

Research Article

Barriers to Cancer Cachexia Management Among Nigerian Physicians

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Background: Cancer cachexia is a devastating multifactorial syndrome that significantly contributes to morbidity and mortality in oncology patients. Despite the availability of international evidence-based guidelines, effective management remains challenging, particularly in low- and middle-income countries. No prior study has systematically evaluated the barriers to cancer cachexia management among physicians in Nigeria, Africa's most populous nation.

Methods: A cross-sectional, questionnaire-based survey was conducted among 242 Nigerian physicians across eight specialties (family medicine, haematology, gynaecological oncology, surgical oncology, radiation oncology, anaesthesiology, gastroenterology, and dental surgery) who manage cancer patients. A barrier grading system (grade 0: <25%, grade 1: 25-50%, grade 2: 50-75%, grade 3: >75%) was developed across five domains: confidence, knowledge, perception, personal practice, and education.

Results: The overall practice barrier was highest (grade 2, 60.3%), characterized by inconsistent weight tracking (58.7%) and severe underutilization of multimodal treatments (anti-inflammatories 15.3%, exercise 10.3%). Perception barriers were also prominent (grade 2, 71.1%), with 82.6% citing lack of high-quality evidence and 77.3% lacking effective medications as major challenges. Knowledge barriers (grade 1, 34.7%) varied significantly by specialty ($p=0.004$), with family medicine showing the highest deficits (52.1%). Alarming, 54.5% received no formal education on cancer cachexia. Radiation oncologists demonstrated the lowest barriers overall, while anaesthesiologists and gastroenterologists faced the greatest challenges.

Conclusion: Substantial and multifaceted barriers impede effective cancer cachexia management among Nigerian physicians. Urgent interventions—including national guidelines, targeted education, and institutional screening protocols—are needed to bridge this critical gap in oncology care.

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Introduction

Cancer cachexia is a common complication in cancer, and it is characterized by an ongoing loss in body weight with a concomitant reduction in lean muscle mass with (or without) fats which lead to a weakened physical functioning that cannot be easily reversed through normal nutritional support ^[1]. It is distinctly associated with a negative balance, including protein and strongly associated with the combination of reduced food intake, systemic inflammation and sometimes toxicity from chemotherapeutic agents ^[2]. Cancer cachexia is a known contributor to morbidity and mortality in cancer patients, with about 20% of all cancer deaths attributed to it ^{[2][3]}. While evidence-based guidelines on the management of cancer cachexia, and clinical nutrition in cancer have been developed, there are no standard medications that are recommended for the management of cancer cachexia by these guidelines ^{[4][5][6]}. Because of its milieu of biochemical and physical alterations, the management of cancer cachexia is seen as a multimodal approach which involves medical, pharmacological, nutritional, rehabilitative and psychosocial support.

To be able to provide these supports, a cancer physician is expected to be aware and knowledgeable about cancer cachexia which can translate into better clinical practice and management of the condition. Being knowledgeable will therefore means recognizing the signs, especially those related to poor intake of food like anorexia, nausea, mucositis and also psychosocial aspect of poor feeding. In addition, some of these nutritional impact symptoms as well as other factors cancer cachexia can generally have the same presentation as some other medical conditions. These diagnostic challenges can somewhat make things more difficult for the average physician resulting in a misdiagnosis or an underdiagnosis of the condition. Communication may some times be an issue, especially where patients and their relatives anxious for answers expect a physician to be knowledgeable about cancer cachexia and how it can be managed ^[7]. Contextually, the cultural sensitivities on appearance and weight changes including nutritional intake some times make open communication difficult causing delays in making a diagnosis ^[8]. A heavy workload of patients at times can make physicians prioritize what a patient's

immediate challenges and health needs are therefore, making cancer cachexia appear as a low priority during clinical presentation ^[9]. Due to some of these factors, many physicians presume that cancer cachexia is an inevitable and irreversible condition, therefore tend not to be consciously aware of it ^[10]. This fact was reported in a study across 14 countries (97% of the respondents were physicians) where approximately half (48%) of the physicians chose to withhold treatment weight loss was $\geq 15\%$ ^[11].

One other area of significance is the area of nutrition education for physicians. Nutrition is known to be a major pivot of cancer cachexia management, but there is inadequate emphasis of it in the medical curriculum and training ^[12]. Many physicians lack the needed competency in the management of nutritional problems associated with cancer, especially cancer cachexia, and most often have to rely on their clinical judgement or broad-based recommendations. Furthermore, roles may be blurred, delaying the chances of early detection and intervention ^[13]. Thus, it is important to create a structured nutrition education to increase the competency of physicians in effectively managing cancer-related malnutrition and cachexia as well as other associated conditions ^[14].

The Prevalence of Malnutrition in Oncology (PreMiO) was a prospective, observational study conducted at 22 medical oncology centers across Italy to help identify patients who were at risk of malnutrition at their first oncology visit ^[15]. the European Society for Medical Oncology (ESMO) guideline on cancer cachexia mandate that patients that are at risk of cancer cachexia must be routinely screened along with nutritional impact symptoms ^[4]. In addition, the ASCO and the Global Leadership Initiative on Malnutrition (GLIM) made recommendations for routine assessment of functional and psychosocial effects of cancer cachexia as well as oncologists' competencies ^{[6][16][17]}. However, the application of some of these guidelines may not be utilised by many Nigerian physicians who may be limited to their institutional guidelines. A search of literatures online revealed that the Association of Radiation and Clinical Oncologists of Nigeria (ARCON), the Nigerian Society of Haematology and Blood Transfusion (NSHBT), and even the National Institute for Cancer Research and Treatment, Nigeria (NICRAT) does not have any working paper or guidelines on the diagnosis and management of cancer cachexia which may translate to inadequate nutrition management especially in those with advanced disease, leading to poor quality of life and survival ^[2].

A number of studies on the knowledge and practice of cancer cachexia management especially among healthcare professionals have been carried in different countries ^{[18][19][20][21][22][23][24]}. While many of these studies have physicians included in them, a look at published literatures showed that this kind of

study have not been conducted in Nigeria before. Therefore, it is important to set an agenda for cancer cachexia in Nigeria through this study. The aim of this study is to assess the level of awareness of cancer cachexia diagnosis, and identify barriers to the management of cancer cachexia among Nigerian physicians in order to improve care for the Nigerian cancer patient.

Methods

A cross-sectional, questionnaire-based survey was conducted among Nigerian physicians who manage cancer patients. The study was conducted between July 2025 and October 2025 across all six geopolitical zones of Nigeria. A self-administered structured questionnaire was used to assess the level of awareness of the physicians and the various perceived barriers to the management of cancer cachexia. The structured questionnaire consisted of different domains which include: demographics, awareness and knowledge, attitude and perception, practice, and education. The survey was designed in English, and was distributed electronically to all respondents as a google form. The respondents were physicians in various specialties that manage cancer patients, and were recruited from various tertiary, secondary, and private health facilities, with the majority practicing in university teaching hospitals. This included the radiation oncologists, surgical oncologists, gynaecological oncologists, haematologists, gastroenterologists, anaesthesiologists and pain specialists, dental surgeons and family physicians. The inclusion criteria were: (1) being a licensed medical practitioner; (2) actively involved in the clinical management of cancer patients; and (3) practicing in one of the eight target specialties. The questionnaire was designed to be completely filled before submission thereby eliminating item-level missing data. More than 500 physicians were sent the survey, but only 242 of them filled it giving an approximate response rate of less than 48%. No data were collected on the reasons for non-participation, as the survey was anonymous.

A convenience sampling strategy was employed. Physicians were identified and invited through: (1) professional society mailing lists, including the Nigerian Society of Haematology and Blood Transfusion (NSHBT) and the Association of Radiation and Clinical Oncologists of Nigeria (ARCON); (2) hospital departmental directories across the six geopolitical zones; and (3) snowball sampling, whereby early respondents were asked to share the survey link with eligible colleagues. No formal sample size calculation was performed; the target was to obtain as many responses as possible within the study period.

A barrier grading and scoring system was developed using 33 of the 47 questionnaire items to measure the barriers and compare them by specialty. Initially, we established the following barriers domains: 1) confidence paucity 2) awareness/knowledge paucity 3) perception barrier 4) personal practice barrier 5) education barrier. Then the responses of each selected question of each domain was defined as either correct or incorrect. The correct responses were scored 1, and the incorrect responses were scored 0. The average of all the sum of the scores in each domain were used as cut off for grouping. Questions that were challenging to define as an obvious barrier response were excluded. Thus, 14 questions were excluded from the barrier scoring. The barrier responses were then graded into 4 levels: grade 0 (<25%), grade 1 (25-50%), grade 2 (50-75%), grade 3 (>75%).

Several measures were taken to minimise bias. First, the forced-completion design of the Google Form prevented partial responses, eliminating item-level missing data. Second, anonymity was assured to all respondents to reduce social desirability bias. Third, multiple reminders were sent to reduce non-response bias. Despite these measures, residual selection bias may persist because the electronic distribution method may have excluded physicians in rural areas with limited internet access. Social desirability bias may also persist because practices were self-reported rather than directly observed.

Statistical analysis

For continuous variables were presented using means with standard deviations or medians with ranges, depending on data distribution. Categorical responses, including barrier gradings, were summarized using raw counts and corresponding percentages.

Comparisons were made across eight medical specialties: radiation oncology, surgical oncology, gynaecological oncology, haematology, gastroenterology, anaesthesiology, dental surgery, and family medicine. Categorical variables were analyzed using either the χ^2 test or Fisher's exact test, as appropriate. A threshold of $P < 0.05$ was defined for statistical significance. All analyses were conducted with SPSS Version 23 for Windows (NY: IBM Corp). Sensitivity analyses was not performed, as the study was descriptive and exploratory in nature.

Results

In this study, 242 physicians completed the questionnaire. Majority of the respondents were males, almost twice the number of females; 157 males (64.9%), and 85 females (35.1%). There were also more males than females across all the specialties except for gastroenterology that had equal number of the

sexes. The mean age of the respondents was 43.4 + 9.6 years. The most common specialty was family medicine, accounting for almost 30% of all the respondents (29.3%). This is followed by haematology (22.7%), gynaecological oncology (16.5%), surgical oncology (12%), radiation oncology (8.7%), anaesthesiology (4.5%), gastroenterology (3.3%), dental surgery (2.9%). The average years of experience managing cancer patients was 15.4 + 9.7 years. An overwhelming majority of the physicians practiced at a university hospital (75.6%), while the remainder practice at other types of health centers. Majority of the respondents were practicing in the Southeastern region of Nigeria (33.5%), while the Northcentral and the Southwestern regions had the next highest number of respondents, 25.6% and 24% respectively. The Southsouthern, Northwest and Northeast regions had 7.4%, 6.6% and 2.9% of all the respondents respectively.

Lack of confidence

In the confidence metrics, more than half (59.1%) of the respondents said they were somewhat or very confident in their ability to care for patients at risk or diagnosed with cachexia. Thus, approximately 40% of the respondents were not very or at all confident in managing cancer cachexia, which is a grade 1 on our barrier score grading for confidence paucity. Among the specialties, gastroenterology (62.5%, grade 2) had the highest paucity in confidence, followed by dental surgery (57.2%, grade 2), gynaecological oncology (47.5%, grade 1), haematology (41.8%, grade 1), surgical oncology (41.4%, grade 1), family medicine (39.5%, grade 1), anaesthesiology (27.3%, grade 1), radiation oncology (23.7%, grade 0). There was no statistical significance in the confidence level across the medical specialties ($p=0.49$). Table 1.

Specialty	N	Confidence level (%)	Barrier grade
Gastroenterology	8	62.5%	Grade 2 (50-75%)
Dental surgery	7	57.2%	Grade 2 (50-75%)
Gyn. oncology	40	47.5%	Grade 1 (25-50%)
Haematology	55	41.8%	Grade 1 (25-50%)
Surgical oncology	29	41.4%	Grade 1 (25-50%)
Family medicine	71	39.5%	Grade 1 (25-50%)
Anaesthesiology	11	27.3%	Grade 1 (25-50%)
Radiation oncology	21	23.7%	Grade 0 (<25%)
Total	242	40.9%	Grade 1 (25-50%)

Table 1. Barrier Related to Lack of Confidence in Managing Cancer Cachexia

This table presents the proportion of physicians who reported low confidence (not very confident or not at all confident) in caring for patients at risk of or diagnosed with cancer cachexia. Confidence paucity is a foundational barrier because it directly affects a physician's willingness to engage in screening, diagnosis, and treatment. The overall barrier grade was 1 (25-50%), with gastroenterology and dental surgery showing the highest confidence deficits (grade 2, 50-75%). Radiation oncologists demonstrated the lowest barrier (grade 0, <25%), suggesting better preparedness or exposure.

Note: Barrier grade 0 = <25%, Grade 1 = 25-50%, Grade 2 = 50-75%, Grade 3 = >75%. $p = 0.49$ (not statistically significant across specialties).

Lack of knowledge

In scoring for the knowledge metrics, slightly more than a third (34.7%) of the respondents chose an answer that differ from the standard diagnostic criteria for cancer cachexia (grade 1). In addition, 29.9% (grade 1) the respondents did not choose the four major causes of weight loss in cancer, which were reduced oral intake, progressive disease, inflammation and toxicity of chemotherapy. The family medicine physicians among all the medical specialties had the highest barriers to knowledge (52.1%,

grade 2), followed by dental surgery (42.9%, grade 1) and gynaecological oncology (40%, grade 1). The others in a descending order include: surgical oncology (31%, grade 1), anaesthesiology (27.3%), haematology (21.8%, grade 0), radiation oncology (19%, grade 0). Interestingly, gastroenterology had no barriers to knowledge (0%, grade 0). There was also statistical significance in the knowledge barriers across the medical specialties ($p = 0.004$). Table 2.

Specialty	N	Incorrect on diagnostic criteria	Overall knowledge barrier grade
Family medicine	71	52.1%	Grade 2 (50-75%)
Dental surgery	7	42.9%	Grade 1 (25-50%)
Gyn. oncology	40	40.0%	Grade 1 (25-50%)
Surgical oncology	29	31.0%	Grade 1 (25-50%)
Anaesthesiology	11	27.3%	Grade 1 (25-50%)
Haematology	55	21.8%	Grade 0 (<25%)
Radiation oncology	21	19.0%	Grade 0 (<25%)
Gastroenterology	8	0.0%	Grade 0 (<25%)
Total	242	34.7%	Grade 1 (29.9%)

Table 2. Barrier Related to Knowledge Paucity in Cancer Cachexia Diagnosis and Pathophysiology.

This table captures knowledge deficits across two critical areas: (1) knowledge of standard diagnostic criteria for cancer cachexia (weight loss threshold, BMI threshold, recognition of cachexia in obese patients), and (2) knowledge of the four major causes of cancer-related weight loss (reduced oral intake, progressive disease, inflammation, chemotherapy toxicity). Family medicine physicians showed the highest knowledge barrier (grade 2, 52.1%), while gastroenterology surprisingly had no knowledge barrier (0%). This difference was statistically significant ($p = 0.004$), indicating that specialty training substantially influences cachexia literacy.

Barriers in Perception

In the perception rating, less than two-fifth (38.4%, grade 1) were of the opinion that cancer cachexia could not be avoided. This belief was shared mostly by anaesthesiology (63.6%, grade 2), and surgical

oncology (55.2%, grade 2); and least shared by radiation oncology (14.3%, grade 0) and dental surgery (0%, grade 0). This was statistically significant ($p= 0.007$). when asked about the need for interprofessional teamwork in cancer cachexia, only very few (6.2%, grade 0) perceived it as unimportant. Likewise in the evaluation of weight loss in cancer cachexia using standardized tools (3.7%, grade 0). In contrast, all the medical specialties perceive that lack of high-quality evidence (82.6%, grade 3) affect their judgement calls in managing cancer cachexia, being most pronounced with gynaecological oncology (90%, grade 3), and gastroenterology (87.5%, grade 3); but least among anaesthesiology (72.7%, grade 2) and dental surgery (71.4%, grade 2). This perception also reflected in the use of effective medications in cancer cachexia management where more than three-quarter (77.3%, grade 3) saw this as a challenge with majority being surgical oncology (86.2%, grade 3), and anaesthesiology (81.8%, grade 3); the least, haematology (72.7%, grade 2) and dental surgery (71.4%, grade 2). In addition, majority (70.7%, grade 2) believe that they don't have enough time to provide psychosocial support for patients and their families, especially for gastroenterology (87.5%, grade 3) and gynaecological oncology (77.5%, grade 3). Altogether, the barrier perception was 71.1% (grade 2), but it was not statistically significant across the specialties. Table 3.

Perception barrier item	N	Highest by specialty	Lowest by specialty	p-value
Believes cachexia cannot be avoided (fatalism)	38.4% (grade 1)	Anaesthesiology: 63.6% (Grade 2)	Dental Surgery: 0% (Grade 0)	0.007
Believes lack of high-quality evidence impairs management	82.6% (grade 3)	Gyn. Oncology: 90% (Grade 3)	Anaesthesiology: 72.7% (Grade 2)	NS
Believes lack of effective medications is a challenge	77.3% (grade 3)	Surgical Oncology: 86.2% (Grade 3)	Dental Surgery: 71.4% (Grade 2)	NS
Reports insufficient time for psychosocial support	70.7% (grade 2)	Gastroenterology: 87.5% (Grade 3)	Radiation Oncology: 57.1% (Grade 2)	NS
Perceives interprofessional teamwork as unimportant	6.2% (grade 0)	-	-	NS
Overall Perception Barrier	71.1% (grade 2)	Gyn. Oncology/Gastroenterology	Radiation Oncology/Dental Surgery	NS

Table 3. Barrier Related to Perceptions and Attitudes Toward Cancer Cachexia Management

This table presents five key perception barriers: fatalism (belief that cachexia cannot be avoided), perceived lack of high-quality evidence, perceived lack of effective medications, insufficient time for psychosocial support, and dismissal of interprofessional teamwork. The overall perception barrier was grade 2 (71.1%). The belief that lack of high-quality evidence impairs management was particularly pervasive (82.6%, grade 3), most pronounced among gynaecological oncologists (90%). This perception barrier may reinforce therapeutic nihilism and reduce motivation for proactive intervention.

Barriers in Personal Practice

While majority of the respondents believe regular weighing of cancer patients is very important (80.2%), and less than two-fifth (38.4%, grade 1) don't weigh at each visit, majority (58.7%, grade 2) do not systematically track it over time. This non-chalant practice was more common among dental surgery

(100%, grade 3), and gastroenterology (87.5%, grade 3), and least common among radiation oncology (33.3%, grade 1), and family medicine (50.7%, grade 2). This was statistically significant ($p= 0.004$). Interestingly, 10.3% of the medical professionals said screening for weight loss is not applicable to their setting, with another 74.8% (38% for physician, 36.8% for nurse) believe it was the duty of the aforementioned. The rationale for not regularly screening patients for cachexia included: weight loss being an expected side effect of treatment (77.3%), unavailability of standardized tools to screen for cachexia (75.6%), do not know how to effectively screen for cachexia (33.5%), and do not have enough resources to screen for cachexia (24%). Overall, barrier to screening was 64% (grade 2) with the highest barriers among dental surgery (100%, grade 3), gastroenterology (87.5%, grade 3), anaesthesiology (81.8%, grade 3), while the least barriers were among radiation oncology (42.9%, grade 1), and family medicine (56.3%, grade 2). This was statistically significant ($p=0.023$).

In diagnosing cachexia, only 24.4% (grade 0) pay little or no attention to its diagnosis. This practice of paying little attention to cachexia diagnosis was more common among dental surgery (57.1%, grade 2), and haematology (36.4%, grade 1); with family medicine (16.9%, grade 0) and radiation oncology (9.5%, grade 0) paying the most attention. When asked about actions taken to diagnose cancer cachexia which included six elements viz: (1) identifying the presence of anorexia and decreased oral intake; (2) evaluating inflammatory markers; (3) evaluating physical functions; (4) collecting clinical and laboratory data; (5) determining calorie and protein requirements; and (6) measuring body composition, the responses were 89.7%, 86.4%, 76.9%, 56.2%, 26.4% and 19% respectively, with a barrier score of 39.3% (grade 1). Overall, the diagnosis barrier grade was 50% (grade 2) with the highest barriers among dental surgery (57.1%, grade 2), haematology (56.4%, grade 2), and family medicine (56.3%, grade 2). The lowest barriers were among anaesthesiology (36.4%, grade 1), and gastroenterology (25%, grade 1). It was not statistically significant ($p= 0.54$).

In the treatment of cachexia, the respondents were asked different questions, most importantly certain crucial treatment options for cancer cachexia which include: i) incorporate energy and protein-fortified foods in the diet, ii) Recommend oral nutritional supplements, iii) Prescribe corticosteroids iv) Prescribe progestin agents, v) Prescribe cannabinoids, vi) Prescribe anti-inflammatory agents, vii) Prescribe physical exercise, viii) Prescribe nutritional counselling, ix) Refer to specialist for psychosocial support. More than four-fifth (81.4%) of the respondents include oral nutritional supplementation in their treatment option, with 74% incorporating energy and protein-fortified foods in the diet. However, the use of other treatment options was low with only about 37.2% of the respondents prescribing nutritional

counselling, 19.4% prescribe psychosocial intervention, 15.3% prescribe anti-inflammatories, 10.3% prescribe physical exercise, 5% prescribing corticosteroids and progestational agents, and 3.3% prescribed cannabinoids. The barrier to these treatment options was 78.9% (grade 3), with anaesthesiology and gastroenterology having the highest barrier (100%, grade 3), followed by haematology (89.1%, grade 3), radiation oncology (76.2%, grade 3), gynaecological oncology (75%, grade 3), family medicine (73.2%, grade 2), dental surgery (71.4%, grade 2), and surgical oncology (69%, grade 2). Though this was not statistically significant across specialties (0.068). more than half (56.6%) found it challenging to provide nutritional recommendations to patients with cachexia, with an overall barrier score of 64.9% (grade 2). The highest barrier was found with gastroenterology (87.5%, grade 3), followed by family medicine (69%, grade 2), gynaecological oncology (67.5%, grade 2), anaesthesiology (63.6%, grade 2), surgical oncology (62.1%, grade 2), haematology (60%, grade 2), radiation oncology and dental surgery (57.1%, grade 2).

Surprisingly, only 22.4% affirm that they use tools and resources such as evidence-based guidelines by experts in treating cancer cachexia patients, and approximately one-fifth (19.8%) not even aware of such tools! 14.5% prefer to use their clinical judgement. Among those that use a tool, approximately 20% (20.7%) use ASCO guidelines, with less than 6% using other professional societies (SEOM, ASPEN, ESPEN). The overall barrier for this was 63.2% (grade 2), and the highest barrier was found with dental surgery (100%, grade 3), followed by anaesthesiology (81.8%, grade 3), gastroenterology (75%, grade 3), surgical oncology and haematology (65.5%, grade 2), gynaecological oncology (65%, grade 2), family medicine (60.6%, grade 2), radiation oncology (33.3%, grade 1). This was statistically significant ($p=0.044$).

Majority of the respondents found specialists referral a challenge (67.8%, grade 2), with the highest barrier with dental surgery (100%, grade 3) followed by gastroenterology (87.5%, grade 3), gynaecological oncology (72.5%, grade 2), haematology (70.9%, grade 2), family medicine (64.8%, grade 2), surgical oncology (62.1%, grade 2), radiation oncology (57.1%, grade 2), and anaesthesiology (54.5%, grade 2). It was not statistically significant ($p= 0.205$).

The overall barrier score for personal practice among all the specialties was 60.3% (grade 2) with anaesthesiology having the highest barrier to personal practice (81.8%, grade 3), followed by gastroenterology (75%, grade 3), dental surgery (71.4%, grade 2), haematology (69.1%, grade 2), gynaecological oncology (62.5%, grade 2), surgical oncology (55.2%, grade 2), family medicine (54.9%,

grade 2), and radiation oncology (38.1%, grade 1). It was not statistically significant ($p= 0.173$) across the specialties. Table 4.

Practice Sub-domain	Total Barrier (%, Grade)	Highest Barrier Specialty (%, Grade)	Lowest Barrier Specialty (%, Grade)	p- value
Screening	64% (Grade 2)	Dental Surgery: 100% (Grade 3)	Radiation Oncology: 42.9% (Grade 1)	0.023
Does not weigh at each visit	38.4% (Grade 1)	Dental Surgery: 100% (Grade 3)	Radiation Oncology: 33.3% (Grade 1)	0.004
Does not track weight systematically	58.7% (Grade 2)	Dental Surgery: 100% (Grade 3)	Radiation Oncology: 33.3% (Grade 1)	0.004
Diagnosis	50% (Grade 2)	Dental Surgery: 57.1% (Grade 2)	Gastroenterology: 25% (Grade 1)	0.54
Pays little/no attention to diagnosis	24.4% (Grade 0)	Dental Surgery: 57.1% (Grade 2)	Radiation Oncology: 9.5% (Grade 0)	NS
Treatment	78.9% (Grade 3)	Anaesthesiology: 100% (Grade 3)	Surgical Oncology: 69% (Grade 2)	0.068
Uses oral supplements	81.4% (low barrier)	—	—	—
Prescribes anti- inflammatories	15.3% (high barrier)	—	—	—
Prescribes physical exercise	10.3% (high barrier)	—	—	—
Guideline Utilization	63.2% (Grade 2)	Dental Surgery: 100% (Grade 3)	Radiation Oncology: 33.3% (Grade 1)	0.044
Uses evidence-based guidelines	22.4%	—	—	—
Not aware of such tools	19.8%	—	—	—
Referral	67.8% (Grade 2)	Dental Surgery: 100% (Grade 3)	Anaesthesiology: 54.5% (Grade 2)	0.205
Overall Personal Practice Barrier	60.3% (Grade 2)	Anaesthesiology: 81.8% (Grade 3)	Radiation Oncology: 38.1% (Grade 1)	0.173

Table 4. Barrier Related to Personal Practice in Screening, Diagnosis, and Treatment

Description: This table captures the most critical and actionable barriers—those related to what physicians actually do (or fail to do) in clinical practice. Sub-domains include screening practices (weighing, weight tracking, use of tools), diagnostic thoroughness, treatment comprehensiveness (use of multimodal strategies), guideline utilization, and referral challenges. The overall practice barrier was grade 2 (60.3%), with anaesthesiology showing the highest barrier (81.8%, grade 3) and radiation oncology the lowest (38.1%, grade 1). The treatment sub-domain had the highest barrier (78.9%, grade 3), reflecting severe underutilization of pharmacotherapy, exercise, and psychosocial interventions.

Barriers in Education

Only about 4.5% of all the respondents said they have not received any form of general nutrition education. Thus, the barrier to general nutrition education was 17.4% (grade 0), highest among gynaecological oncology (27.5%, grade 1), and gastroenterology (25%, grade 1); lowest seen among surgical oncology (13.8%, grade 0), radiation oncology (0%, grade 0). The barrier to nutrition in cancer education was 36% (grade 1), with the highest barrier among gynaecological oncology (47.5%, grade 1), and anaesthesiology (45.5%, grade 1). The lowest barrier was seen among radiation oncology (19%, grade 0), and dental surgery (14.3%, grade 0). The barrier to nutrition education specific to cancer cachexia was 54.5% (grade 2), with gastroenterology (75%, grade 0), and anaesthesiology (72.7%, grade 2) having the highest barriers, while family medicine (50.7%, grade 2), and radiation oncology (33.3%, grade 1) have the lowest barriers.

Overall, the barrier to education was 36.4% (grade 1), with gastroenterology (50%, grade 2), and anaesthesiology (45.5%, grade 1) having the highest barrier to education, while surgical oncology (27.6%, grade 1) and radiation oncology (19%, grade 0) have the lowest barrier. The barrier to education was not statistically significant ($p=0.501$) across the specialties. Table 5.

Educational Domain	Total Barrier (% Grade)	Highest Barrier Specialty (% Grade)	Lowest Barrier Specialty (%, Grade)
No general nutrition education	17.4% (Grade 0)	Gynaecological Oncology: 27.5% (Grade 1)	Radiation Oncology: 0% (Grade 0)
No nutrition in cancer education	36.0% (Grade 1)	Gynaecological Oncology: 47.5% (Grade 1)	Dental Surgery: 14.3% (Grade 0)
No cancer cachexia-specific education	54.5% (Grade 2)	Gastroenterology: 75% (Grade 3)	Radiation Oncology: 33.3% (Grade 1)
Overall Education Barrier	36.4% (Grade 1)	Gastroenterology: 50% (Grade 2)	Radiation Oncology: 19% (Grade 0)

Table 5. Barrier Related to Educational Deficits in Cancer Cachexia

This table illustrates the gaps in formal nutrition education across three levels: general nutrition, nutrition in cancer, and nutrition specific to cancer cachexia. While the barrier for general nutrition education was low (17.4%, grade 0), it increased substantially for cancer-specific nutrition (36%, grade 1) and further for cachexia-specific education (54.5%, grade 2). This gradient reveals that cachexia receives the least attention in medical curricula. Gastroenterology (50%, grade 2) and anaesthesiology (45.5%, grade 1) showed the highest overall education barriers, while radiation oncology (19%, grade 0) had the lowest.

In the overall barrier score across all the five barrier domains, radiation oncology demonstrated the lowest barrier (26.7%), while anaesthesiology showed the highest barrier (72.7%) signifying a need for targeted interventions across specialties. Table 6.

Specialty	N	Confidence Barrier	Knowledge Barrier	Perception Barrier	Personal Practice Barrier	Education Barrier	Overall Barrier Score
Anaesthesiology	11	Grade 1	Grade 1	Grade 2	Grade 3	Grade 1	Grade 2 (72.7%)
Gastroenterology	8	Grade 2	Grade 0	Grade 2	Grade 3	Grade 2	Grade 2 (70.0%)
Dental Surgery	7	Grade 2	Grade 1	Grade 0	Grade 2	Grade 0	Grade 1 (54.3%)
Haematology	55	Grade 1	Grade 0	Grade 2	Grade 2	Grade 1	Grade 1 (52.7%)
Gyn. Oncology	40	Grade 1	Grade 1	Grade 2	Grade 2	Grade 1	Grade 1 (52.0%)
Surgical Oncology	29	Grade 1	Grade 1	Grade 2	Grade 2	Grade 1	Grade 1 (51.4%)
Family Medicine	71	Grade 1	Grade 2	Grade 2	Grade 2	Grade 1	Grade 1 (51.3%)
Radiation Oncology	21	Grade 0	Grade 0	Grade 1	Grade 1	Grade 0	Grade 0 (26.7%)
All Physicians	242	Grade 1	Grade 1	Grade 2	Grade 2	Grade 1	Grade 1-2 (varies)

Table 6. Summary of Overall Barrier Grades by Domain and Specialty

This composite table integrates all five barrier domains (confidence, knowledge, perception, personal practice, education) to provide a comprehensive, at-a-glance comparison across the eight physician specialties. The overall barrier score combines all domains, revealing which specialties face the greatest cumulative challenges. Anaesthesiology, gastroenterology, and dental surgery consistently show the highest barriers across multiple

domains, while radiation oncology consistently demonstrates the lowest barriers. This summary can guide targeted interventions: high-barrier specialties require intensive, tailored educational and systemic support.

Discussion

This study provides a critical, first-of-its-kind assessment of the barriers to cancer cachexia management among physicians in Nigeria. The findings reveal a complex, multi-layered challenge where significant knowledge gaps, entrenched perceptions, and systemic practice barriers converge, ultimately compromising patient care. The overall picture is one of awareness without consistent, guideline-informed action, highlighting a substantial gap between recognizing cachexia as a problem and effectively managing it. This barrier gaps across domains have also been noted in healthcare professionals generally [25].

The most striking finding is the pervasive practice barrier (overall grade 2, 60.3%), which was the most pronounced of all domains. While 80.2% of physicians acknowledged the importance of regular weighing, a majority (58.7%) did not systematically track weight over time, and 38.4% did not weigh patients at each visit. This indicates a critical disconnect between stated belief and clinical routine. The reliance on basic nutritional support (oral supplements, fortified foods) by over 70% of respondents, contrasted with the strikingly low utilization of other multimodal components—such as nutritional counselling (37.2%), exercise prescription (10.3%), and psychosocial referral (19.4%)—underscores a reductionist approach to cachexia. Physicians appear to default to a simplistic “feed the patient” model, neglecting the essential inflammatory and metabolic components of the syndrome. This is compounded by a severe underutilization of evidence-based guidelines, with only 22.4% reporting their use. The high barrier score (grade 3, 78.9%) for employing a comprehensive treatment arsenal suggests that cachexia management is not yet integrated as a standardized, proactive therapeutic pathway but remains an ad-hoc, often overlooked aspect of oncology care.

These practice shortcomings are rooted in and reinforced by significant knowledge and perception barriers. Although the overall knowledge barrier was graded as modest (grade 1), it was significantly higher among non-oncology primary care specialists like family physicians. This is expected but alarming, as these physicians are often the first point of contact in a fragmented healthcare system. More concerning are the perception barriers, particularly the widespread belief that a lack of high-quality evidence (82.6%, grade 3) and effective medications (77.3%, grade 3) impede management. This perception, while reflecting a real global challenge, may serve as a rationalization for therapeutic

nihilism—the view that cachexia is an inevitable, untreatable endpoint of cancer. This is subtly supported by the finding that 38.4% believed cachexia “could not be avoided,” a sentiment most common among surgical oncologists and anaesthesiologists, who may frequently encounter advanced disease. This perception was also shared by HCPs in the study by Naito et al [25]. In another study in the USA, about 60% of oncologists believe that cancer cachexia cannot be avoided [26]. This fatalistic perception directly undermines motivation for early screening and intervention. Whereas, cancer cachexia is expected to be seen as a preventable co-morbidity [27].

In another perspective, the systemic and resource-based barriers implicit in the findings cannot be overstated. The Nigerian context, characterized by high patient volumes, limited time, and scarce resources, forms the bedrock of these challenges. Over 70% of physicians reported lacking time for psychosocial support, and 24% cited a lack of resources to screen for cachexia. This lack of psychosocial support generally has also reported in some other studies [28][29]. In the evaluation of steps taken for diagnosing cancer cachexia, most attention were on the clinical evaluation, with a modest attention paid to the use of inflammatory markers which are important tools in the evaluation of cancer cachexia [30][31]. These markers have been found useful both as predictive and prognostic factors in cancers generally [32][33][34][35]. In addition, the absence of national or specialist society guidelines from bodies like ARCON or NICRAT, as noted earlier, creates a policy vacuum. Without institutional mandates and standardized protocols, cachexia management defaults to individual physician discretion, leading to the inconsistencies observed. This issue of individual’s clinical judgement was also observed by Baracos et al [36] in their study. The challenge of specialist referral (67.8% barrier) further points to poorly integrated, multidisciplinary care pathways, which are essential for the multimodal management cachexia demands.

The variations across specialties offer important insights. Radiation oncologists consistently demonstrated the lowest barriers across almost all domains (knowledge, perception, practice, education). This may reflect a more holistic and supportive care-oriented training ethos, or greater exposure to the longitudinal, debilitating effects of cancer and its treatment. Conversely, gastroenterologists and anaesthesiologists/pain specialists exhibited high barriers, particularly in practice. For gastroenterologists, this may stem from a focus on procedural and acute gastrointestinal management rather than chronic cancer-related syndromes. For anaesthesiologists, the context of brief, perioperative encounters may limit their engagement in chronic cachexia management. The very high barriers among dental surgeons, while based on a small sample, highlight how even allied specialists involved in

managing oral complications (e.g., mucositis) that profoundly impact nutrition are disconnected from the cachexia care paradigm.

Finally, the education barrier (grade 1, 36.4%), while the lowest numerically, is foundational. The fact that over half (54.5%) reported insufficient education specific to cancer cachexia reveals a gap in both undergraduate and continuing medical education. This lack of formal training perpetuates knowledge gaps and reinforces reliance on clinical intuition over evidence.

Addressing the multifaceted barriers identified requires a coordinated, multi-pronged strategy at individual, institutional, and national levels. This includes: a) Development and dissemination of a National Contextual Guidelines. The foremost priority is for Nigerian oncology leadership bodies, particularly the Association of Radiation and Clinical Oncologists of Nigeria (ARCON), the Nigerian Society for Haematology and Blood Transfusion (NSHBT), and the National Institute for Cancer Research and Treatment (NICRAT), to develop and endorse simplified, pragmatic clinical practice guidelines for cancer cachexia screening and management. These guidelines must be sensitive to resource constraints, advocating for low-cost, high-impact interventions (e.g., routine weight tracking, basic nutritional counselling, low-resistance exercise) and clear referral pathways. Nationwide dissemination workshops are important. This can be developed in partner with such organisations like ASCO, ESPEN, ASPEN etc. b) Implementation of mandatory, screening protocols. Oncology institutions should be mandated on the routine use of simple screening tools (e.g., the Malnutrition Screening Tool (MST) or patient-generated Subjective Global Assessment (PG-SGA)) at every patient visit just like it was advocated in the PreMiO study ^[15]. This institutional policy would overcome individual practice variability and make screening a non-negotiable standard of care, facilitating early identification. c) Enhancement of targeted physician education. The incorporation of dedicated modules on cancer cachexia into the curriculum of medical schools, postgraduate oncology training, and continuing professional development programs. Education must move beyond theory to practical, skill-based training on motivational interviewing for dietary change, basic exercise prescription, and the use of anti-inflammatory strategies. Specialized workshops targeting high-barrier specialties (e.g., Family Medicine, Gastroenterology) are warranted. d) Foster multidisciplinary care (MDT) models. Various hospitals should be encouraged to formalize cachexia management within existing or new MDT frameworks. This involves clearly defining the roles of clinical oncologists, dietitians, physiotherapists, palliative care specialists, and psychologists. Creating designated "cachexia care coordinators" (e.g. clinical nurse specialists) could improve referral efficiency and patient navigation. e) Promotion of research and generation of local evidence. In order to combat

therapeutic nihilism, Nigerian researchers should prioritize clinical studies on cachexia interventions within the local context. Investigating the feasibility and efficacy of locally available nutritional supplements, traditional dietary modifications, and cost-effective anti-inflammatory approaches can build an evidence-based medicine protocol and empower physicians.

This study has several limitations that must be acknowledged. First, the use of a self-administered questionnaire is subject to social desirability bias; physicians may have over-reported favourable practices and under-reported barriers. The cross-sectional design captures a snapshot in time and cannot establish causality or track changes in practice over time. The sampling method, while capturing a diverse group, was electronic and may not be fully representative of all Nigerian physicians, particularly those in rural areas with limited internet access, potentially introducing selection bias. The unequal sample sizes across specialties (e.g., very few dental surgeons and gastroenterologists) limit the robustness of inter-specialty comparisons for these groups. Furthermore, the study assessed perceived barriers and self-reported practices, which may not perfectly align with actual clinical behaviour as observed through audit or chart review.

Conclusion

This study illuminates the significant and systemic barriers impeding effective cancer cachexia management in Nigeria, stemming from a confluence of knowledge deficits, fatalistic perceptions, inconsistent clinical practices, and a lack of supportive institutional frameworks. Physicians are caught between recognizing the gravity of cachexia and feeling ill-equipped, under-resourced, and unsupported to manage it comprehensively. The variations across specialties highlight the need for tailored educational and policy interventions. Ultimately, overcoming these barriers requires a paradigm shift from viewing cachexia as an inevitable terminal event to recognizing it as a modifiable syndrome that demands early, proactive, and multimodal intervention. This shift must be catalyzed by the development of national guidelines, the institutionalization of routine screening, targeted interdisciplinary education, and a commitment to fostering multidisciplinary collaboration. Addressing cancer cachexia is not merely a clinical add-on but an ethical imperative to improve the quality of life and outcomes for the growing number of Nigerians living with cancer.

Statements and Declarations

Funding

No specific funding was received for this work.

Potential Competing Interests

No potential competing interests to declare.

Ethics

This study was performed in line with the principles of the Declaration of Helsinki. Approval was granted by the Ethics Committee of University of Ilorin Teaching Hospital (UITH/CAT/189/21/676).

Consent to Participate

Informed consent was obtained from all individual participants included in the study.

Data Availability

The data supporting the conclusions of this article can be made available by the authors upon reasonable request.

Author Contributions

- O.I.: Conceptualization, Methodology, Formal analysis, Validation, Resources, Investigation, Writing – original draft, Writing – review & editing, Project administration.
- N.U.: Methodology, Validation, Resources Investigation, Data curation, Project administration.
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Acknowledgements

The authors would like to appreciate all participants in this study for their support and diligence.

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Declarations

Funding: No specific funding was received for this work.

Potential competing interests: No potential competing interests to declare.