



Public Relations and Patients' Awareness of Nuclear Medicine in Public Teaching Hospitals in Rivers State, Nigeria

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ABSTRACT

Background: Nuclear medicine has proven to be a transformative tool in global healthcare; its awareness and adoption in Nigeria remain limited due to several factors, including insufficient public knowledge, misconceptions about radiation, inadequate infrastructure, and low accessibility to nuclear medicine facilities.

Objective: The study investigated the use of public relations as an effective tool for raising awareness of nuclear medicine in Nigeria.

Method: The study adopted a descriptive survey search design with a total population of 401. The population consisted of all patients in the Radioactive Unit at the University of Port Harcourt and the Rivers State University Teaching Hospitals in Port Harcourt, Rivers State. Given that the population was 401, the sample size was 401. There was no need for sampling because a census was adopted in the study. The study employed a questionnaire as the instrument for data collection. It used the weighted mean score on a 4-point Likert scale as the method of data analysis. The study used the Weighted Mean Score as the method of data presentation.

Result: The results revealed that press releases, press conferences and social media platforms were the major tools used public relation professional used in publicity for nuclear medicine; budget constraints, poor management of negative reports of PR and lack of compliance with modern technologies were the major challenges the public relations tools faced in creating awareness on nuclear medicine, the study also found press releases, press conferences and social media platforms as the major tools used by public relations as publicity for nuclear medicine. The study recommends that nuclear medicine in Nigeria employ the services of a public relations officer or firm to help them create awareness, build reputation, promote their image and manage information as well as crisis.

Conclusion: The study concluded that there is effectiveness in the awareness creation of nuclear medicine since such awareness helps to prevent harmful radiation or environmental risks, leading to low fear and resistance toward its use in healthcare.

Unique Contributions: The study highlights the importance of leveraging public relations tools such as media campaigns, community outreach, social media engagement, and stakeholder advocacy to create a favourable awareness of nuclear medicine and how awareness and its acceptance prevent harmful radiation or environmental risks, leading to low fear and resistance toward its use in healthcare.

Key recommendations: The study also recommends that public relations professionals should engage in media relations to create awareness of nuclear medicine in Nigeria

Keywords: Awareness, Effectiveness, Medicine, Nuclear, Public Relations



INTRODUCTION

Nuclear medicine is a specialised branch of medicine that uses radioactive substances for diagnosis, treatment, and research in various health conditions, such as cancer, cardiovascular diseases, and neurological disorders Ejeh, Oyedokun, Oladejo, Sikiru, Jabara, Adepoju, Onimod E(2023). It is a medical speciality involving the application of radioactive material to diagnose and determine the severity of, or treat a variety of diseases, including many types of cancers, heart diseases, gastrointestinal, endocrine, neurological disorders and other abnormalities within the body. Nuclear medicine procedures are able to pinpoint molecular activities within the body. They offer the potential to identify disease in its earliest stages as well as patients' immediate response to therapeutic intervention. While nuclear medicine has proven to be a transformative tool in global healthcare, its awareness and adoption in Nigeria remain limited due to several factors, including insufficient public knowledge, misconceptions about radiation, inadequate infrastructure, and low accessibility to nuclear medicine facilities.

Nigeria, being a developing country with increasing health challenges, stands to benefit significantly from the adoption and integration of nuclear medicine into its healthcare system. However, public awareness about its benefits, safety and application remains low. Many Nigerians associate nuclear technology with harmful radiation or environmental risks, leading to fear and resistance toward its use in healthcare (Kaprugwe et al, 2011). This lack of understanding often stems from poor dissemination of information and the absence of targeted communication strategies. Public Relations (PR) emerges as an essential tool to address these gaps by providing strategic communication, education, and engagement with various stakeholders, including the public, healthcare professionals, policymakers, and the media. PR can help dispel myths, highlight the benefits of nuclear medicine, and foster trust in its applications (Ahmadu, 2023). By leveraging tools such as media campaigns, community outreach, social media engagement, and stakeholder advocacy, PR can create a favourable environment for nuclear medicine's acceptance and utilisation in Nigeria. Public relations tools promote positive attitudes and behaviour towards nuclear medicine in Nigeria that will help convert interested consumers into customers. Through media relations, public relations can circulate messages of nuclear medicine using media channels to manage how nuclear medicine is portrayed by the Nigerians. Releasing media statements and fact sheets, offering on-site media tours to encourage journalists to report positive news about nuclear medicine in Nigeria

This study seeks to explore how PR strategies can be effectively used to create awareness about nuclear medicine in Nigeria, addressing misconceptions, educating the public, and encouraging acceptance of this innovation medical technology, It aims to contribute to the development of communication frameworks that bridge the gap between nuclear medicine experts, policymakers, and the general population, ultimately fostering a healthier society. Would you like to explore specific PR strategies or challenges for this initiative?



STATEMENT OF THE PROBLEM

Despite the transformative potential of nuclear medicine in diagnosing and treating complex health conditions such as cancer, heart disease, and neurological disorders, its adoption and utilisation in Nigeria remain extremely limited. This low uptake can be attributed to several interrelated challenges, including widespread misconceptions about nuclear technology, lack of public awareness, and insufficient communication about its benefits and safety. Many Nigerians associate nuclear technology with harmful radiation or nuclear weapons, leading to fear and mistrust of its medical applications. Additionally, healthcare professionals, policymakers, and the media often lack adequate knowledge to educate and advocate for nuclear medicine effectively. The absence of strategic communication frameworks has further exacerbated the gap between nuclear medicine experts and the general public. While nuclear medicine facilities and initiatives exist in Nigeria, they are underutilised due to poor information dissemination and limited public engagement. Without targeted efforts to address these misconceptions and raise awareness, nuclear medicine's potential to improve healthcare outcomes and save lives will remain largely unrealised. Public Relations (PR) offers a powerful solution to this problem by enabling strategic communication, stakeholder engagement, and public education. This study, therefore, seeks to address this gap by exploring how PR strategies can help dispel myths, educate the public, and create a favourable environment for nuclear medicine adoption in the country.

OBJECTIVES OF THE STUDY

- 1 Identify the public relations tools professionals in UPTH used to create information on nuclear medicine.
- 2 Determine the level of public awareness of the public relations tools in propagating Nuclear medicine.
- 3 Investigate the challenges public relations professionals face in creating awareness on nuclear medicine in Port Harcourt

RESEARCH QUESTIONS

1. What are the public relations tools professionals in UPTH used to create information on nuclear medicine?
2. What is the level of public awareness of the public relations tools in propagating Nuclear medicine?
3. What are the challenges public relations professionals face in creating awareness on nuclear medicine in Port Harcourt?



LITERATURE REVIEW

Public Relations

It is the professional maintenance of a favourable public image by a company or other organization or a famous person. Public relations is also the state of the relationship between a company or other organization or a famous person and the public. Public relations can be communicating your organisation's messages at the right audience. With the proliferation of tools and technologies, we can measure the value of those efforts and how they align with a business's overall mission. Public relations focuses on building good relations with the company's various publics by obtaining favourable publicity, building a good corporate image and handling crisis management issues. A public relations firm must be an expert in the use of social media.

Public relations communicates the news, influences the news, receives the news and responds to the news for the brand via the media. It's the art and science of talking to the right audience in the right voice. Public relations is the communication hub of an organisation. It influences and shapes a company's image, reputation, brand, Perception and culture. PR connects a brand and its public via direct messages or editorial media, including print, broadcast, radio, digital, video or social media. Before social media, a company had one voice; now social media encompasses an orchestra of voices that contribute to the company's image, reputation, brand perception and its public community. Public relations is the part of marketing and communications strategy that crafts an organisation's messages to its diverse public, including customers, prospects, investors, employees, suppliers, distributors, media/journalists, social media and the public.

These communications and their distribution must be search-friendly. Since every individual is essentially a publisher, complete with a media platform from which to broadcast their messages, organisations must monitor the social media landscape for keywords and brand mentions, be prepared to respond to emerging news 24/7 and have a crisis management plan ready. Today's public relations professional understands the intersection of content, social technologies and marketing in ways that achieve common public relations objectives, credibility, thought leadership and influence. It's less about managing information flow and pushing content, networking and engagement. Public relations is a highly strategic discipline that is integrated with marketing to achieve business goals. It positions companies and spokespeople with the key audience, whether internal or external. Public relations complements an integrated marketing campaign with measurable results garnered through media relations, social media, thought leadership, industry relations, investor relations and/or special events.

Public relations and healthcare

The concept of relations with the public represents a communication activity which in English is called public relations or PR for short. It is believed that this term was first used in the U.S from where it is used to spread to other countries. Public relations today is present in almost every area of life. One such area is the area of health. Health is today, without doubt, one of the most important areas of social activity. As such, it is exposed to numerous critics. The image of doctors and health institutions in the public is not even close to what health professionals want.



Various health institutions are shaken by the affairs associated with corruption and bribery. Doctors are linked to the stereotype that they are people who have extremely low ability for good and effective communication with the public. This should also be the low awareness of management to recruit communication professionals in their institutions in Nigeria. Health is often described as a complex job in an unsafe future. The practice of public relations in health care in Nigeria has changed, together with the dramatic changes in healthcare. In some sense, public relations in health care is not particularly different from public relations in other industry given that the overall objective of public relations is still to match long-term relations, create awareness and manage reputation.

According to Traynowicz et al. (2012), healthcare is a unique industry. Some theorists argue that medicine is different from other industries because of the things at its disposal (life, death and recovery). Rapid and profound changes in the health system and the communication between the client (patient) and suppliers of healthcare within the defined system. Viewed through the history of public relations in health care, the good time of health PR was between the 1950s and 1960s. During this time, practitioners in public relations in health care felt little need to create awareness and preference for health care because healthcare organisations have always received support and sympathy from the public. PR did not have to be particularly active in order to maintain and build confidence; rather, the role of public relations was limited to the communication of information.

THEORETICAL FRAMEWORK

Agenda Setting Theory

This theory describes the ability of the news media to influence the importance placed on the topics of the public agenda. With agenda setting being a social science theory, it is also attempts to make predictions, that is, if a news item is covered frequently, the audience will regard the issue as more important, but sometimes, it may seem that with so much media focus and scrutiny on a single event, the mass media is missing or even ignoring other important stories. This theory refers to how the media's news coverage determines which issues become the focus of public attention. Agenda setting was first introduced in 1972 by the college professors Maxwell McCombs and Donald Shaw. They found in a survey of North Carolina voters during the 1968 US presidential election that what people thought were the important issues were what the mass media set the agenda for what people should care about..

Another way to look at it is that mass media organisations are not telling us what to think or how we should feel about a story or issue, but rather are giving us what people should think more about. This theory is related to this work in the sense that people tend to believe whatever information the media puts out that they feel is important to society, which also includes the public relations tool, media relations. People tend to believe whatever press release they see put out by the media. Most people tend to believe it, whether it is right or wrong. Most individuals don't have the capacity to filter information that comes from the media, so they tend to swallow any information received.



Nuclear Medicine

Nuclear medicine is a medical speciality involving the application of radioactive substances in the diagnosis and treatment of diseases. Including many types of cancers, heart disease, gastrointestinal, endocrine, neurological disorders and other abnormalities within the body, they offer the potential to identify disease in its earliest stages as well as patients' immediate response to therapeutic intervention. Nuclear medicine imaging procedures are non-invasive and, except for intravenous injections, are usually painless medical tests that help physicians diagnose and evaluate medical conditions. These imaging scans use radioactive materials called radiopharmaceuticals or radiotracers. The benefits of nuclear medicine include: nuclear medicine examinations provide unique information, including details on both function and anatomic structure of the body that is often unattainable using other imaging procedures. Again, for many diseases, nuclear medicine scans yield the most useful information needed to make a diagnosis or to determine appropriate treatment. A nuclear medicine scan is less expensive and may yield more precise information than exploratory surgery. Also, Nuclear medicine offers the potential to identify diseases in its earliest stages, often before symptoms occur or abnormalities can be detected with other diagnostic tests.

Alnonwa et al. (2012) identified the risks of nuclear medicine as follows: nuclear medicine diagnostic procedures have been used for more than five decades, and there are no known long-term adverse effects from such low-dose exposure; the risk of treatment is always weighed against the potential benefits for nuclear medicine therapeutic procedures. Also, the injection of the radiotracer may cause slight pain and redness, which should rapidly resolve. Women should always inform their physician or radiology technologist if there is any possibility that they are pregnant or if they are breastfeeding (Adebimpe et al., 2011).

Nuclear medicine is usually performed on an outpatient basis, but it is often performed on hospitalised patients as well. You will be positioned on an examination table if necessary, and a nurse or technologist will insert an intravenous IV catheter into a vein in your arm. Depending on the type of nuclear medicine exam you are undergoing, the dose of tracer is then injected intravenously, swallowed or inhaled as gas (Adewaw & Makanjuola, 2005). It can take anywhere from several seconds to several days for the tracer to travel through the body and accumulate in the organ or area being studied. As a result, imaging may be done immediately, a few hours later or even days after you have received the radioactive material

When it is time for the imaging to begin, the camera or scanner will take a series of images. The camera may rotate around you, or it may stay in one position, and you may be asked to change position between images. While the camera is taking pictures, you may need to remain still for a brief period of time. In some cases, the camera may be very close to your body. This is necessary to obtain the best quality images. If you are claustrophobic, you should inform the technologist before your exam begins.

Nuclear medicine in Nigeria started at UCH Ibadan in 2006. According to Lauder et al (2006), since then nuclear medicine has taken a positive turn in Nigeria. Nuclear medicine department UCH Ibadan offers different types of nuclear medicine scans and treatment for patients which



includes; whole body bone scan: scans the whole body for any evidence of cancer; whole body iodine scan: to scan for any possible spread of thyroid tissue in the body; MAG3 renal scan (Reno gram) to test the excretory function of the kidney and DMSA renal scan (Reno gram) to test for structural defects in kidney which may affect its function as well as the position outline and general condition of the kidney (Ewrujakpor, 2020).

Ahmadu et al. (2023) studied the knowledge, attitudes, and reported practices regarding the utilisation of nuclear medicine imaging among clinical and radiation oncologists in Nigeria. The study adopted a self-administered survey of physicians in radiation oncology in Nigeria on knowledge, attitudes, and practices regarding the utilisation of Nuclear Medicine (NM) imaging, which was conducted between June and October 2018. Results showed an age range of participants was between 26 and 68 years. The survey response rate was 51.4% in a sample of 101 radiation oncologists from the database. Thirty-nine per cent of respondents were consultants, and 61% were residents. Approximately 46.2% of the participants had 5 to 10 years of working experience. All of the respondents were involved in the diagnosis and treatment of cancer. On average, 83.1% of participants had adequate cumulative knowledge of nuclear medicine imaging applications in oncology practice, 90.4% had a positive attitude to the use of NM imaging and the referral of patients for NM imaging was poor, with those with more years of experience more likely to refer. However, there was no significant difference in NM practice with the age of participants.

Ejeh et al. (2015) investigated that the mutual relationship between health care providers and their clients (patients) is very important in achieving the desired result in seeking health care services by the patients. Data were collected using the research instrument and were analysed with Statistical Package for Social Sciences (SPSS) version 20 (SPSS, Inc., Chicago Ill) using descriptive statistics, Pearson correlation coefficient and regression analysis, respectively. Results: The majority of respondents rated the attitude of Nuclear Medicine staff in this department as positive. The result also showed that the attitude of health care providers (or health care professionals) correlates positively with clients' satisfaction.

METHODOLOGY

The study adopted a descriptive survey design with a total population of 401. The population consist of all the patients in the radioactive unit of the University of Port Harcourt Teaching Hospital and Rivers State University Teaching Hospitals in Port Harcourt, Rivers State. The study adopted a census due to the manageable size of the population of the study. Suanders, Sim and Jinks (2018) agree that a census is commonly considered when the entire population of the study can be investigated or reached. Given that the population is 401, the sample size is therefore 401. There was no need for sampling because a census was adopted in the study. The study employed a questionnaire as the instrument for data collection and used the weighted mean score on a 4-point Likert scale as a method of data analysis.



RESULTS

Table 1: Public relations tools professionals in UPTH used to create information on nuclear medicine

Tools used by public relations to create on nuclear medicine	SA	A	D	SD	TOT	WMS	RMK
Press releases are the major tool used by public relations professionals to create publicity for nuclear medicine.	4	3	2	1	1081/365	3.0	Accepted
A podcast is a major tool used by public relations professionals to create content.	49	57	101	158	727/365	2.0	Rejected
A press conference is a major tool used by public relations professionals to create nuclear medicine.	132	99	89	45	1080/365	2.9	Accepted
Community events are a major tool used by public relations professionals to create a nuclear medicine.	39	71	141	114	765/365	2.1	Rejected
Social media is a major tool used by public relations professionals to create nuclear medicine	123	141	73	28	1089/365	3.8	Accepted

Table 1 showed that press releases, press conferences and social media platforms were the major tools used by public relations professionals as publicity for nuclear medicine to the patients of UPTH and RSUTH.



Table 2: The level of public awareness of the public relations tools in propagating Nuclear medicine

The level of public awareness of the public relations tools in propagating Nuclear medicine	SA	A	D	SD	TOT	WMS	RMK
	4	3	2	1	AL		
					1		
The engagement of the community was the major function of PR tools in creating nuclear medicine awareness.	131	124	41	69	1047/365	2.9	Accepted
Analysis results and provision of insights to inform future PR are the awareness of nuclear medicine.	109	142	54	60	1030/365	2.8	Accepted
The tools are used to track media coverage of nuclear medicine to the public.	69	74	109	113	829/365	2.4	Rejected
Developing and implementing crisis response strategies is the awareness of the nuclear medicine.	46	69	117	133	758/365	2.1	Rejected

The data in Table 2 indicates that the engagement of communities and analysis of results were the functionality of the public relations that were major observable ware adopting in propagating Nuclear medicine.



Table 3: Challenges public relations professionals face in creating awareness on nuclear medicine in Port Harcourt

Challenges the public relations tools faced in creating awareness of nuclear medicine.	SA 4	A 3	D 2	SD 1	TOT AL 1	WMS	RMK
Budget constraints are a major PR challenge the public relations tools faced in creating awareness of nuclear medicine.	99	108	116	42	994/ 365	2.7	Accepted
Poor management of negative reports of PR is the major challenge the public relations tools face in creating awareness on nuclear medicine	101	113	104	47	998/ 365	2.7	Accepted
Lack of compliance with modern technologies is a challenge the public relations tools face in creating awareness of nuclear medicine	89	103	112	61	950/ 365	2.6	Accepted
Lack of content creation is a challenge the public relations tools face in creating awareness of nuclear medicine.	131	93	79	62	1123/ 365	3.1	Accepted

The data in Table 3 indicated that budget constraints, poor management of negative reports of PR and lack of compliance with modern technologies were the major challenges the public relations tools faced in creating awareness on nuclear medicine.

DISCUSSION

Research Question 1: What are the tools used by public relations to create on nuclear medicine in Nigeria?

The study found that press releases, press conferences and social media platforms were the major tools used by public relations as publicity for nuclear medicine. It has been observed that an essential tool to address these gaps by providing strategic communication, education, and engagement with various stakeholders, including the public, healthcare professionals, policymakers, and the media. PR can help dispel myths, highlight the benefits of nuclear medicine, and foster trust in its applications (Ahmadu, 2023).



Research Question 2: How functional are the public relations tools in propagating Nuclear medicine in Nigeria?

The engagement of communities and analysis of results were the functionality of the public relations tools in propagating Nuclear medicine in Nigeria. The study is related to the study of Ahmadu (2023), who found that participants had adequate cumulative knowledge of nuclear medicine imaging applications in oncology practice, 90.4% had a positive attitude to the use of NM imaging, and the referral of patients for NM imaging was poor, with those with more years of experience more likely to refer

Research Question 3: What challenges do public relations tools face in creating awareness of nuclear medicine?

Budget constraints, poor management of negative reports of PR and lack of compliance with modern technologies were the major challenges the public relations tools faced in creating awareness on nuclear medicine. Nuclear medicine is a specialised branch of medicine that uses radioactive substances for diagnosis, treatment, and research in various health conditions, such as cancer, cardiovascular diseases, and neurological disorders (Ahmadu 2023). That the reason many Nigerians associate nuclear technology with harmful radiation or environmental risks, leading to fear and resistance toward its use in healthcare (Kaprugwe et al, 2011). This lack of understanding often stems from poor dissemination of information and the absence of targeted communication strategies in public relations.

CONCLUSION

This study concludes that public relations is a marketing tool which is used to write, manage relations, arrange special events, create product publicity, handle sales promotion, manage consumer relations and train spokespersons. The implication of this is that public relations tools are very effective in creating awareness of nuclear medicine in Nigeria. And that nuclear medicine and such awareness presents environmental risks and bring medical intervention to humanity.

The study recommends that nuclear medicine in Nigeria employ the services of a public relations officer or firm to help them create awareness, build reputation, promote their image and manage information as well as crisis. The study also recommends that public relations professionals should engage in media relations in order to create awareness of nuclear medicine.



Ethical Clearance

Ethical consent was sought and obtained from the participants used in this study. They were made to understand that exercise was purely for academic purposes, and their participation was voluntary.

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Conflict of Interest

The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

Authors' Contributions.

Dr Nwoka Alikor conceived the study, including the design, Dr Nwoka Alikor collated the data, and Dr Nwoka Alikor handled the analysis and interpretation, while Dr Nwoka Alikor the initial manuscript. All authors have critically reviewed and approved the final draft, and are responsible for the content and similarity index of the manuscript.

Availability of data and materials.

The datasets on which conclusions were made for this study are available on reasonable request.

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