including WhatsApp, Instagram, and Facebook, may be associated with their convenience, accessibility, and relatively low cost. These platforms provide opportunities for patients to access and exchange information relating to diabetes management.

The findings are consistent with Anyaoku and Nwosu (2022), who reported that digital sources, including online databases and search engines, were among the popular information sources used by diabetic physicians. Although their study involved a different population, the findings demonstrate the growing importance of digital sources in health information access and utilization.

The study also established that the frequency of utilization of health information sources among diabetic patients was relatively high. Broadcast media, the Internet, WhatsApp groups, Facebook groups, blogs, Instagram, magazines and newspapers, and information obtained from healthcare professionals were among the frequently utilized sources.

Responses obtained during the study suggested that some respondents preferred the Internet

because it provides an easily accessible avenue for searching for information. Similarly, some respondents joined WhatsApp and Facebook groups to remain informed about health-related information that could assist them in managing diabetes. The relatively high utilization of information from healthcare professionals may also be associated with the trust patients place in health professionals and their perceived expertise in diabetes management.

This finding is consistent with Mengists et al. (2021), who found that diabetic patients sought diabetes-related information primarily from health professionals. The study reported that patients considered health professionals to provide clear and easily understandable information and regarded them as accessible and trustworthy sources of diabetes information.

Similarly, people living with diabetes may consult family members, friends, and healthcare professionals for information and support relating to diabetes care. Younger patients and those with higher levels of education may also be more likely to utilize online information sources. This observation is supported by Silvanus et al. (2022), who examined factors influencing health-seeking behaviour among people with diabetes attending urban healthcare settings and found that respondents frequently consulted family members, friends, and healthcare professionals for information related to diabetes care and support.

Regarding the challenges associated with health information utilization, the study established that diabetic patients encountered several difficulties. These included insufficient healthcare professionals, inadequate diabetes programmes on radio and television, inadequate hard-copy information materials, difficulty understanding scientific and medical terminology, reluctance to rely solely on reading for diabetes management, and difficulty obtaining relevant information from people or literature.

Other challenges included psychological issues and mistrust of modern health information sources. These findings suggest that the availability of health information does not automatically translate into effective utilization. Patients must also possess the necessary literacy, comprehension, confidence, and support to interpret and apply information appropriately.

The digital environment presents an additional challenge in the form of information overload, sometimes referred to as “data smog.” The proliferation of websites, blogs, social media platforms, and other digital sources means that individuals seeking diabetes-related information may encounter an overwhelming volume of information. Conflicting, inaccurate, or unreliable information may create confusion and frustration and make it difficult for patients to determine which sources are trustworthy. Consequently, information overload may hinder effective health information seeking and utilization for diabetes management.

The study further revealed that inadequate diabetes-related programmes on radio and television constitute another challenge. Although the Internet is an important source of health information, traditional media platforms such as radio and television remain important channels for reaching diverse populations. However, the limited availability of diabetes-specific programmes, health talks, educational segments, and other public health programmes may restrict patients' access to relevant information through these widely accessible media.

The study further revealed that diabetes-related programmes were often concentrated around events such as World Diabetes Day. While such programmes can contribute to awareness,

their limited frequency may not provide sufficient and continuous health information for effective diabetes management. There is therefore a need for more regular and sustained diabetes-related educational programmes through radio and television.

Conclusion

Access to and utilization of health information continue to play important roles in healthcare and disease management. The availability of accurate and relevant health information can broaden opportunities for health education, improve awareness, support informed decision-making, and promote appropriate self-care practices.

Diabetes mellitus is a chronic and complex condition that can affect different systems of the body. Although the diagnosis of diabetes may be relatively straightforward, its long-term management can be complex. People living with diabetes should therefore be placed at the centre of the management of their condition and provided with appropriate information in forms and formats that suit their needs.

The goal of diabetes management is to enable people living with the condition to maintain their quality of life, limit disease progression, and prevent or reduce potentially life-threatening complications. For individuals already experiencing complications, appropriate information and support can help them manage those complications and reduce their impact on daily life.

The study concludes that health information resources play a critical role in supporting the management and well-being of diabetic patients. Access to relevant, reliable, understandable, and timely information can contribute to informed health decisions and improved diabetes-management practices. Therefore, healthcare institutions should ensure that diabetic patients have continuous access to appropriate health information through healthcare professionals, print resources, broadcast media, and reliable digital platforms.

Recommendations

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

1. Management of teaching hospitals should continue to provide high-quality and up-to-date booklets, brochures, leaflets, and other printed materials containing relevant information on diabetes management. These materials should be written in clear and understandable language appropriate for patients with different levels of health literacy.
2. Teaching hospitals should provide free or affordable Wi-Fi services in waiting areas and diabetic clinics where feasible. This would facilitate access to reliable health information through platforms such as WhatsApp, Facebook, and other appropriate digital resources.
3. Healthcare professionals should provide regular health education and information sessions for diabetic patients to complement printed and digital information resources. Such sessions should address dietary practices, medication adherence, lifestyle modification, prevention of complications, and appropriate use of health information.
4. Health institutions should encourage appropriate knowledge-sharing activities among diabetic patients, particularly among patients who have successfully developed effective diabetes-management practices. Such activities should be facilitated by healthcare professionals to ensure that the information shared is accurate and medically appropriate.
5. Management of the teaching hospitals should endeavour to provide adequate numbers of trained healthcare professionals

to meet the information and healthcare needs of diabetic patients.

6. Relevant health authorities and healthcare institutions should collaborate with radio and television stations to provide regular programmes on diabetes prevention, treatment, management, complications, nutrition, and healthy lifestyles rather than limiting diabetes-related programmes to special occasions such as World Diabetes Day.
7. There is a need to promote information-sharing activities among diabetic patients at different stages of the disease, particularly among patients who attend the same clinics. Such activities should be appropriately guided by healthcare professionals to ensure that shared information is accurate, evidence-based, and beneficial.

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