

# Presentation, Clinical Outcome, and Quality of Life of Patients Treated for Head and Neck Skin Cancer at the University College Hospital, Ibadan

## Abstract

**Introduction:** Patients with head and neck skin cancer experience adverse functional, psychosocial, and financial impacts as a result of the disease and/or its treatment. This study aimed at evaluating the pattern of presentation, clinical outcomes, and quality of life of patients with head and neck skin cancer. **Materials and Methods:** A retrospective cross-sectional study of patients with head and neck skin cancer presenting to the Department of Plastic, Reconstructive & Aesthetic Surgery of the University College Hospital, Ibadan, from January 2017 to December 2021. Data obtained from the clinical records included sociodemographic characteristics, clinical and surgical details, as well as clinical outcomes. Quality of life was assessed using EORTC QLQ-C30 questionnaires. Data were summarized using descriptive statistics. **Results:** Nineteen patients were reviewed with a median age of 38 years (ranging from 18 to 85 years) and a male-to-female ratio of 1:1.4. Eight (42.1%) of the patients were albinos. Squamous cell carcinoma was the predominant histologic type (63.2%), while the scalp was the commonest location (42.1%). Only one patient (5.3%) presented with metastatic disease. A greater percentage of treated patients, eight (61.5%), had surgery as the only treatment modality. After a mean follow-up period of 33 months, a recurrence rate of 10.5% (two patients) and a mortality rate of 15.8% (three patients) were recorded. Quality of life assessment revealed an adverse financial impact of the disease on our patients. **Conclusion:** Although albinism is a recognized risk factor for skin cancers, head and neck skin cancers can occur in the dark-skinned.

**Keywords:** Head and neck, quality of life, skin cancer

## Introduction

Skin cancer constitutes the most common malignancy worldwide.<sup>[1-3]</sup> Its incidence has been on the increase, and this has been attributed to increased ultraviolet (UV) radiation exposure, ozone depletion, increased life span, genetics, and immune suppression.<sup>[2,3]</sup> Epidemiological studies have demonstrated a higher incidence of skin cancers in whites compared to blacks.<sup>[1,3]</sup> The photo-protective effect of melanin in dark-skinned individuals has been implicated as a key factor responsible for this racial disparity.<sup>[4]</sup> Nevertheless, blacks are more likely to die from skin cancers compared to whites due to late presentation and delayed diagnosis.<sup>[1]</sup> Albinism is an important risk factor for skin cancer in sub-Saharan Africa, and black albinos residing in the region have a 1000-fold increased risk of squamous cell carcinoma compared to the general population.<sup>[5,6]</sup> Skin cancers can be broadly classified into melanoma

and non-melanoma skin cancers (NMSC). Histologic types of NMSC include basal cell carcinoma, squamous cell carcinoma, basosquamous cell carcinoma, Merkel cell carcinoma, Kaposi sarcoma, and adnexal skin cancer.<sup>[7]</sup> Over 80% of NMSCs occur in sun-exposed areas of the body, such as the head, neck, and dorsum of the hands.<sup>[3]</sup>

Skin cancers of the head and neck can lead to life-changing cosmetic and functional deficits with resultant psychological, physical, and nutritional detriments.<sup>[8]</sup> Therefore, preventive measures are pertinent and include the use of sunscreens, protective clothing, avoidance of sun exposure during peak sunshine hours, and regular self-skin examination.<sup>[9]</sup> Management is multidisciplinary. Treatment modalities include surgery, radiotherapy, chemotherapy, photodynamic therapy, immunotherapy, and targeted therapy.<sup>[1]</sup> Lifelong follow-up is needed to detect recurrence and measure outcomes. Patient-reported outcome measures (PROM) are important for

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determining the effect of disease and treatment on the quality of life of patients.<sup>[10]</sup> The European Organisation for Research and Treatment of Cancer (EORTC) Quality of Life Core Questionnaire (QLQ-C30) is one of the most widely used cancer-specific PROM.<sup>[11]</sup> EORTC QLQ-C30 has published general population normative data<sup>[11]</sup> as well as reference values for various cancer populations.<sup>[12]</sup> This study aimed at evaluating the pattern of presentation, clinical outcomes, and quality of life of patients with head and neck skin cancers presenting to a plastic surgery service.

## Materials and Methods

### Study design/setting/participants

The study was a retrospective cross-sectional study of patients with head and neck skin cancer that presented to the Department of Plastic, Reconstructive & Aesthetic Surgery of the University College Hospital, Ibadan, between January 2017 and December 2021. The clinical records of the patients were reviewed.

### Study instrument and data collection

Data were obtained from the out- and in-patient records. These included sociodemographic characteristics, clinical and surgical details, as well as clinical outcomes (postoperative complications, recurrence, and mortality). Additional clinical outcome data was obtained through phone calls to the patients or next of kin (in case of the demise of a patient). EORTC QLQ-C30 questionnaires were administered to 10 out of the 19 patients with head and neck skin cancers managed during the period of review; three were dead, while six patients were lost to follow-up. This was done by an interviewer through phone calls and during follow-up clinic visits. Informed consent was obtained from the patients before administering the questionnaires. EORTC QLQ-C30 is a 30-item scale with responses to each item graded from 0 to 100.<sup>[13]</sup> The 30 items are grouped under two broad scales: functioning and symptom scales. Higher scores for items under the functioning scale represent a higher level of functioning, while higher scores for items under the symptom scale represent a greater degree of symptoms. The functioning scale has six subscales: physical, role, cognitive, emotional, social, and global quality of life. The symptom scale comprises nine subscales/items: fatigue, nausea and vomiting, pain, dyspnea, sleep disturbance, appetite loss, constipation, diarrhea, and financial impact.<sup>[13]</sup>

### Data analysis

The data were analyzed using the IBM SPSS Statistics for Windows, version 23 (IBM Corp., Armonk, New York). Descriptive statistics was used to summarize the sociodemographic characteristics, clinical and surgical details, as well as clinical outcomes of the patients. The mean scores of the EORTC QLQ-C30 subscales were obtained from the average of the sum of the scores of the items under the subscales. These mean scores were

compared with EORTC QLQ-C30 normative values and reference values for head and neck cancer patients.

## Results

Between January 2017 and December 2021, 19 patients presented to the department with head and neck skin cancers. However, 13 of these had their case-notes retrieved (68.4% case-note retrieval rate). The age of the patients at presentation ranged from 18 to 85 years, with a median of 38 years. A male-to-female ratio of 1:1.4 was recorded. Most of the patients were married, 12 (63.2%) and had secondary education as their highest educational qualification, eight (42.1%). The sociodemographic characteristics of the patients are shown in Table 1.

### Clinical and surgical details

Eight (42.1%) of the patients were albinos [Table 2]. The histologic types of skin malignancy were squamous cell carcinoma (63.2%,  $n = 12$ ), basal cell carcinoma (26.3%,  $n = 5$ ), melanoma (5.3%,  $n = 1$ ), and basosquamous carcinoma (5.3%,  $n = 1$ ) [Figure 1]. The scalp was the commonest location of head and neck skin cancers (42.1%,  $n = 8$ ) [Figure 2]. Only four patients (21.1%) had a comorbid condition (hypertension). Most of the patients had localized (47.4%,  $n = 9$ ) and locally advanced disease (47.4%,  $n = 9$ ) at presentation. Only one patient (5.3%) presented with metastatic disease. Out of 13 patients who received treatment, eight (61.5%) had surgery as the only treatment modality, with only two patients (15.4%) having more than one surgery. Fifteen surgeries were done during the period of review, with pedicled flap (53.3%;  $n = 8$ ) being the commonest reconstructive procedure and free flap (6.7%;  $n = 1$ ), the least common reconstructive procedure, following wide local excision of the skin malignancy. None

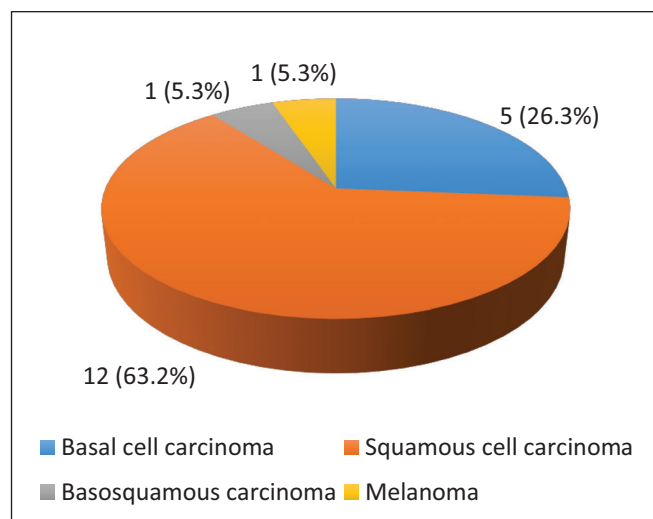
**Table 1: Sociodemographic characteristics of patients**

Variable	Frequency ( $n = 19$ )	Percentage
Age (years)		
<45	11	57.9
45–64	5	26.3
≥65	3	15.8
Sex		
Male	8	42.1
Female	11	57.9
Marital status		
Married	12	63.2
Single	3	15.8
Widowed	2	10.5
Not specified	2	10.5
Highest educational level		
No formal education	1	5.3
Primary	4	21
Secondary	8	42.1
Tertiary	3	15.8
Not specified	3	15.8

**Table 2: Clinical and surgical details**

Variable	Frequency ( <i>n</i> = 19)	Percentage
Albinism		
Yes	8	42.1
No	11	57.9
Comorbidities		
Hypertension	4	21.1
None	15	78.9
Stage of disease at presentation		
Localized	9	47.4
Locally advanced	9	47.4
Metastatic	1	5.3
Treatment modality ( <i>n</i> = 13)		
Surgery only	8	61.5
Multimodal therapy	5	38.5
Number of surgeries ( <i>n</i> = 13)		
One	11	84.6
≥2	2	15.4
Surgery done ( <i>n</i> = 15)		
WLE * and direct closure	2	13.3
WLE and skin grafting	4	26.7
WLE and pedicled flap	8	53.3
WLE and free flap	1	6.7

\*WLE—wide local excision

**Figure 1: Histologic types of head and neck skin cancers**

of the patients had Mohs micrographic surgery (MMS). The clinical and surgical details of the patients are shown in Table 2.

### Clinical outcomes

The mean duration of hospital stay was 9.68 ( $\pm 11.70$ ) days. Postoperative complications were recorded in five (26.3%) patients [Table 3]. After a mean follow-up period of 33 months (ranging from 15.8 to 57.5 months), a mortality rate of 15.8% (three patients) was recorded, while six (31.6%) patients were lost to follow-up [Table 3]. Two (10.5%) patients had recurrence during the follow-up period.

### Quality of life outcome

EORTC QLQ-C30 questionnaires were administered to ten patients by an interviewer. Our study patients had the highest level of functioning in the emotional subscale ( $96.25 \pm 5.27$ ) and the least level of functioning in the global quality of life subscale ( $83.56 \pm 14.71$ ). On the other hand, the patients were most adversely impacted financially ( $57.50 \pm 31.29$ ) and had the least degree of symptoms in constipation ( $32.50 \pm 23.72$ ) and sleep disturbance ( $32.50 \pm 23.72$ ) subscales. The mean values for the functioning and symptom subscales of the EORTC QLQ-C30 of the patients are shown in Table 4.

Comparison of the mean values of our study patients with normative values<sup>[11]</sup> and mean values of head and neck cancer patients from prior studies<sup>[12]</sup> showed better functionality but greater degree of symptoms by our study patients [Figures 3 and 4].

### Discussion

A female preponderance of head and neck skin cancers was found in our study. Most prior studies recorded a male preponderance of head and neck skin cancers.<sup>[14-16]</sup> However, Adeyemi *et al.*<sup>[17]</sup> in their review of melanoma of the head and neck found a female-to-male ratio of 3:1 in patients younger than 40 years. Multicenter epidemiological studies will elucidate the role of gender as a risk factor for head and neck skin cancers.

About one-fifth of our study population had a comorbid condition, which is much lower than the 75% recorded in a study in the Netherlands.<sup>[16]</sup> This can be attributed to the much younger population in our study.

Squamous cell carcinoma was the most common head and neck skin cancer in our study. This is similar to the findings from previous studies in Nigeria<sup>[14,18,19]</sup> and in African-Americans.<sup>[20]</sup> However, in Caucasians, basal cell carcinoma ranks highest amongst the other histologic skin cancer types in terms of frequency of occurrence.<sup>[15,16]</sup> The reason for this racial disparity is unclear but may be due to genetic factors.<sup>[21]</sup> Unlike prior studies in Nigeria,<sup>[14,18]</sup> Kaposi sarcoma was not recorded in our study. This may be explained by the lower incidence of HIV, an important risk factor for Kaposi sarcoma,<sup>[21,22]</sup> in Oyo state compared to the other study locations.<sup>[23]</sup> The scalp was the commonest site of head and neck skin cancers in our study. A similar site distribution pattern was recorded by Yakubu *et al.*<sup>[14]</sup> in their study in Zaria, Nigeria. This site predilection is postulated to be linked to the prevalence of chronic scalp infections, such as fungal infections and viral warts in the population.<sup>[14]</sup>

Albinism is a recognized risk factor for skin cancers in Black African populations<sup>[5,6]</sup> and was seen in eight (42.1%) of our study patients. This incidence is much higher than the findings from Ahmadu Bello University Teaching

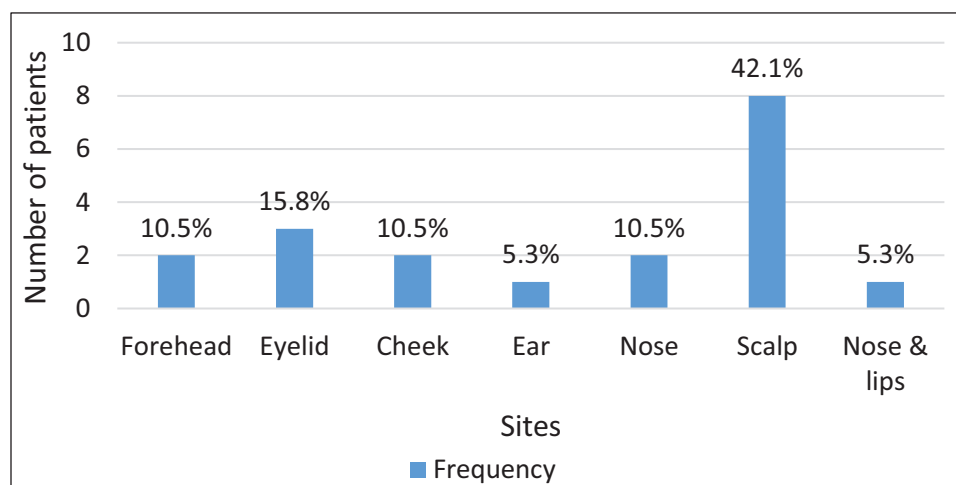


Figure 2: Site distribution of head and neck skin cancers

Table 3: Clinical outcomes

Variable	Frequency	Percentage
Postoperative complications (n = 5)		
Donor site morbidity	3	60.0
Flap necrosis	1	20.0
Flap venous congestion	1	20.0
Outcome (n = 19)		
Lost to follow-up	6	31.6
Alive	10	52.6
Dead	3	15.8

Table 4: Quality of life outcome (EORTC QLQ-C30)

Scale	Mean $\pm$ SD
Functioning scales	
Physical	90.48 $\pm$ 12.36
Role	88.75 $\pm$ 14.96
Cognitive	90.00 $\pm$ 11.49
Emotional	96.25 $\pm$ 5.27
Social	95.00 $\pm$ 6.45
Global quality of life	83.56 $\pm$ 14.71
Symptom scales	
Fatigue	40.83 $\pm$ 20.58
Nausea and vomiting	35.00 $\pm$ 24.15
Pain	41.25 $\pm$ 25.03
Dyspnea	45.00 $\pm$ 28.38
Sleep disturbance	32.50 $\pm$ 23.72
Appetite loss	52.50 $\pm$ 34.25
Constipation	32.50 $\pm$ 23.72
Diarrhea	42.50 $\pm$ 28.99
Financial impact	57.50 $\pm$ 31.29

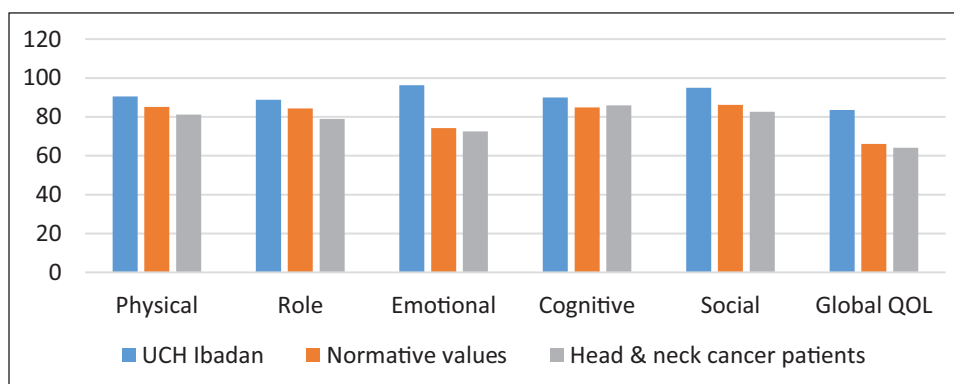
Hospital (ABUTH), Zaria, Nigeria,<sup>[14]</sup> but lower than the values from the University of Calabar Teaching Hospital (UCTH), Calabar, Nigeria.<sup>[18]</sup> However, a greater percentage (57.9%) of our study patients were dark-skinned and one had melanoma. In vitro studies have demonstrated that melanin releases toxic intermediates on exposure to UV

radiation, which can induce single-strand DNA breaks in skin cells, leading to melanoma formation.<sup>[4]</sup> This has been implicated as the explanation for the rarity of melanoma in albinos and underscores the fact that no skin type has absolute protection from the deleterious effect of UV radiation. Therefore, even dark-skinned individuals should be educated on photo-protective measures.

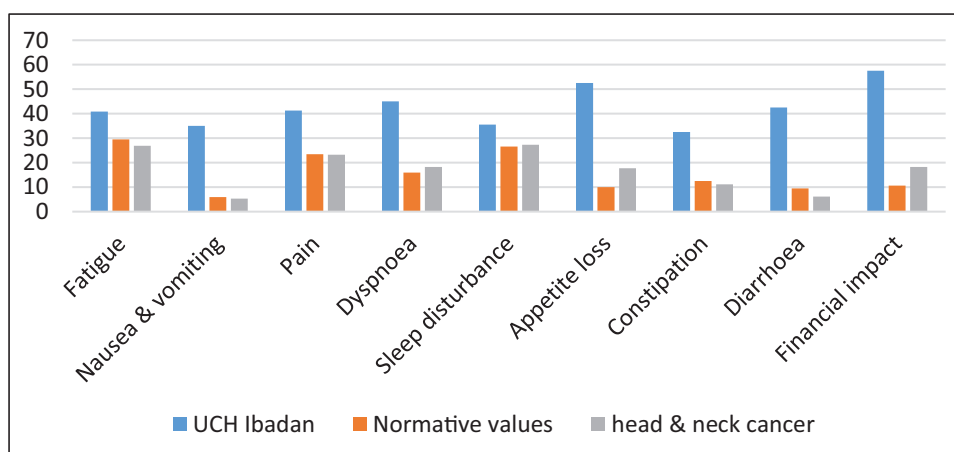
MMS is a surgical technique that utilizes layer-by-layer excision and microscopic margin assessments to obtain complete and precise excision of tumors.<sup>[24]</sup> MMS has the advantage of maximum preservation of normal tissues, which is important in the excision of head and neck skin cancers as the maintenance of form, cosmesis, and function is critical in the head and neck region.<sup>[25]</sup> In addition, studies have shown lower local recurrence rates for head and neck skin cancers after treatment with MMS compared to wide local excision.<sup>[24,26]</sup> However, none of our patients had MMS due to the unavailability of the facilities in our institution.

When compared to EORTC QLQ-C30 normative values<sup>[11]</sup> and reference values for head and neck cancer patients,<sup>[12]</sup> our study patients had better functionality and global quality of life. This can be attributed to the response shift phenomenon. The response shift phenomenon is a type of bias in Health-related Quality of life (QOL) studies in which there is a change or recalibration in a patient's QOL perception as the patient progresses through a healthy state, different stages of the disease, as well as following treatment.<sup>[27]</sup> Having experienced the difficulty of the pretreatment phase of the disease, the patient tends to assign more significance to any improvement in the QOL following treatment compared to the premorbid healthy state.<sup>[27]</sup> The response shift phenomenon has been reported by previous QOL studies in head and neck skin cancer patients and patients with melanoma.<sup>[16,28]</sup> However, the normative values and reference values for head and neck cancer patients were obtained from a different study population (13 European





**Figure 3: Comparison of EORTC QLQ-C30 functioning subscales mean values of study patients, normative values,<sup>[11]</sup> and reference values<sup>[12]</sup> for head and neck cancer patients**



**Figure 4: Comparison of EORTC QLQ-C30 symptom subscales mean values of study patients, normative values,<sup>[11]</sup> and reference values<sup>[12]</sup> for head and neck cancer patients**

countries, Canada, and the United States). In addition, the financial impact of the disease was higher in our patients compared to normative values and reference values for head and neck cancer patients. This could be due to health-related productivity loss as a result of the disease and/or the adverse impact of out-of-pocket payment for cancer treatment on our patients with head and neck skin cancer. This study, however, did not determine the proportion of the study patients who paid out of pocket for their cancer treatment. The National Health Insurance Scheme is yet to have universal coverage in Nigeria. In addition, the available scheme does not cover most cancer treatments.<sup>[29]</sup> Though a Cancer Health Fund (CHF) has been provided by the Federal government to support indigent cancer patients, this intervention did not include patients with skin cancers.<sup>[30]</sup> In addition, the CHF is only available in six Federal Teaching Hospitals in the country.<sup>[30]</sup>

Furthermore, our study patients had worse cancer-related symptoms compared to head and neck skin cancer patients in developed countries. This may be the result of better cancer treatment modalities and follow-up in these countries.<sup>[31]</sup>

### Strength of the study

The study assessed the quality of life of our study patients, which is a patient-reported outcome measure.

### Limitations of the study

The small sample size of the study limits the scientific inference that can be made from the study. In addition, the EORTC QLQ-C30 normative values and reference values for head and neck cancer patients used to compare with EORTC QLQ-C30 mean values of our study patients were obtained from a different socioeconomic and cultural setting.

### Conclusion

Although albinism is a recognized risk factor for skin cancers, head and neck skin cancers can occur in the dark-skinned. There is, therefore, a need for photo-protective measures for individuals with significant sun exposure, irrespective of skin type. Furthermore, multicenter studies are needed to further elucidate the effect of disease and treatment on the quality of life of patients with head and neck skin cancer.

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## Presentation at a meeting

This article was presented at the Grand Round meeting of the Department of Surgery, University College Hospital, Ibadan, on April 19, 2022, at the Department of Surgery's seminar room, Prof Akinkugbe's building, University College Hospital, Ibadan.

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Nil.

## Conflicts of interest

There are no conflicts of interest.

## References

- Gupta AK, Bharadwaj M, Mehrotra R. Skin cancer concerns in people of color: Risk factors and prevention. *Asian Pac J Cancer Prev* 2016;17:5257-64.
- Leiter U, Eigentler T, Garbe C. Epidemiology of skin cancer. *Adv Exp Med Biol* 2014;810:120-40.
- Diepgen TL, Mahler V. The epidemiology of skin cancer. *Br J Dermatol* 2002;146:1-6.
- Brenner M, Hearing VJ. The protective role of melanin against UV damage in human skin. *Photochem Photobiol* 2009;84:539-49.
- Wright CY, Norval M, Hertle RW. Oculocutaneous Albinism in sub-Saharan Africa: Adverse sun-associated health effects and photoprotection. *Photochem Photobiol* 2015;91:27-32.
- Lekalakala PT, Khammissa RAG, Kramer B, Lemmer J, Feller L. Oculocutaneous Albinism and squamous cell carcinoma of the skin of the head and neck in sub-Saharan Africa. *J Skin Cancer* 2015;1:1-6.
- Paolino G, Donati M, Didona D, Mercuri SR, Cantisani C. Histology of non-melanoma skin cancers: An update. *Biomedicines* 2017;5:71-12.
- Heutte N, Plisson L, Lange M, Prevost V, Babin E. Quality of life tools in head and neck oncology. *Eur Ann Otorhinolaryngol Head Neck Dis* 2014;131:33-47.
- Kornek T, Augustin M. Skin cancer prevention. *Journal der Deutschen Dermatologischen Gesellschaft = J German Soci Dermatol* 2013;11:283-96; quiz 297.
- Bottomley A, Reijneveld JC, Koller M, Flechtner H, Tomaszewski KA, Greimel E; 5th EORTC Quality of Life in Cancer Clinical Trials Conference Faculty. Current state of quality of life and patient-reported outcomes research. *Eur J Cancer* 2019;121:55-63.
- Nolte S, Liegl G, Petersen MA, Aaronson NK, Costantini A, Fayers PM, *et al.* General population normative data for the EORTC QLQ-C30 health-related quality of life questionnaire based on 15, 386 persons across 13 European countries, Canada and the United States. *Eur J Cancer* 2019;107:153-63.
- Scott NW, Fayers P, Aaronson NK, Bottomley A, de Graeff A, Groenvold M, *et al.* EORTC QLQ-C30 Reference Values Manual. 2nd ed. Brussels, Belgium: EORTC Quality of Life Group; 2008. 427 p.
- Aaronson NK, Ahmedzai S, Bergman B, Bullinger M, Cull A, Duez NJ, *et al.* The European Organization for Research and Treatment of Cancer QLQ-C30: A quality-of-life instrument for use in international clinical trials in oncology. *J Natl Cancer Inst* 2018;85:365-76.
- Yakubu A, Mabogunje O. Skin cancer of the head and neck in Zaria, Nigeria. *Acta Oncol* 1995;34:469-71.
- Nightingale J, Travers L, Campbell J, Huang J, Green M, Warren T, *et al.* Outpatient surgical management of non-melanoma skin cancers of the head and neck in a regional centre: An analysis of costs and outcomes. *ANZ J Surg* 2021;91:139-44.
- Arts LPJ, Waalboer-Spuij R, de Roos KP, Thissen MRTM, Scheijmans LJ, Aarts MJ, *et al.* Health-related quality of life, satisfaction with care, and cosmetic results in relation to treatment among patients with Keratinocyte Cancer in the head and neck area: Results from the PROFILES Registry. *Dermatology* 2020;236:133-42.
- Adeyemi BF, Ogun GO, Akinyamoju AO. Melanoma of the head and neck: A 28-year review. *Afr J Oral Maxillofac Path* 2017;3:27-36.
- Asuquo ME, Otei OO, Bassey UI, Ebughe G. Skin malignancy of the head and neck in Calabar, Southern Nigeria. *Eur J Plast Surg* 2010;33:87-9.
- Okafor OC, Onyishi NT. Primary cutaneous malignancies in nonalbino and albino Africans. *Int J Dermatol* 2020;60:222-8.
- Halder RM, Bridgeman-shah S. Skin cancer in African Americans. *Cancer* 1995;75:667-73.
- Ochicha O, Edino ST, Mohammed AZ, Umar AB. Dermatological malignancies in Kano, Northern Nigeria: A histopathological review. *Ann Afr Med* 2004;3:188-91.
- Schneider JW, Dittmer DP. Diagnosis and treatment of Kaposi sarcoma. *Am J Clin Dermatol* 2018;18:529-39.
- Federal Ministry of Health, Nigeria. Nigeria HIV/AIDS Indicator and Impact Survey (NAIIS) 2018: Technical Report. Abuja, Nigeria. 2019. 297 p.
- Bittar PG, Bittar JM, Etzkorn JR, Brewer JD, Aizman L, Shin TM, *et al.* Systematic review and meta-analysis of local recurrence rates of head and neck cutaneous melanomas after wide local excision, Mohs micrographic surgery, or staged excision. *J Am Acad Dermatol* 2021;85:681-92.
- Jefferson GD. The role of Mohs surgery in cutaneous head and neck cancer. *Otolaryngol Clin North Am* 2021;54:439-47.
- van Lee CB, Roorda BM, Wakkee M, Voorham Q, Mooyaart AL, de Vijlder HC, *et al.* Recurrence rates of cutaneous squamous cell carcinoma of the head and neck after Mohs micrographic surgery vs. standard excision: A retrospective cohort study. *Br J Dermatol* 2019;181:338-43.
- Hosseini B, Nedjat S, Zendehele K, Majdzadeh R, Montazeri A. Response shift in measuring health-related quality of life: Concepts, definitions, and challenges. *Basic Clin Cancer Res* 2013;5:2-9.
- Vries MD, Hoekstra HJ, Hoekstra-weebers JEHM. Quality of life after axillary or groin sentinel lymph node biopsy, with or without completion lymph node dissection, in patients with cutaneous melanoma. *Ann Surg Oncol* 2009;16:2840-7.
- Coker T. Cancer Care in Nigeria - A Call to Action. [Internet]. 2022. Available from: <https://www.tchealthng.com/thought-pieces/cancer-care-in-nigeria-a-call-to-action> [Last accessed on 19 Feb 2023].
- Okpikpi O. National Cancer Control Programme (NCCP) Submission. [Internet]. 2022. Available from: <https://www.health.gov.ng/programmes/national-cancer-control-programme> [Last accessed on February 19, 2023].
- Stefan DC. Cancer care in Africa: An overview of resources. *J Glob Oncol* 2015;1:30-6.