

## Quality Of Life In Patients With Head And Neck Cancer On Radiotherapy Treatment At Ibadan

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**Abstract:** Head and neck cancers (HNC) include a wide range of cancers that occur in different sites of the head and neck region. HNC constitutes 5-50% of all cancers globally and 5-8% of total body cancers in Europe and America. It is difficult to appreciate the burden of HNC in Nigeria because most studies available are hospital based. The aims of this study are to assess and compare the health related quality of life (HRQOL) in HNC patients before and at the end of radiotherapy treatment and to assess the effect of gender and stage of disease on HRQOL. This is a prospective study involving 100 patients with HNC at the Radiotherapy Department, University College Hospital, Ibadan, using two European Organization for Research and Treatment of Cancer (EORTC) Quality of Life Questionnaires (QLQ), namely the General Cancer questionnaire (C30-QLQ) and Head and Neck Cancer specific questionnaire (H&N35-QLQ). The (HRQOL) was assessed pre-treatment and post radiotherapy. Fifty eight (58) were males while the rest were females. Their mean age was 49.86 years. Majority of patients are of the low socioeconomic class and had advanced disease. There was deterioration of HRQOL during treatment, with the nasopharynx and oropharynx tumours having more problems compared with other tumour sites. Role functioning, social functioning, pain, use of pain killers and financial difficulty were the most experienced symptoms. There is a reduction in the quality of life of the patients in the course of treatment. Pain is the main problem of these HNC patients, it requires more attention by the caregiver and awareness programs are needed to encourage early presentation.

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### Introduction

The diagnosis of cancer especially in the Head and neck region generally creates an atmosphere of unbelief and doubt. Coming to terms with its reality may result in a varied psychological response. The patients are cosmetically deformed by the disease, their daily activities disorganised and further compounded by the problems of treatment regime instituted<sup>1</sup>. The burden of managing HNC is enormous.

Annually more than 10 million persons are diagnosed with cancer worldwide. More than half of these persons are in the developing world. World Health Organization (WHO) estimates that 12.5% of all deaths worldwide are due to cancer. This is greater than deaths due to Human Immunodeficiency Virus/Acquired Immune Deficiency Syndrome (HIV/AIDS), Malaria and tuberculosis combined<sup>2</sup>. However, in developing countries like Nigeria and other African countries death due to HIV/AIDS and Malaria far exceeds that of cancer<sup>3</sup>. Head and Neck cancer (HNC) problem can cause a profound effect on the quality of life (QOL) of a patient even many years after treatment. Factors such

as patients' age, occupation, performance status, stage of the disease, co-morbid medical condition, pathological features, availability of experienced specialists in the required fields and the relative impact of the treatment options, could influence the overall QOL in patients with HNC.

The treatment modalities in Nigeria for HNC include surgery, chemotherapy and radiotherapy either singly or in combination. The prevalence of head and neck cancers is on the increase and the peak incidence is among the active working class<sup>4</sup>. There are five functional radiotherapy centres in Nigeria today with a population of over 140 million people. This comes to one radiotherapy centre to about 30 million persons, as against the WHO recommendation of 1: 250,000 persons<sup>5</sup>. This means that patients will have to travel long distances for radiotherapy.

This study aims at assessing the quality of life in patients with HNC receiving radiotherapy and chemotherapy, in the department of Radiotherapy, University College Hospital, Ibadan.

## Methodology

The study was carried out in the Radiotherapy Department, University College Hospital (UCH), Ibadan.

### Study Population:

The study population consisted of patients with HNC referred to radiotherapy clinic from Ear Nose and Throat (ENT) and maxillofacial clinics after histological diagnosis. All new patients with HNC of all stages who met the inclusion criteria were interviewed at the baseline and at about the 4<sup>th</sup> and 5<sup>th</sup> weeks while still on radiotherapy, corresponding to dose of about 45-55Gy. This represents the average prescribed dose to these patients.

All patients above the age of 18 years with histologically diagnosed HNC were included in the study. Patients with severe depression were excluded from the study. Severe depression was screened using a rapid depression screening assessment instrument, structured clinical interview for DSM-IV Axis I disorder ( SCID ) i.e. SCID-Screening module [4]. Other patients that were excluded are non-consenting patients, patients who have received previous radiotherapy to the head and neck and patients that were too ill to be interviewed. These patients were assessed using the World Health Organization Performance status scale [5]. Patients with performance status scores below 2 were excluded.

The EORTC QOL-C30, a multidimensional general cancer specific questionnaire and EORTC QLQ-H&N35, a HNC site specific questionnaire was validated and used with permission from the EORTC QOL group to obtain information from the patients after obtaining an informed consent and assessment with the WHO performance status scale and screening for severe depression with the SCID module as part of the exclusion criteria.

Statistical Package for Social Sciences (SSPS) version 15.0 was used for the data analysis. The level of significance was set at  $p < 0.05$ . Frequency and percentages, mean, and standard deviation were used to summarise the sociodemographic variables of the patient. The QOL scores of each domain were computed for each respondent and t – test was used to test the significance of difference between the QOL scores of males and females. The t-test was also used to identify the subgroup of HNC patients with tumour sites that have poor QOL score at the end of radiotherapy treatment. The test of significance of difference between the QOL scores of patients with early and late stages of disease were analysed using Analysis of Variance (ANOVA) or F-test.

### Results:

A total of hundred patients completed the questionnaire. The mean age was 49.87 years (range 18-86, standard deviation -17.48). Table 1 shows the demographic characteristics of the patients. Twenty one percent of the patients were single or divorced, 70% were married while 9(9%) were widows/widowers. Six percent had primary school education, 38(38%) and 31(31%) had secondary and tertiary education respectively, while 25(25%) had no formal education. Nineteen percent were of high socioeconomic status while the majority 81(81%) were of low socioeconomic status. Smoking alone was observed in 5(5%) of patients, alcohol alone ingestion was observed in 23(23%), while 11(11%) of patients were observed to take both (smoking and alcohol) and 61(61%) neither smoke nor take alcohol.

Table 2 shows that 12(12%) of patients had cancer in oral cavity, nasopharyngeal cancer 26 (26%), oropharyngeal cancer 5(5%), laryngeal cancer 12(12%), sinonasal region cancer 14 (14%), salivary gland cancer 16(16%), thyroid gland cancer 13(13%), cancer of the mandible 1(1%) and lacrimal gland cancer 1(1%). Fifty five percent of the patients had squamous cell carcinoma, poorly differentiated carcinoma 10(10%), adenoid cystic carcinoma 9(9%), adenocarcinoma 4 (4%), papillary carcinoma, follicular carcinoma, sarcoma and pleomorphic adenoma 3(3%) each, acinic cell carcinoma 2(2%) and others 8(8%) that includes melanoma, lymphoma, basal cell carcinoma and medullary carcinoma. Ten percent of the patients presented with early stage disease (1&11), the majority 81(81%) presented with advanced disease (111&1V) while the stage of disease was not documented in 9(9%) patients. Two percent had radiotherapy alone, 5(5%) had radiotherapy and surgery, 33(33%) had radiotherapy and chemotherapy while 60(60%) had surgery, chemotherapy and radiotherapy.

Table 3 shows the pre-treatment and end of treatment quality of life mean scores. For C30-QLQ, the mean scores of head and neck cancer patients pre-treatment (baseline) compared to scores at the end of treatment, shows a deterioration in global health status (56.2 vs. 55.4) i.e., decrease in mean scores (low QOL) which is not statistically significant ( $p=0.57$ ), however, there was a statistically significant fall in the level of functioning in all the five functional scales  $p=0.00$ ; physical functioning (84.8 vs 77.2), role functioning (64.1 vs 45.7), emotional functioning (77.8 vs 73.2), cognitive functioning (81.9 vs 77.0) and social functioning (60.0 vs 43.3). For role functioning and social functioning the difference were both statistically and

clinically significant (mean difference 10 points). There was an overall worsening of C30-QLQ symptoms items at the end of treatment compared with baseline i.e., increase in mean scores that is statistically significant  $p=0.00$  except for dyspnoea  $p=0.81$ . The comparative mean scores for the symptoms were fatigue (24.0 vs 45.8), nausea (19.0 vs 9.0), pain (32.1 vs 41.3), insomnia (15.3 vs 20.7), loss of appetite (28.2 vs 51.3), constipation (10.2 vs 20.4), diarrhoea (8.1 vs 19.0) and financial difficulty (61.9 vs 77.5). The differences in the mean scores were both statistically and clinically (mean difference

10 points) significant for symptoms of fatigue, nausea and vomiting, loss of appetite, constipation, diarrhoea and financial difficulty. Symptoms scales on H&N35 QLQ showed an overall worsening i.e., increase in mean scores (high level of problems or symptoms) that is statistically significant  $p=0.00$  except for use of nutritional supplements, use of feeding tube and weight gain  $p>0.05$ . The changes were also clinically significant (mean 10 points) in pain, swallowing, senses, social eating, social contact, sex, problem with teeth, opening mouth, dry mouth, sticky saliva, feeling ill and use of pain killers.

**Table 1 – Demographic Characteristics.**

Variable	No. (%)
Age:	
Overall mean age = 49.86 years	
Standard Deviation (SD) = 17.48, range = 18–85 years	
Mean age for males = 51.59 years	
SD = 16.93, range = 19 – 85	
Mean age for females = 47.60 years	
SD = 18.39, range = 18 – 85	
Age group distributions:	
Age group	
16-25	13(13%)
26-35	9(9%)
36-45	20(20%)
46-55	16(16%)
56-65	24(24%)
66-75	11(11%)
76-85	18(18%)
Sex:	
Male	58(58%)
Female	42(42%)
Marital status:	
Single	21(21%)
Married	70(70%)
Widow/widower	9(9%)
Level of Education:	
Primary	6(6%)
Secondary	38(38%)
Tertiary	31(31%)
None	25(25%)
Socioeconomic status:	
High socioeconomic status	19(19%)
Low socioeconomic status	81(81%)
Social habits:	
Smoking alone	5(5%)
Alcohol alone	23(23%)
Smoking & alcohol	11(11%)
None	61(61%)

**Table 2 – Site of disease, histology, stage of disease and treatment options.**

Variables	No.(%)
<b>Site of lesion:</b>	
Oral cavity	12(12%)
Nasopharynx	26(26%)
Oropharynx	5(5%)
Larynx	12(12%)
Sinonasal region	14(14%)
Salivary gland	16(16%)
Thyroid gland	13(13%)
Mandible	1(1%)
Lacrimal gland	1(1%)
<b>Histology:</b>	
Squamous cell carcinoma	55(55%)
Poorly differentiated carcinoma	10(10%)
Adenoid cystic carcinoma	9(9%)
Adenocarcinoma	4(4%)
Papillary carcinoma	3(3%)
Follicular carcinoma	3(3%)
Pleomorphic adenoma	1
Sarcoma	3(3%)
Acinic cell carcinoma	3(3%)
Others	8(8%)
<b>Stage of disease:</b>	
Early (1&11)	10(10%)
Late (111&1V)	81(81%)
Not certain	9(9%)
<b>Treatment modalities:</b>	
Radiotherapy alone	2(2%)
Radiotherapy+surgery	5(5%)
Radiotherapy+chemotherapy	33(33%)
Radiotherapy+chemotherapy+surgery	60(60%)

Table 4 shows the quality of life of head and neck cancer by gender and stage of disease. Generally, in C30-QLQ females had higher mean scores than males in role functioning, cognitive functioning, social functioning, dyspnoea and constipation, but almost equal scores with males in global health status, physical functioning, emotional functioning and nausea and vomiting. Males had higher mean scores in fatigue, pain, insomnia, loss of appetite, diarrhoea and financial difficulty. Males however, in H&N35-QLQ had higher scores in pain, speech, social eating, social contact, problems with teeth, problems opening mouth, dry mouth, sticky saliva, cough, use of pain killers and weight gain, but almost equal scores only in swallowing with females. Females had higher scores in senses, sex, nutritional supplements, feeding tube and weight loss. Statistically there was no significant difference between males and females for all the scales and items on both C30-QLQ and H&N35-QLQ. The mean scores of quality of life by stage of disease showed an overall decrease in global health status and all the functional scales in C30-

QLQ in late disease (stage 111&1V) compared with early disease (stage 1&11) these corresponds to low level of functioning and low overall health in late disease. Late disease had higher scores than early disease in all the symptoms scales/items in C30-QLQ, these means that patients with late disease have high level of symptoms or problems compared with early disease. Late disease also had higher scores in all the scales/items in H&N35-QLQ than early disease also corresponding with higher symptoms or problems. Statistically, there was a significant difference (clinically significant, mean difference 10) in the mean score between early and late stage disease for global health status, fatigue, pain and constipation in C30-QLQ and HNSW (swallowing), HNSO (social eating), HNDR (dry mouth), HNPk (use of pain killers) and HNNU (use of nutritional supplements) on H&N35-QLQ. However, there was no statistical difference in the mean scores between early and late stage disease for the rest of the scales/items in C30-QLQ and H&N35-QLQ.

**Table 3 – Comparison of Pretreatment and End of treatment quality of life scores.**

Scale/Item		Pre-treatment	End of treatment	Mean	Standard	95%	confidence	
p-value		mean score	mean score	difference	deviation	interval	interval	
								Lower
Upper								bound
								bound
<b>EORTC C30-QLQ</b>								
	Global health status	56.2	55.4	0.7	13.4	-0.9	3.5	
0.57	Physical functioning	84.8	77.2	7.6	7.6	10.3	5.5	
9.7	0.00 Role functioning	64.1	45.7	18.3	18.3	19.0	14.5	
22.2	0.00 Emotional functioning	77.8	73.3	4.5	4.5	11.4	2.2	
6.8	0.00 Cognitive functioning		81.9	77.0		4.9	12.7	
2.3	7.4 0.00 Social functioning		60.0	43.4		16.6	24.0	
11.8	21.5 0.00 Fatigue	24.0		45.8	-21.7	28.0	-27.4	
-16.1	0.00 Nausea & vomiting	19.0		29.1	-10.0	15.3	-13.1	
-6.9	0.00 Pain	32.1	41.3	-9.2	17.1	-12.6	-5.7	
0.00	Dyspnoea		14.4	13.4	1.0	43.2	-7.6	
9.7	0.81 Insomnia		15.3	20.7		-5.4	19.5	
-9.3	-1.5 0.00 Loss of appetite		28.2	51.4		-23.1	24.1	
-27.9	-18.3 0.00 Constipation		10.2	20.4		-10.2	21.6	
-14.5	-5.9 0.00 Diarrhoea			8.2	19.0		-10.9	
19.6	-14.8 -6.9 0.00 Financial difficulty			61.9		77.6		
-15.6	27.6 -21.2 -10.1 0.00							
<b>EORTC H&amp;N35-QLQ</b>								
	HNSW (Swallowing)	27.8	52.5	-24.7	17.3	-28.1	-21.2	0.00
	HNPA (Pain)	25.9	42.0	-16.1	17.9	-19.7	-12.5	
0.00	HNSE (Senses)	28.9	48.8	-19.8	18.7	-23.6	-16.1	
0.00	HNSP (Speech)	26.3	33.6	-7.2	12.7	-9.8	-4.6	
0.00	HNSO (Social eating)	31.5	44.5	-13.1	14.7	-16.1		
-10.1	0.00 HNSC (Social contact)	39.6	52.9	-13.4	17.4	-16.9		
-9.9	0.00 HNSX (Sex)	38.6	49.8	-11.2	18.0	-14.8		
-7.6	0.00 HNTE (Problem wt. teeth)	12.2	20.7	-8.5	21.0	-12.7		
-4.2	0.00 HNOM (Opening mouth)	22.4	38.0	-15.6	-15.6	25.4		
-20.7	0.00 HNDR (Dry mouth)		17.6	45.9		-28.2	27.2	
-33.6	-22.7 0.00 HNSS (Sticky saliva)		23.1	57.4		-34.3	27.2	
-39.8	-28.8 0.00 HNCO (Coughed)		19.7	27.2		-7.4	18.8	
-11.2	-3.7 0.00 HNFI (Fell ill)	31.2	59.9	-28.7	23.4	24.0		
33.4	0.00 HNPK (Use of Pain killers)	31.2	60.4	-29.2	35.7	22.0		
36.3	0.00 HNNU (Nutritional suppl.)	9.8	11.6	-1.7	8.7	-3.4		
0.06	0.058 HNFE (Use of feeding tube)	5.7	5.4	0.3	7.5	-1.1		
1.8	0.657 HNWL (Lost weight)	21.4	25.5	-4.0	10.9	-6.2		
1.5	0.566 HNWG (Gained weight)	2.7	2.3	0.3	5.8	-0.8		

**Table 4 – Head and Neck Quality of Life by Sex and Stage of disease. (Mean scores)**

	Sex			Stage			
	Male	Female	P-value	Stage(I/II)	Stage(III/IV)	P-value	
<b>EORTC C30-QLQ</b>							
Global health status		54.8	55.3	0.897	67.2	53.1	0.005
Physical functioning		76.7	77.7	0.656	78.5	76.9	0.618
Role functioning	43.9	47.2	0.439	51.1	44.3	0.618	
Emotional functioning	73.5	72.4	0.779	77.9	72.2	0.312	
Cognitive functioning		74.7	78.9	0.204	82.1	75.5	0.180
Social functioning		41.6	44.4	0.505	48.8	41.8	0.252
Fatigue	48.0	42.8	0.347	30.9	48.3	0.041	Nausea
& vomiting	28.7	29.7	0.771	21.4	30.4	0.074	Pain
	44.5	38.0	0.097	30.9	43.6	0.025	Dyspnoea
11.4	15.8	0.363	7.1	14.3	0.274		Insomnia
23.5	19.0	0.331	11.9	23.2	0.099		Loss of appetite
54.0	48.4	0.219	47.6	52.3	0.469		Constipation
21.4	0.675		9.5	22.0	0.049		Diarrhoea
17.4	0.491		11.9	20.4	0.190		Financial difficulty
76.1	0.531		71.4	79.0	0.286		
<b>EORTC H&amp;N35-QLQ</b>							
HNSW		53.8	50.5	0.439	45.2	53.6	0.163
HNPA (Pain)		41.5	41.6	0.968	30.9	43.3	0.012
(Swallowing)	44.5	53.1	0.533	30.9	50.9	0.241	HNSE (Senses)
	30.6	0.355	23.8	34.6	0.114		HNSP (Speech)
	41.4	0.277	29.7	46.6	0.006		HNSO (Social eating)
	0.253	46.6	54.8	0.121			HNSC (Social contact)
	44.0	50.3	0.472				HNSX (Sex)
	11.9	22.8	0.119				HNTE (Problems with teeth)
	33.3	38.3	0.501				HNOM (Problems opening mouth)
	28.5	48.4	0.017				HNDR (Dry mouth)
	42.8	59.3	0.057				HNSS (Sticky saliva)
	28.5	26.7	0.780				HNCO (Coughed)
	42.8	53.4	0.158				HNFI (Feel ill)
	54.7	55.9	0.028				HNPK (Use of pain killers)
	0.0	16.3	0.003				HNNU (Nutritional supplements)
	2.3	5.3	0.335				HNFE (Feeding tube)
	19.0	26.3	0.076				HNWL (Weight loss)
	2.3	2.3	0.982				HNWG (Weight gain)



**Table 5 – Head and neck cancer quality of life by site.  
Head and Neck Quality of Life by disease site, Baseline - T<sub>1</sub> and End of treatment-T<sub>2</sub> (mean scores)**

	Oral		NPC Thyroid		Oropharynx region		Larynx gland		Sinonasal cavity		Salivary gland					
	T <sub>1</sub>	T <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>	T <sub>1</sub>	T <sub>2</sub>				
<b>EORTC C30-QLQ</b>																
Global health status			55	54	50	50	56	58	65	59	54	56	52	55	65	61
Physical functioning			88	81	79	71	77	70	86	77	85	77	87	85	<b>88</b>	<b>76</b>
Role functioning	<b>65</b>	<b>50</b>	<b>53</b>	<b>37</b>	<b>60</b>	<b>43</b>	<b>68</b>	<b>51</b>	<b>64</b>	<b>41</b>	<b>66</b>	<b>51</b>	<b>78</b>	<b>52</b>		
Emotional functioning	80	81	77	71	75	76	74	73	66	61	82	78	<b>87</b>	<b>75</b>		
Cognitive functioning			86	77	76	71	73	76	86	79	73	79	<b>83</b>	<b>69</b>	<b>94</b>	<b>82</b>
Social functioning			<b>65</b>	<b>56</b>	<b>55</b>	<b>38</b>	<b>60</b>	<b>50</b>	<b>62</b>	<b>47</b>	<b>57</b>	<b>38</b>	55	48	<b>71</b>	<b>33</b>
Fatigue	28	30	<b>32</b>	<b>53</b>	<b>33</b>	<b>48</b>	<b>21</b>	<b>39</b>	<b>37</b>	<b>53</b>	<b>16</b>	<b>45</b>	<b>16</b>	<b>32</b>		
Nausea & vomiting			<b>23</b>	<b>33</b>	<b>23</b>	<b>33</b>	<b>33</b>	<b>53</b>	<b>12</b>	<b>26</b>	25	28	16	20	<b>5</b>	<b>23</b>
Pain	<b>33</b>	<b>48</b>	<b>38</b>	<b>50</b>	<b>46</b>	<b>36</b>	<b>29</b>	<b>41</b>	<b>41</b>	<b>51</b>	<b>29</b>	<b>46</b>	<b>9</b>	<b>32</b>		
Dyspnoea			<b>0</b>	<b>10</b>	<b>23</b>	<b>13</b>	16	10	<b>27</b>	<b>40</b>	9	7	4	4	13	10
Insomnia			11	16	19	25	26	20	22	30	26	26	4	12	11	10
Loss of appetite	<b>19</b>	<b>44</b>	<b>38</b>	<b>56</b>	<b>46</b>	<b>73</b>	<b>22</b>	<b>47</b>	<b>42</b>	<b>64</b>	<b>25</b>	<b>37</b>	<b>2</b>	<b>40</b>		
Constipation	11	18	12	23	13	20	11	8	9	13	<b>10</b>	<b>25</b>	2	8		
Diarrhoea			5	13	14	23	0	0	5	16	<b>9</b>	<b>21</b>	<b>8</b>	<b>20</b>	7	12
Financial difficulty			<b>55</b>	<b>72</b>	<b>58</b>	<b>82</b>	<b>60</b>	<b>73</b>	<b>58</b>	<b>72</b>	<b>73</b>	<b>83</b>	66	70	<b>58</b>	<b>82</b>
<b>EORTC H&amp;N35-QLQ</b>																
HNSA (Pain)	<b>29</b>	<b>55</b>	<b>31</b>	<b>54</b>	<b>51</b>	<b>63</b>	<b>16</b>	<b>33</b>	<b>36</b>	<b>62</b>	<b>34</b>	<b>61</b>	<b>3</b>	<b>35</b>		
HNSW (Swallowing)			<b>26</b>	<b>38</b>	<b>32</b>	<b>42</b>	<b>41</b>	<b>50</b>	35	40	<b>26</b>	<b>46</b>	<b>19</b>	<b>41</b>	<b>4</b>	<b>33</b>
HNSE (Senses)	27	33	<b>27</b>	<b>50</b>	<b>30</b>	<b>50</b>	12	20	<b>79</b>	<b>95</b>	16	23	7	10		
HNSP (Speech)	26	31	26	35	28	31	<b>61</b>	<b>74</b>	28	34	15	23	3	10		
HNSO (Social eating)			<b>43</b>	<b>52</b>	<b>35</b>	<b>52</b>	53	60	<b>18</b>	<b>33</b>	44	50	<b>32</b>	<b>43</b>	<b>1</b>	<b>21</b>
HNSC (Social contact)	41	50	48	57	<b>42</b>	<b>52</b>	<b>43</b>	<b>54</b>	<b>41</b>	<b>54</b>	40	48	12	20		
HNSX (Sex)	40	44	49	58	50	53	<b>36</b>	<b>50</b>	<b>44</b>	<b>60</b>	32	36	<b>15</b>	<b>41</b>		
HNTE (Problem with teeth)			<b>25</b>	<b>39</b>	<b>7</b>	<b>21</b>	<b>20</b>	<b>40</b>	5	2	38	38	<b>12</b>	<b>22</b>	2	7
HNOM (Opening mouth)	30	33	<b>21</b>	<b>47</b>	<b>40</b>	<b>53</b>	5	11	<b>40</b>	<b>50</b>	<b>25</b>	<b>39</b>	6	12		
HNDR (Dry mouth)			<b>18</b>	<b>30</b>	<b>17</b>	<b>53</b>	<b>16</b>	<b>46</b>	28	27	19	29	<b>27</b>	<b>52</b>	5	13
HNSS (Sticky saliva)			<b>16</b>	<b>47</b>	<b>30</b>	<b>70</b>	<b>40</b>	<b>73</b>	11	12	20	29	<b>18</b>	<b>60</b>	5	12
HNCO (Coughed)			3	7	26	30	20	26	<b>38</b>	<b>57</b>	<b>23</b>	<b>35</b>	10	18	<b>17</b>	<b>33</b>
HNFI (Feel ill)	25	33	<b>39</b>	<b>62</b>	<b>40</b>	<b>56</b>	<b>38</b>	<b>50</b>	<b>47</b>	<b>64</b>	<b>14</b>	<b>35</b>	<b>12</b>	<b>56</b>		
HNPCK (Use pain killers)	<b>46</b>	<b>59</b>	<b>32</b>	<b>42</b>	<b>32</b>	<b>43</b>	<b>25</b>	<b>35</b>	<b>30</b>	<b>50</b>	<b>33</b>	<b>45</b>	<b>7</b>	<b>33</b>		
HNNU (Nutritional supplement)			13	16	<b>15</b>	<b>29</b>	<b>26</b>	<b>36</b>	13	13	3	5	2	2	2	2
HNFE (Feeding tube)			11	11	8	5	<b>13</b>	<b>25</b>	5	5	0	0	4	4	0	2
HNWL (Weight loss)			<b>19</b>	<b>30</b>	25	28	<b>37</b>	<b>45</b>	13	19	28	30	20	20	14	23
HNWG (Weight gain)			2	3	6	4	0	0	5	5	0	0	0	0		
	0	0														

NPC = Nasopharynx.

**Head and neck quality of life by site of disease.**

Table 5 shows the differences in quality of life between disease sites at baseline and at the end of treatment. In general, differences between sites are marked in the cancer specific H&N35-QLQ and are

smaller in the general cancer C30-QLQ. Patients with oropharyngeal and nasopharyngeal cancer had the highest increase in symptom burden, which was assessed as a number

mean scores of 10 or more points from the baseline (10 points). Patients with oral cancer had reduced role functioning and increased fatigue, dyspnoea, loss of appetite, constipation and financial difficulty at the end of treatment (change of 10 points or more in the C30-QLQ). There was also an increase in pain, swallowing, senses, opening mouth and sticky saliva as assessed by H&N35-QLQ. The largest deterioration in patients with oral cancer from baseline was in sticky saliva ( $\Delta = 31$ ), pain ( $\Delta = 26$ ), loss of appetite ( $\Delta = 25$ ) and swallowing ( $\Delta = 22$ ). Patients with nasopharyngeal cancer had deterioration of role functioning, social functioning and worsening of fatigue, nausea and vomiting, pain, dyspnoea, constipation and financial difficulty of 10 points or more in the C30-QLQ. Whereas in H&N35-QLQ, they deteriorated in pain, swallowing, senses, social eating, problem with teeth, opening mouth, dry mouth, sticky saliva and feeling ill. The changes were greater than 30 in sticky saliva and dry mouth; equal to or greater than 20 in fatigue, financial difficulty, H&N35(pain), senses, problem with teeth and feeling ill and equal to or greater than 10 in role and social functioning, nausea and vomiting, pain, loss of appetite, swallowing, social eating and problem with teeth. Patients with oropharyngeal cancer at the completion of treatment had reduction in role and social functioning and increase in symptoms of fatigue, nausea and vomiting, dyspnoea, loss of appetite and financial difficulty of 10 points or more, there were however, improvement in pain equal to 10 points in C30-QLQ, while deterioration was found on pain, senses, social contact, problem with teeth, opening mouth, dry mouth and sticky saliva of 10 points or more from the baseline. The largest deterioration for patients with oropharyngeal cancer with score equal to or greater than 20 were in seen in nausea and vomiting, loss of appetite, senses, problems with teeth, sticky saliva and feeling ill. Laryngeal cancer patients at the completion of treatment had reduction in role and social functioning and increase in symptoms of fatigue, nausea and vomiting, dyspnoea, loss of appetite, diarrhoea and financial difficulty of 10 points or more in C30-QLQ, while worsening of symptoms in H&N35-QLQ were observed in pain, social eating, social contact, sex, dry mouth sticky saliva and feeling ill of 10 points or more.

Patients with salivary gland cancer had a reduction in role and cognitive functioning and an increase in fatigue, loss of appetite, constipation, diarrhoea and financial difficulty in C30-QLQ of 10 points or more. While in H&N35-QLQ there were a worsening of symptoms of pain, swallowing, senses, social eating, problem with teeth, opening mouth, dry mouth, sticky saliva, and feeling ill of 10 points or more at the completion of treatment. Thyroid gland

cancer patients had deterioration in most scales/items 12/15 of 10 points or more within the C30-QLQ, whereas in the H&N35-QLQ they deteriorated in all the scales/items 15/17 except problem with teeth, nutritional supplement, feeding tube and weight gain. The changes were equal to or greater than 30 in social functioning, loss of appetite, pain, social contact, sticky saliva and feeling ill; equal to or greater than 20 in role functioning, pain, swallowing, senses, social eating, sex, opening mouth, dry mouth and use of pain killers. The quality of life in patients with rare cancers in the mandible and lacrimal gland, showed that mandibular cancer patients had a deterioration of most the scales/items of 10 points or more in C30-QLQ except for insomnia, dyspnoea and constipation. Whereas in the H&N35-QLQ there was a worsening of symptoms of 10 points and more in social eating, problem with teeth, opening mouth, dry mouth, sticky saliva, feeling ill and weight loss. However, patients with lacrimal gland cancer recorded a reduction in role, emotional and social functioning and increase in symptoms of 10 points or more in pain, cognitive functioning and social contact.

## DISCUSSIONS

Head and neck cancer was observed in this study to be a disease with male preponderance, low socioeconomic status and of middle age group (36-65 years). Thirty nine percent indulged in social habits such as smoking and alcohol ingestion, these habits have been noted to be the main predisposing factors to the development of head and neck cancers<sup>6</sup>. Majority of the patients 81% presented with advanced stage disease, it has been noted in the literature that advanced stage has worse prognosis compared to early stage disease<sup>7</sup>. Previous studies has shown that the health related quality of life (HRQOL) of head and neck cancer patients is poor at diagnosis compared to normal population and deteriorates during treatment, however, within a year after treatment most of the general function and treatment related side effects return to their pre-treatment values<sup>8</sup>. In general, the result of this study indicates that head and neck cancer patients suffer clinically significant deterioration of HRQOL during treatment. The deterioration was statistically significant in all the scales and single items in the C30-QLQ and H&N35-QLQ except for global health status, dyspnoea, nutritional supplement, use of feeding tube and weight gain. The changes above were clinically significant ( $\Delta = 10$  point) with respect to role functioning, social functioning, fatigue, nausea and vomiting, loss of appetite, constipation, diarrhoea and financial difficulty.

In C30- QLQ, and pain, swallowing, senses, social eating, social contact, sex, problems with teeth,



opening mouth, dry mouth, sticky saliva, feeling ill and use of pain killers in H&N35-QLQ. In this study, a cut off of 10 points or more as a clinically significant difference was according to Kings et al<sup>9</sup>, although when dealing with a multi item scales lower cut off point should be considered according to Osoba et al,<sup>10</sup> that a change of 5 points is regarded as small but a clinically relevant change. This is important because mean scores are crude assessments especially for multi items scales, large changes in one or two items may be diluted by no changes in the others. Almost all the variables in H&N35-QLQ and C30-QLQ were related to the side effect of radiotherapy that all these patients received. The reported changes in sexuality is important because the mean age of these patients was 49 years, which mean that these patients are relatively young and therefore sexually active, as this is an important aspect for many of them<sup>11</sup>. The deterioration of role and social functioning may be explained by the fact that most of these patients (81%) had advanced stage disease, thus limiting their ability to undertake day to day work or interact with family and friends. The deterioration in physical functioning is not clinically significant and could be explained by the initial inclusion criteria based on WHO performance status scale of 2. Females scored better than the males in this study, these findings were unexpected since females have been constantly shown to report poorer HRQOL than males<sup>12</sup>. In C30-QLQ females had higher scores i.e., high level of functioning than males in global health status and functional scales except for emotional functioning where they had an almost equal scores with males. This may be explained by the lower mean age of females in this study. In H&N35-QLQ females still scored better, they had higher scores in only 5 out of 19 scales/items while males had higher scores in 12 out of 19. Advanced disease was found to be a risk factor for poor HRQOL at the baseline<sup>13</sup>. This was also important during treatment leading to further deterioration in patients with stage 111 & 1V disease. In this study, there was an overall decrease in level of functioning and an increase in symptoms in both C30-QLQ and H&N35-QLQ. The implication is that patients with advanced stage disease need more care and support before and during treatment. There are less striking differences between patients with different tumour sites from this study. In general, patients with cancers of the nasopharynx and oropharynx have the most problem followed by oral cavity cancer patients, followed by sinonasal cancer patients, then laryngeal and cancer at other sites. Because laryngeal cancer patients are often diagnosed in early stage compared with pharyngeal cancers and tumours in other sites, laryngeal cancer patients will

score better compared with other sites. Although all the patients with different tumour sites tend to report worse scores (> 10 points) in majority of the scales and single items in both C30-QLQ and H&N35-QLQ namely role functioning, social functioning, fatigue, nausea and vomiting, loss of appetite, pain, financial difficulty, swallowing, dry mouth and sticky saliva. Oral cavity patients reported less problem with sex, social contact and speech, these symptoms are less related with nutrition and swallowing which are there main bother compared with pharyngeal (nasopharynx and oropharynx) cancer patients. Laryngeal cancer patients had less pain than pharyngeal cancer patients (< 10 points), they were more bothered with speech and cough. Patients with sinonasal and pharyngeal cancers had more problems with senses (> 10 points) than patients with oral cavity, salivary and thyroid gland cancers. Thyroid gland cancer patients reported more problem with physical, emotional and cognitive functioning compared with the rest of the patients. Patients with mandibular cancer reported problems relating to nutrition like social eating, problem with teeth, opening mouth, dry mouth, sticky saliva, feeling ill and weight loss. While lacrimal gland patients had more problems with cognitive functioning and social contact compared to the rest. Pain was a common problem to most patients with different tumour sites, the effect of pain may further be worsened if there is inadequate family support while they are still on treatment<sup>14</sup>. This is supported by the report of Chaplin and Morton, they noted that 48% of patients with HNC had pain at diagnosis, and that the presence of pain had an adverse effect on life satisfaction at various times after treatment<sup>15</sup>. Pain as a major QOL problem of HNC patients was also reported by another study using a different QOL instrument in Ibadan<sup>16</sup>.

### Conclusion

This prospective study of patients with HNC demonstrates that HNC and its treatment substantially impact the HRQOL of patients. The patients experienced deterioration of HRQOL during treatment which is expected to improve in the long term. Male sex, advanced stage disease and low socioeconomic status has negative influence on their HRQOL. Stage and tumour sites relationship showed remarkable worsening of problems in late disease and patients with cancers of the nasopharynx and oropharynx had more problems during the study. Most HNC patients reported significantly more role and social functioning limitations which has to do with their physical health and disease-treatment related symptoms, as well as pain, financial difficulty and use of pain killers. Pain which is one of the major problem experienced by these patients, requires more attention by the caregiver

in other to improve their QOL. It is hoped that if oncology treatment were made free like that of HIV/AIDS financial worries will reduce significantly. More work also need to be done on awareness campaign as most of these patients presented with advanced disease. Further work on larger number of patient participants may give more conclusive outcome.

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