#### "QUALITY OF LIFE ASSESSMENT OF HEAD AND NECK CANCER PATIENTS FROM A PATIENT PERSPECTIVE"

A Thesis Submitted to

#### **NIRMA UNIVERSITY**

In Partial Fulfillment for the Award of the Degree of

#### MASTER OF PHARMACY IN

#### **CLINICAL PHARMACY**

BY

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> > May 2014

# CERTIFICATE

This is to certify that the dissertation work entitled "Quality of Life Assessment of Head and Neck Cancer Patients from a Patients Perspective" submitted by Mr. Mohit N. Chudasma with Roll. No. (12MPH702) in partial fulfillment for the award of Master of Pharmacy in "Clinical Pharmacy" is a bonafide research work

carried out by the candidate at the Department of Pharmacology, Institute of Pharmacy, Nirma University and at HCG Cancer Centre under our guidance. This work is original and has not been submitted in part or full for any other degree or diploma to this or any other university or institution.

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## Certificate

This is to certify that Mr. Mohit Chudasma, student of M.Pharm (Clinical Pharmacy) at the Institute of Pharmacy, Nirma University, has undertaken his project work entitled "Quality of Life Assessment of Head and Neck Cancer Patients from a Patient Perspective" at the HCG Cancer Centre, Ahmedabad, from January 2014 to April 2014. His study protocol was reviewed and approved by the hospital.

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# DECLARATION

I hereby declare that the dissertation entitled "Quality of Life Assessment of Head and Neck Cancer Patients from a Patients Perspective", is based on the original work carried out by me under

the guidance of Dr. Jigna Shah, Professor and Head, Department of Pharmacology, Institute of Pharmacy, Nirma University. I also affirm that this work is original and has not been submitted in part or full for any other degree or diploma to this or any other university or institution.

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#### Abstract

**Background and Purpose**: Head and Neck Cancer (HNC) is a major cause of morbidity and mortality for the concerned patients. HNCs alone account for 30-40% of all cancers prevalent in India. Moreover there are approximately 800,000 new cases of HNC diagnosed each year. There is a dire need for clinicians to select the optimal therapeutic regimen among available alternatives targeting HNCs. A particular cause of concern is the vast side-effects profile of HNC treatment, be it chemotherapy or radiotherapy. There are many cases where patients seem to suffer more from the treatment side-effects instead of their cancer. As a result, it would be necessary to take into consideration patients' mental and physical status during their treatment as a means of consolation and optimisation. The aim of this study is to determine, among patients receiving Head and Neck cancer therapy, the impact on quality of life from a patient perspective, first-hand.

**Methods**: A single-centric, retrospective study was carried out to examine HNC patients that were candidates for curative treatments. The study was done from January 2014 to April 2014 at the HCG Cancer Centre, Ahmedabad. Both genders of all ages were included in the study. The HCG Cancer Centre database was used to identify HNC patients and the centre's ethics committee approved the protocol for the current study. Head and Neck Cancer patients were diagnosed based on radio-imaging techniques and biopsy. The patients' treatments, which are usually chemotherapy, radiotherapy or a combination of both, were decided by the physicians at their own discretion. The data for patients' operative history, co-morbidities and risk factors was obtained from the Medical Records Department (MRD) of HCG. The University of Washington Quality of Life (QOL) Questionnaire was used in the study. The patients' average functionality scores, average quality of life scores, and the mean scores of their QOL compared to a month before diagnosis were determined from the UWQOL questionnaire.

**Results**: From the data of forty-seven patients that were found to be eligible for the study, most of the patients were male (91%), and were in the age group of 51-60 years. A majority of the patients had cancer of the Buccal Mucosa, followed by those with cancer of the tongue. 53% of the patients were post-operative with ten patients having Diabetes Mellitus and ten having Hypertension. Fourteen patients had a habit of tobacco consumption and 5 were smokers. A noteworthy correlation was observed as eight

patients who had cancer of the Buccal Mucosa had a habit of tobacco/gutka consumption. The non-operative patients had less functionality scores as well as QOL scores compared to the post-operative ones. The Quality of Life of smokers compared to a month before they had cancer is of particular concern.

**Conclusion**: Most of the patients had their average Quality of Life Scores below the median range. It was observed that chewing, swallowing and pain were the functionality parameters that are of significant concern for such patients. Whether routine use of QOL measures in the clinical setting is beneficial to patients or not has yet to be determined. Moreover, studies with bigger and diverse patient populations are necessary to establish accurate results for optimisation of therapy.

#### Introduction

#### What is Cancer?

Cancer is a term used for diseases in which abnormal cells divide without control. Cancer cells can spread to other parts of the body through the blood and lymph systems. There are more than a hundred different types of cancer. Most cancers are named for the organ or type of cell in which they start - for example, cancer in the neck region and above can be grouped as Head and Neck Cancer. All cancers begin in cells, the body's basic unit of life.

These cells grow and divide in a controlled way to produce more cells as they are needed to keep the body healthy. When cells become old or damaged, they die and are replaced with new cells.

However, sometimes this orderly process goes wrong. The genetic material (DNA) of a cell can become damaged or changed, producing mutations that affect normal cell growth and division. When this happens, cells do not die when they should and new cells form when the body does not need them. The extra cells may form a mass of tissue called a tumour.

Not all tumours are cancerous; tumours can be benign or malignant.

Benign tumours aren't cancerous. They can often be removed, and, in most cases, they do not come back. Cells in benign tumours do not spread to other parts of the body.

Malignant tumours are cancerous. Cells in these tumours can invade nearby tissues and spread to other parts of the body. The spread of cancer from one part of the body to another is called metastasis.<sup>1</sup>



Figure 1: Loss of Normal Growth Control (Cancer)

#### Head and Neck Cancer

Cancer of the region from the neck and above is referred to as Head and Neck Cancer (HNC).

Most head and neck cancers begin in the cells that line the mucosal surfaces in the head and neck area, e.g., mouth, nose, and throat. Normal mucosal cells look like scales (squamous) under the microscope, so head and neck cancers are often referred to as squamous cell carcinomas. Some head and neck cancers begin in other types of cells. For example, cancers that begin in glandular cells are called adenocarcinomas.

Cancers of the head and neck are further identified by the area in which they begin:

- Oral cavity
- Salivary glands
- Paranasal sinuses and nasal cavity

#### Chapter 1

- Larynx
- Lymph nodes in the upper part of the neck
- Pharynx
  - Nasopharynx
  - Oropharynx
  - Hypopharynx

# <complex-block>

#### **Head and Neck Cancer Regions**

Figure 2: Head and Neck Cancer Regions

#### Incidence/Prevalence

Cancer	Incidence		5-year prevalence	
	Number	%	Number	%
Lip, oral cavity	77003	7.6	118902	6.6
Nasopharynx	3947	0.4	9967	0.6
Other pharynx	38691	3.8	56754	3.2
Larynx	25446	2.5	50494	2.8

#### Table 1: Incidence & Prevalence of HNC Globally<sup>2</sup>

#### Table 2: Incidence of Head and Neck Cancer in India

Capacit	Incidence		Mortality			5-year prevalence			
Cancel	Number	(%)	ASR (W)	Number	(%)	ASR (W)	Number	(%)	Prop.
Lip, oral cavity	77003	7.6	7.2	52067	7.6	4.9	118902	6.6	13.5
Nasopharynx	3947	0.4	0.3	2836	0.4	0.3	9967	0.6	1.1
Other pharynx	38691	3.8	3.7	32784	4.8	3.1	56754	3.2	6.4
Oesophagus	41774	4.1	4.1	38683	5.7	3.8	22157	1.2	2.5
Stomach	63097	6.2	6.1	59041	8.6	5.7	45390	2.5	5.1
Colorectum	64332	6.3	6.1	48603	7.1	4.6	86650	4.8	9.8
Liver	27416	2.7	2.7	26763	3.9	2.6	13089	0.7	1.5
Gallbladder	18787	1.9	1.8	15866	2.3	1.5	22892	1.3	2.6
Pancreas   Rectar	11936	1.2	1.2	10828	1.6	1.1	6730	0.4	0.8
Larynx	25446	2.5	2.5	17560	2.6	1.7	50494	2.8	5.7
Lung	70275	6.9	6.9	63759	9.3	6.3	32464	1.8	3.7
Melanoma of skin	2103	0.2	0.2	1122	0.2	0.1	5314	0.3	0.6
Kaposi sarcoma	19	0.0	0.0	14	0.0	0.0	26	0.0	0.0
Breast	144937	14.3	25.8	70218	10.3	12.7	396991	22.2	92.6
Cervix uteri	122844	12.1	22.0	67477	9.9	12.4	308901	17.3	72.0
Corpus uteri	12325	1.2	2.3	4773	0.7	0.9	44980	2.5	10.5
Ovary	26834	2.6	4.9	19549	2.9	3.6	55231	3.1	12.9
Prostate	19095	1.9	4.2	12231	1.8	2.7	63818	3.6	14.1
Testis	3298	0.3	0.5	1452	0.2	0.3	11079	0.6	2.4
Kidney	9658	1.0	0.9	5973	0.9	0.6	19977	1.1	2.3
Bladder	16273	1.6	1.6	9523	1.4	0.9	36904	2.1	4.2
Brain, nervous system	18831	1.9	1.6	15152	2.2	1.4	27408	1.5	3.1
Thyroid	13904	1.4	1.2	3290	0.5	0.3	55539	3.1	6.3
Hodgkin lymphoma	8371	0.8	0.7	4342	0.6	0.4	13629	0.8	1.5
Non-Hodgkin lymphoma	23801	2.3	2.2	16597	2.4	1.5	27099	1.5	3.1
Multiple myeloma	6955	0.7	0.7	6027	0.9	0.6	11886	0.7	1.4
Leukaemia	32532	3.2	2.8	26712	3.9	2.3	24042	1.3	2.7
All cancers excl. non-melanoma skin cancer	1014934	100.0	94.0	682830	100.0	64.5	1790498	100.0	202.9
Incidence and mortality data for all ages. 5-year prevalence for adult population only.									

ASR (W) and proportions per 100,000.

Introduction

#### Epidemiology<sup>3</sup>

Overall, head and neck cancer accounts for more than 550,000 cases annually worldwide. Males are affected significantly more than females with a ratio ranging from 2:1 to 4:1. The incidence rate in males exceeds 20 per 100,000 in regions of France, Hong Kong, the Indian subcontinent, central and Eastern Europe, Spain, Italy, Brazil and among African Americans in the Unites States. Mouth and tongue cancers are more common in the Indian subcontinent, nasopharyngeal cancer is more common in Hong Kong, and pharyngeal and/or laryngeal cancers are more common in other populations.

In the United States, head and neck cancer accounts for 3 percent of malignancies, with an estimated 55,000 Americans developing head and neck cancer annually and 12,000 dying from the disease. The incidence of laryngeal cancer, but not oral cavity and pharyngeal cancer, is approximately 50 percent higher in African-American men. The mortality associate with both laryngeal and oropharyngeal cancer is significantly higher in African American men, which may reflect the lower prevalence of HPV positivity.

#### Etiology/Pathophysiology

Head and neck cancer arises from a series of molecular alterations progressive from dysplasia to carcinoma in situ and finally invasive carcinoma. There are genetic alterations in pre-cancerous cells that contribute to transformation. The accumulation of these alterations facilitates tumor development. Additionally, the tumor microenvironment enables tumor progression. The cooperative effect of molecular alterations in the tumor cells and compensatory microenvironment changes enable tumors to invade and metastasize. Genetic and epigenetic alterations may lead to protein changes including decreased or increased expression. The accumulation of these alterations in oncogenes, proto-oncogenes and tumor suppressors can lead to the formation of a malignancy. Critically altered pathways in Head and Neck Squamous Cell Carcinoma include p53, epidermal growth factor receptor, signal transducer and activator of transcription 3 and vascular endothelial growth factor receptor, among other important molecules that may serve as therapeutic targets.<sup>4</sup>

#### **Risk factors/Causes<sup>5</sup>**

- Tobacco (chewing and snuffing)
- Alcohol
- Sun exposure (lip); possibly human papillomavirus (HPV) infection
- Diagnostic x-rays / radiation therapy
- Industrial exposures, such as wood or nickel dust inhalation
- Epstein-Barr virus
- Exposure to airborne particles of asbestos

#### Signs & Symptoms<sup>5</sup>

- lump or sore that does not heal
- sore throat that does not go away
- difficulty swallowing
- change or hoarseness in the voice
- Oral cavity: A white or red patch on the gums, tongue, or lining of the mouth; a swelling of the jaw that causes dentures to fit poorly or become uncomfortable; and unusual bleeding or pain in the mouth.
- Nasal cavity and sinuses: Sinuses that are blocked and do not clear, chronic sinus infections that do not respond to treatment with antibiotics, bleeding through the nose, frequent headaches, swelling or other trouble with the eyes, pain in the upper teeth, or problems with dentures.
- Salivary glands. Swelling under the chin or around the jawbone; numbness or paralysis of the muscles in the face; or pain that does not go away in the face, chin, or neck.

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- Oropharynx and Hypopharynx: Ear pain.
- Nasopharynx: Trouble breathing or speaking, frequent headaches, pain or ringing in the ears, or trouble hearing.
- Larynx: Pain when swallowing, or ear pain.
- Metastatic squamous neck cancer: Pain in the neck or throat that does not go away.

#### **Diagnosis/Physical Examination/Tests**

- Physical examination may include visual inspection of the oral and nasal cavities, neck, throat, and tongue using a small mirror and/or lights. The doctor may also feel for lumps on the neck, lips, gums, and cheeks.
- Laboratory tests examine samples of blood, urine, or other substances from the body.
- X-rays create images of areas inside the head and neck on film.
- Endoscopy is the use of a thin, lighted tube called an endoscope to examine areas inside the body. The type of endoscope the doctor uses depends on the area being examined. For example, a laryngoscope is inserted through the mouth to view the larynx; an esophagoscope is inserted through the mouth to examine the esophagus; and a nasopharyngoscope is inserted through the nose so the doctor can see the nasal cavity and nasopharynx.
- CT (or CAT) scan is a series of detailed pictures of areas inside the head and neck created by a computer linked to an x-ray machine.
- Magnetic resonance imaging (or MRI) uses a powerful magnet linked to a computer to create detailed pictures of areas inside the head and neck.
- PET scan uses sugar that is modified in a specific way so it is absorbed by cancer calls and appears as dark areas on the scan.

- Biopsy is the removal of tissue. A pathologist studies the tissue under a microscope to make a diagnosis. A biopsy is the only sure way to tell whether a person has cancer.
- If the diagnosis is cancer, the doctor will want to learn the stage (or extent) of disease. Staging is a careful attempt to find out whether the cancer has spread and, if so, to which parts of the body. Staging may involve an examination under anaesthesia (in the operating room), x-rays and other imaging procedures, and laboratory tests. Knowing the stage of the disease helps the doctor plan treatment.
- TNM staging:
  - T describes the size of the tumour.
  - N describes whether the cancer has spread to the lymph nodes and which nodes are involved. For example, N0 means that no lymph nodes are affected, while N1 means there are cancer cells in the lymph nodes.
  - M describes if the cancer has spread to another part of the body. For example, M0 means the cancer hasn't spread (metastasised) to other parts of the body.
- Biomarkers:
  - EGF, EGFR, IL-8, tPAI-1, AFP, MMP-2, MMP-3, IFN-α, IFN-γ, IP-10, RANTES, MIP-1α, IL-7, IL-17, IL-1Rα, IL-2R, G-CSF, mesothelin, IGFBP-1, E-selectin, cytokeratin (CK)19, V-CAM, and CA-125

#### Treatment & Management

- Treatment includes the following
  - Chemotherapy
  - Radiation therapy

- Surgery
- Combination Chemo-Radio therapy

Chemotherapy:

- Alkylating agents: Cisplatin
- Antimetabolites: Methotrexate
- Antitumor Antibiotics: Doxorubicin, Bleomycin
- Alkaloids: Vincristine, Vinblastine
- Taxanes: Paclitaxel

Radiation therapy:

- Radiotherapy can be given in two ways:
  - From outside the body as external beam radiotherapy. A beam of x-rays or electrons is directed at the cancer from a large machine called a linear accelerator. This is the most common way of giving radiotherapy to the head and neck area.
  - By putting a radioactive source into the tumour and leaving it there for a few days. This is known as internal radiotherapy, interstitial radiotherapy or brachytherapy.

Surgery:

- The surgeon may remove the cancer and some of the healthy tissue around it.
- Lymph nodes in the neck may also be removed (lymph node dissection), if the doctor suspects that the cancer has spread.
- Surgery may be followed by radiation treatment.

Chemoradiation therapy:

- Chemoradiation is often the main treatment for advanced head and neck cancers. It may be used:
- to treat cancers that can't be removed with an operation
- to treat cancers in hard to reach areas such as the nasopharynx or throat when surgery could cause unacceptable changes to speech or swallowing.

#### Patient Management

- Head and neck surgery often changes the patient's ability to chew, swallow, or talk. The patient may look different after surgery, and the face and neck may be swollen.
- After a laryngectomy (surgery to remove the larynx), parts of the neck and throat may feel numb because nerves have been cut.
- If lymph nodes in the neck were removed, the shoulder and neck may be weak and stiff.
- Patients who receive radiation to the head and neck may experience redness, irritation, and sores in the mouth; a dry mouth or thickened saliva; difficulty in swallowing; changes in taste; or nausea.
- Other problems that may occur during treatment are loss of taste, which may decrease appetite and affect nutrition, and earaches (caused by hardening of the ear wax).
- Patients may also notice some swelling or drooping of the skin under the chin and changes in the texture of the skin.
- The jaw may feel stiff and patients may not be able to open their mouth as wide as before treatment.

- Patients may have side effects such as lower resistance to infection, sores in the mouth and on the lips, loss of appetite, nausea, vomiting, diarrhoea, and hair loss.
- They may also feel unusually tired and experience skin rash and itching, joint pain, loss of balance, and swelling of the feet or lower legs.

#### Recommendations:

- Stop smoking
- Cut down on alcohol
- Maintain good oral hygiene
- Eat healthily
- Regular dental check-ups and treatment
- Patient counseling

#### Supportive care

The SPIKES protocol (Setting, Perception, Invitation, Knowledge, Empathy and Strategy) can be a helpful framework for head and neck oncology. This includes taking adequate time to talk to the patient, asking their understanding of the disease and inviting them to express how much they want to know, how they want to be told, and who they want to have with them. Language used should be understandable, with silences to allow news to be taken in. Clinicians should show empathy to the range of emotions presented by the patient and the family, and patient should leave the consultation with a plan of care.<sup>6</sup>

#### Quality of Life (QOL)

The World Health Organization defines QOL as "an individual's perception of their position in life, in the context of the culture and values systems in their life, and in relation to their goals, expectations, standards, and concerns"

QOL measures seek to obtain a comprehensive, multi-dimensional picture of the patient's "total health related experience."

Quality of Life (QOL) has become an increasingly important outcome measure for patient's undergoing treatment for a wide array of illnesses.

Length of survival alone is an unsatisfactory measure of the success of treatment; the quality of survival needs to be evaluated.

QOL is a global construct that reflects a patient's general sense of well-being.

It is by definition multi-dimensional and reflective of the patient's point of view. Health related issues are among the many factors that may influence QOL.

Since Head and Neck Cancer (HNC) affects structures that are critical for normal functions such as speech and swallowing, and treatment may lead to deformities that adversely impact psychosocial functioning, there is particular interest in assessing QOL in this cohort of patients.

Whether routine use of QOL measures in the clinical setting is beneficial to patients or not has yet to be determined.

Further studies are warranted.

#### Significance of QOL in HNC:

- QOL data can provide information that guides health care related decision making on several levels.
- First it can help shape public policy and health care decisions made by governmental and private institutions.

- It can also guide the research agenda of pharmaceutical companies and cooperative groups.
- Most importantly, QOL measurement can provide information to guide clinical decision making.
- QOL studies should inform the practitioner about the impact of specific treatments on outcomes.
- This information can then be shared with patients and used to help make decisions regarding treatment options.

By providing concrete information about outcomes, QOL studies can

- facilitate communication between a physician and their patient
- identify problems that have a significant impact on QOL
- guide the physician to screen for problems that impact QOL
- help physicians prioritize the treatment of problems that develop during treatment

#### Aim and Objectives

The routine use of quality of life questionnaires among cancer patients enables health practitioners to discover in which areas and to what extent patients find their lives affected by the treatment they receive and its consequences. This allows health practitioners to provide information and treatments which are better adapted to patient needs.

This study aimed to investigate the health-related QOL characteristics in Head and Neck cancer patients with the following objectives:

- to study the prevalence of Head and Neck Cancer among patients
- to study the occurrence/frequency of the various body parts affected among HNC patients
- to investigate the risk factors and co-morbidities and to find out correlations between parts affected and risk factors
- to assess Health Related QOL characteristics in HNC patients

#### **Review of Literature**

The introduction of 'quality of life' questionnaires helps identify issues of concern to the individual patient and triggers discussion of these issues in the clinical setting. Questionnaires raise the important issue of what is 'quality of life'? To the patient it is an implicit state of being, something known that cannot be told, whilst to the researcher it is a difficult measurement problem, and to the clinician it is just one of many other equally relevant inputs into a clinical judgement.

Health-Related Quality of Life (HRQOL) is an important outcome parameter following treatment for head and neck cancer. The value of this concept has become established during the last decade. The impact of head and neck cancer and its treatment can have such a profound detrimental effect on function and well-being that it is essential that the patient's perspective is taken into account. Two national bodies, the British Association of Head and Neck Oncologists and the British Association of Otorhinolaryngologists-Head Neck Surgeons, both recommend that HRQOL should be longitudinally recorded. Questionnaires give a structured insight into the patients' point of view. They facilitate multidisciplinary team working with the recognition of poor outcome groups, better information for the patient and their caregivers, and the opportunity to identify problem areas and target support/intervention.

The choice of the HRQOL questionnaire depends on the purpose of the study, its design and the available resources. Certain questionnaires may be more applicable in routine practice and others in a research setting.<sup>7</sup>

#### Questionnaires

It is time consuming and a logistical challenge to ensure patients self-complete questionnaires before treatment and at regular intervals subsequently. Very few units are currently collecting HRQOL information and one of the problems has been the selection of the most appropriate questionnaire. There will never be a perfect head and neck questionnaire and there is a choice between about 14 validated measures. The most commonly used are the EORTC, FACT and UW-QOL. However HRQOL data collection

remains a low priority in many units. One reason for this is that some questionnaires are too long or complicated for members of the head and neck team, including the patient, and seem more suited to research. One questionnaire that has emerged as a simple yet clinically relevant measure suitable for routine clinical practice is the University of Washington questionnaire (UW-QOL).<sup>8</sup>

#### The University of Washington Questionnaire

In the original description, Hassan and Weymuller stated that 'the advantages of the UW-QOL head and neck questionnaire are that 1) it is brief and self-administered, 2) it is multi-factorial, allowing sufficient detail to identify subtle change, 3) it provides questions specific to head and neck cancer, and 4) it allows no input from the health provider, thus reflecting the QOL as indicated by the patient'.<sup>9</sup>

The current version 4 of the UW-QOL questionnaire consists of 12 single question domains, these having between 3 and 6 response options that are scaled evenly from 0 (worst) to 100 (best) according to the hierarchy of response.

The domains are **pain**, **appearance**, **activity**, **recreation**, **swallowing**, **chewing**, **speech**, **shoulder**, **taste**, **saliva**, **mood** and **anxiety**. Another question asks patients to choose up to three of these domains that have been the most important to them. There are also three global questions, one about how patients feel relative to before they developed their cancer, one about their health-related QOL and one about their overall QOL. In regard to their overall QOL patients are asked to consider not only physical & mental health, but also many other factors, such as family, friends, spirituality or personal leisure activities that were important to their enjoyment of life. The whole questionnaire focuses on current patient health and quality of life within the past 7 days.<sup>10</sup>

#### Scoring of UW-QOL domains

The UW-QOL has domains based upon discrete ordinal responses. Scoring is scaled to so that a score of 0 represents the worst possible response, and a score of 100 represents the

best possible response. Scoring is scaled in equal stages from 0 to 100 to reflect the number of possible responses. Thus the pain domain has 5 possible responses which are scored as 0, 25, 50, 75 & 100.

#### **Global Questions**

The UW-QOL has domains and general questions based upon discrete ordinal responses. The UW-QOL asks three global questions, one about how patients feel relative to before they developed their cancer, one about their health-related QOL and one about their overall QOL. These are now also scaled from 0 to 100 to enable ease of presentation of all key results using the same 0 to 100 scale. The general question asking about overall QOL has 6 possible responses which are scored as 0, 20, 40, 60, 80 & 100.<sup>7</sup>

#### **Importance** question

This asks about which three domain issues were the most important during the past 7 days. Patients are asked to choose up to 3 domains.<sup>11,7</sup>

**Chang** et al conducted a study with the aim of translating the UW-QOL questionnaire version 4 into the Korean language and carrying out an initial validation study. 56 patients completed Korean versions of UW-QOL, the Beck Depression Inventory and the World Health Organization Quality of Life-BREF and various expected correlations were confirmed first between the two UW-QOL subscales (Spearman 0.54 p < 0.001) and then of these subscales with the other concurrent measures. Lower (worse) UW-QOL scores were seen for later stage patients in all the domains.<sup>12</sup>

**Jornet** et al conducted a project to evaluate the quality of life in patients undergoing treatment for head and neck cancer in the Murcia region (Spain). The Quality of Life (QOL) of 109 patients suffering head and neck cancer was assessed using Spanish translations of the European Organization for Research and Treatment of Cancer Quality of Life Questionnaire Core 30 (EORTC QLQ-C30) and Head and Neck Cancer Module

(QLQ-H&N35). The questionnaires' scales and single items were compared according to age, sex, tumour location, stage of cancer and treatment type. With regard to the stage of cancer, early stages obtained better scores than advanced ones. Patients who underwent surgical treatment combined with adjuvant radiotherapy and chemotherapy generally showed lower scores.<sup>13</sup>

**Laraway** et al conducted a review to systematically search published papers that report UW-QOL questionnaire's use and identify common themes. A total of 66 papers were included in the study, out of which 21 were on functional outcome, 25 on predictors of HR-QOL, 19 on development or validation of the questionnaire, and one clinical trial. The questionnaire was first used in the USA and was written in English, but several translations have since been done which show its cross-cultural application. Translations include simplified Chinese, Hindi and Marathi, Brazilian Portuguese, as well as Italian, German, Norwegian, Malay, Greek, Japanese, and Dutch.<sup>14</sup>

#### **Study Protocol**

#### Study Design:

A single-centric, retrospective study at the HCG Cancer Centre, Ahmedabad from January 2014 to April 2014.

#### **Study Population**:

Age eligible for study: All

Genders eligible for study: Both male and female diagnosed with Head and Neck Cancer

Accepts healthy volunteers: No

#### Study Methodology:

HCG Cancer Centre patient pool was used to identify patients with Head and Neck Cancer, undergoing treatment. The validated University of Washington Quality of Life questionnaire was used, both in its English as well as Hindi versions. As the patients were approached, they were explained about the objective of this study, the reason they were chosen, and assured of the confidentiality of their details.

#### **Outcome Measures**:

The outcome measures focused on the physical and mental health of the concerned patients. They were broadly divided into two categories as follows:

- Functionality parameters
  - Pain
  - Appearance
  - Activity
  - Recreation
  - Swallowing
  - Chewing
  - Speech
  - Shoulder

- Taste
- Saliva
- Mood
- Anxiety
- Quality of Life parameters
  - QOL compared to month before cancer
  - QOL during the past seven days
  - Overall QOL

#### **Statistical Analysis:**

The data was entered into Excel sheets and Mean±SD, Percentage and were used for analysis.

#### **Statement of Approval**:

Protocol approval was obtained by HCG Cancer Centre, Ahmedabad.

#### Data Analysis & Results

Data of forty-seven patients was found to be eligible for the study. Parameters (operative history, co-morbidity and risk habits/addiction) were available for thirty eight patients.

#### Age Distribution:

Age (years)	No. of Patients	% of patients
21-30	2	4
31-40	7	15
41-50	10	22
51-60	17	36
61-70	9	19
71-80	2	4

Table 3: Age Distribution of HNC Patients (n=47)



Figure 3: Age Distribution of HNC Patients



Figure 4: Age Distribution of HNC Patients

It can be seen from the figure that most of the patients (17) were in the age group of 51-60 years, followed by 10 in the age group of 41-50 years, and 9 in the age group of 61-70 years.

#### Gender Distribution:

Gender	No. of Patients
Male	43
Female	4

Table 4: Gender Distribution of HNC Patients (n=47)



Figure 5: Gender Distribution of HNC Patients

The study consisted of 43 (91%) males and 4 (9%) females.

#### **Distribution according to Body Part Affected:**

Body Part Affected	No. of Patients
Buccal Mucosa	15
Tongue	8
Esophagus	6
Neck Region	6
Other	6
Tonsil	4
Pyriform Fossa	2

Table 5. Distribution	of IINC Dettents	according to Dom	(Affected (m. 20)	
Table 5: Distribution	of find Patients a	according to Par	i Anecieu (n=58)	1



Figure 6: Distribution of HNC Patients according to Part Affected

This chart shows that 15 (32%) patients had cancer of Buccal Mucosa, 6 (13%) of Esophagus, 8 (17%) of Tongue, 4 (8%) of Tonsil, 2 (4%) of Pyriform Fossa, 6 (13%) of Neck Region, and 6 (13%) of Other Regions.



Figure 7: Distribution of HNC Patients according to Part Affected

#### **Operative History:**

 Table 6: Distribution of HNC Patients according to Operative History (n=38)

Operative History	No. of patients
post-operative	18
non-operative	20



Figure 8: Distribution of HNC Patients according to Operative History

The above chart shows that there were 20 (53%) post-operative patients (n=38) who had undergone surgery and were on radiation therapy. The non-operative patients were those who were on either radiotherapy, chemotherapy or both.

#### Patients with Co-morbidities:

Co-morbidity	No. of patients
Diabetes mellitus (DM)	10
Hypertension (HT)	10
Ischemic Heart Disease	2

<b>Table 7: Distribution of HNC Patients</b>	according to Co-	morbidities (n=38)
--	------------------	--------------------

DM + HT	6
None	16



Figure 9: Distribution of HNC Patients according to Co-morbidities

It can be seen that out of 38 patients, 22 patients were having comorbidities. There were ten patients each of Diabetes Mellitus and Hypertension, out of which six had both. Two patients were suffering from IHD.

#### Patients with Risk Habits/Addiction:

Habits	No. of patients
tobacco/gutkha	14
smoking	5
No risk factors	19

Table 8: Distribution of HNC Patients according t	to Risk	Factors	(n=38)
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Figure 10: Distribution of HNC Patients according to Risk Factors

There were 14 patients who had a habit of tobacco/gutkha consumption and 5 patients who had a habit of smoking.

Age (vears)	No. of Patients with Tobacco/ <i>Gutkha</i> Consumption	No. of Smokers
21-30	0	0
31-40	3	0
41-50	5	2
51-60	5	1
61-70	2	1
71-80	0	0

 Table 9: Correlation between Age & Risk Factors



Figure 11: Correlation between Age & Risk Factors

It can be seen that patients in the age group of 51-60 and 41-50 had the highest rates of tobacco/*gutkha* consumption as well as smoking.

#### **Quality of Life Score Distribution:**

Avg. QOL Score Range	No. of Patients
0-10	4
20-30	8
31-40	8
41-50	13
51-60	8
61-70	2
71-80	2
91-100	2



Figure 12: Quality of Life Score of HNC Patients

A majority of the patients (13) have their Avg. QOL Scores in the near median range of 41-50, and a large number of these patients have scores below the same range which represents their reduced QOL. Only 6 patients had their QOL Scores above 70.

#### **Functionality Score Distribution:**

Avg. Functionality Score Range	No. of Patients
0-10	1
30-40	4
41-50	6
51-60	9
61-70	12
71-80	9
81-90	4
91-100	2

 Table 11: Functionality Score based Distribution of Patients (n=47)



Figure 13: Functionality Score based Distribution of Patients

A majority of the patients (12) have median functionality scores (61-70) followed by 9 patients in the range of 51-60. Eleven patients have scores below 50 and 15 patients have scores above 70.

Table 12: Mean Scores (n=38)

Avg. Functionality Score	$60.69 \pm 17.20$
Avg. QOL Score During Past 7 Days	$39.47 \pm 22.04$
Avg. QOL Score Compared to a Month	$42.10 \pm 28.53$
before Diagnosis	
Avg. QOL Score	$41.93 \pm 19.83$

This table shows the mean scores of 38 patients. The standard deviation has been shown in each category.

Age (years)	Avg. Functionality Score	Avg. QOL Score Compared to a Month before Diagnosis	Avg. QOL Score
21-30	80.84	50	56.67
31-40	58.97	45	45.67
41-50	67.89	47.22	42.41
51-60	61.68	45	44.78
61-70	46.85	25	27.22
71-80	56.58	37.5	45.83

Table 13: Mea	an Scores ac	cording to	Age (n=38)
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This table shows the mean scores of patients according to their age. Patients in the age group of 21-30 years and 41-50 years have higher scores than the mean scores. Patients between 61-70 years have comparatively lower scores.

Part Affected	Avg. Functionality Score	Avg. QOL Score Compared to a Month before Diagnosis	Avg. QOL Score
Buccal Mucosa	64.39	59.09	48.79
Tongue	58.55	39.28	42.62
Esophagus	58.96	25	29.66
Neck Region	65.46	35	39.67
Tonsil	57.29	37.5	45.84
Other	62.33	45	44.33

Table 14: Mean Scores according to Part Affected (n=38)

This table shows the mean scores of patients according to the part affected. It can be seen that the scores of patients of the Buccal Mucosa and other affected organs are higher than the mean scores of the total of 38 patients. Patients of esophageal cancer have comparatively lower scores.

Operative History	Avg. Functionality Score	Avg. QOL Score Compared to a Month before Diagnosis	Avg. QOL Score
Post-operative	67.77	51.31	49.38
Non-operative	53.61	32.89	34.47

Table 15: Mean	Scores	according to	Onerative	History	(n=38)
Table 15. Mean	SCOLES	according to	Operative	1115tor y	(II-30)

This table shows the mean scores of patients according to their operative history. The non-operative patients have less functionality assessment compared to the post-operative ones. Moreover the QOL scores of non-operative patients are also lower than those of the post-operative ones.

 Table 16: Mean Scores according to Co-morbidities (n=38)
 Image: Comparison of the state o

Co-morbidity	Avg. Functionality Score	Avg. QOL Score Compared to a Month before Diagnosis	Avg. QOL Score
Diabetes Mellitus (DM)	60.78	45	42.33
Hypertension (HT)	55.50	47.5	42.50
Ischemic Heart Disease	59.33	50	33.33
DM + HT	59.77	54.16	48.05
No co-morbidity	64.06	43.75	44.25

This table shows the mean scores of patients according to their co-morbidities and compares them with those of patients with no co-morbidities. The functionality assessment of these patients is poor compared to those with no co-morbidities, as shown by the Average Functionality Scores. The QOL scores show mixed results. Patients with IHD have comparatively low QOL scores.

Risk Habits / Addiction	Avg. Functionality Score	Avg. QOL Score Compared to a Month before Diagnosis	Avg. QOL Score
Tobacco/Gutka	64.85	56.66	49.11
Smoking	62.21	25	39.00
None	55.87	32.35	36.67

Table 17: Mean	Scores	according	to Risk	Factors	(n=38)
I uble I / I HIculi		accoranis	to main	I actors	$(\mathbf{m} = 00)$

This table shows the mean scores of patients with risk habits/addictions and compares them with those of patients with no such habits/addictions. Both of the QOL scores of smokers are significantly lower than patients that consume tobacco/*gutka*. The Quality of Life of smokers compared to a month before they had cancer is of particular concern.

Functionality Parameter	Total
Chewing	23
Swallowing	16
Pain	13
Saliva	12
Taste	11
Speech	10
Anxiety	10
Mood	7
Activity	6
Shoulder	5
Appearance	4
Recreation	3

#### **Table 18: Individual Functionality Parameters**

This table shows the importance of the individual functionality parameters of all the patients. It can be seen that chewing, swallowing and pain involve the highest number of patients, thus indicating particular cause of concern for these parameters.



**Figure 14: Importance of Individual Functionality Parameters** 

#### Discussion

Quality of life studies have become increasingly important for oncology during the recent decades. Their main objective is to determine the impact of cancer and its treatment on patient well-being. In addition to the traditional elements of assessment, assessing quality of life is a necessity for a complete overview of treatment outcomes.

The routine use of quality of life questionnaires among cancer patients enables health practitioners to discover in which areas and to what extent patients find their lives affected by the treatment they receive and its consequences. This allows health practitioners to provide information and treatments which are better adapted to patient needs. The UWQOL is a commonly used questionnaire that is short enough to be incorporated into routine practice. The score scan help to identify patients with dysfunction, and can enable the effective use of health resources. The use of more complex questionnaires specific to function is ideal, but use of a battery of questionnaires is impractical, therefore there is a role for screening questions about a single item.<sup>15</sup>

Vakharia et al. (2007) reported that participation in a support group post HNC treatment was associated with improved QoL, compared to non-participation.<sup>16</sup> Appropriate management of psychological distress (anxiety and depression) is essential in HNC because of its influence on QoL and potential to predict survival.<sup>17,18</sup> Also Dental assessment prior to radiotherapy is essential, especially as many patients have poor oral health before starting treatment and radiotherapy has a detrimental effect on oral health.<sup>19</sup> Physical disfigurement, impaired function and communication are associated with psychological distress following HNC treatment.<sup>20,21</sup>

Our study found patients with esophageal cancer having comparatively lowest scores of QOL, which is in line with the findings of Rogers et al who described lower QOL scores for carcinomas of the oropharyngeal wall, mainly due to poor swallowing.<sup>22</sup> We also found that patients younger than 65 years produced better scores pointing to an association between patient age and QOL. Perhaps the correlation between age and some QOL variables, such as physical function, are due to the natural course of life and co-

morbidity associated with advancing age (Rogers et al., 2007). Similar results were obtained by Jornet et al in their study.<sup>13</sup>

In a pilot study to investigate concerns in patients undergoing neck dissection surgery by Doss and Raj, oral functions such as swallowing and speech were identified as two of the top three concerns. The findings of our study pointed out that chewing, swallowing and pain as the top three concerns, followed by saliva and taste.<sup>23</sup> It is recognised that patients with serious problems with swallowing can be identified using this approach but caution is needed to avoid missing those with problems because of the lack of a particular question. Our study has also identified swallowing as a cause of concern.<sup>24</sup>

Our data suggested that there was a substantial amount of patients who had anxiety issues which would have correlation with QoL. This was in line with the study conducted by Moore et al who highlighted that support needs should be focused on managing anxiety in HNC patients.<sup>25</sup>

#### Conclusion

- From forty-seven patients 91% patients were male, and were in the age group of 51-60 years.
- A majority of the patients were in the age group of 51-60 years followed by 41-50 years which were both found to have comparatively higher rates of tobacco/*gutkha* consumption and smoking.
- A majority of the patients had cancer of the buccal Mucosa, followed by those with cancer of the tongue. A noteworthy correlation was observed as eight patients who had cancer of the buccal Mucosa had a habit of tobacco/gutka consumption.
- It was seen that there was comparatively a larger number of patients that had no risk factors like tobacco consumption or smoking, yet they had cancer. This helps to conclude that cancer can occur in spite of the absence of addictive habits.
- Most of the patients had their average Quality of Life Scores below the median range. It was observed that chewing, swallowing and pain were the functionality parameters that are of significant concern for such patients.
- Whether routine use of QOL measures in the clinical setting is beneficial to patients or not has yet to be determined. Moreover, studies with bigger and diverse patient populations are necessary to establish accurate results for optimisation of therapy.

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#### Annexure

- A) University of Washington Quality of Life Questionnaire Version 4
- B) University of Washington Quality of Life Questionnaire Version 4 Hindi
- C) Plagiarism Report

#### University of Washington Quality of Life Questionnaire (UW-QOL v4)

This questionnaire asks about your health and quality of life **over the past seven days**. Please answer all of the questions by ticking one box for each question.

#### 1. Paln. (Tick one box: Ø)

I have no pain.	(100)
There is mild pain not needing medication.	(75)
I have moderate pain - requires regular medication (e.g. paracetamol).	(50)
I have severe pain controlled only by prescription medicine (e.g. morphine).	(25)
I have severe pain, not controlled by medication.	(0)

#### Appearance. (Tick one box: ☑)

There is no change in my appearance.	(100)
The change in my appearance is minor.	(75)
My appearance bothers me but I remain active.	(50)
I feel significantly disfigured and limit my activities due to my appearance.	(25)
I cannot be with people due to my appearance.	(0)

#### ActNlty. (Tick one box: ☑)

I am as active as I have ever been.	(100)
There are times when I can't keep up my old pace, but not often.	(75)
I am often tired and have slowed down my activities although I still get out.	(50)
I don't go out because I don't have the strength.	(25)
I am usually in bed or chair and don't leave home.	(0)

Recreation. (Tick one box: ☑)

There are no limitations to recreation at home or away from home.	(100)
There are a few things I can't do but I still get out and enjoy life.	(75)
There are many times when I wish I could get out more, but I'm not up to it	t. <b>(50)</b>
There are severe limitations to what I can do, mostly I stay at home and	
watch TV	(25)
I can't do anything enjoyable.	(0)

#### Swallowing. (Tick one box: ☑)

I can swallow as well as ever.	(100)
I cannot swallow certain solid foods.	(70)
I can only swallow liquid food.	(30)
I cannot swallow because it "goes down the wrong way" and chokes me.	(0)

Chewing. (Tick one box: ☑)

I can chew as well as ever.	(100)
I can eat soft solids but cannot chew some foods.	(50)
I cannot even chew soft solids.	(0)

#### Α

#### 7. Speech. (Tick one box: ☑)

	My speech is the same as always. I have difficulty saying some words but I can be understood over the phon- Only my family and friends can understand me. I cannot be understood.	(100) e. (70) (30) (0)
8.	Shoulder. (Tick one box: ☑)	
	I have no problem with my shoulder. My shoulder is stiff but it has not affected my activity or strength. Pain or weakness in my shoulder has caused me to change my work / hobbies. I cannot work or do my hobbies due to problems with my shoulder.	(100) (70) (30) (0)
9.	Taste. (Tick one box: ☑)	
	I can taste food normally. I can taste most foods normally. I can taste some foods. I cannot taste any foods.	(100) (70) (30) (0)
10.	Sallva. (Tick one box: ☑)	
	My saliva is of normal consistency. I have less saliva than normal, but it is enough. I have too little saliva. I have no saliva.	(100) (70) (30) (0)
11.	Mood. (Tick one box: 🗹 )	
	My mood is excellent and unaffected by my cancer. My mood is generally good and only occasionally affected by my cancer. I am neither in a good mood nor depressed about my cancer. I am somewhat depressed about my cancer. I am extremely depressed about my cancer.	(100) (75) (50) (25) (0)
12.	Anxlety. (Tick one box: ☑)	
	l am not anxious about my cancer. I am a little anxious about my cancer. I am anxious about my cancer. I am very anxious about my cancer.	(100) (70) (30) (0)

#### Which issues have been the most important to you during the past 7 days? Tick ☑ up to 3 boxes.

Pain	Swallowing	Taste
Appearance	Chewing	Saliva
Activity	Speech	Mood
Recreation	Shoulder	Anxiety

Institute of Pharmacy, Nirma University

#### GENERAL QUESTIONS

Compared to the month before you developed cancer, how would you rate your health-related quality of life? (Tick one box: ☑)

Much better	(100)
Somewhat better	(75)
About the same	(50)
Somewhat worse	(25)
Much worse	(0)

In general, would you say your health-related quality of life during the past 7 days has been: (Tick one box: ☑ )

Outstanding	(100)
Very good	(80)
Good	(60)
Fair	(40)
Poor	(20)
Very poor	(0)

Overall quality of life includes not only physical and mental health, but also many other factors, such as family, friends, spirituality, or personal leisure activities that are important to your enjoyment of life. Considering everything in your life that contributes to your personal well-being, rate your **overall quality of life** <u>during the past 7 days</u>. (Tick one box: ☑)

Outstanding	(100)
Very good	(80)
Good	(60)
Fair	(40)
Poor	(20)
Very poor	(0)

Please describe any other issues (medical or nonmedical) that are important to your quality of life and have not been adequately addressed by our questions (you may attach additional sheets if needed).

B

नाम:	
तारीख:	

#### वॉशिंग्टन विद्यापीठ की क्वालिटी ऑफ लाईफ प्रश्नावली (UW-QOL)

यह प्रश्नावली आपके स्वास्थ्य और क्वालिटी ऑफ लाइफ के बारे में है। हम जानना चाहते हैं कि **पिछले सात दिन** में आपकी तबियत कैसी रही।

```
    दर्द. (कृपया सही उत्तर बॉक्स 🗹 में टिक करें)

  मुझे बिल्कुल भी दर्दनहीं है।
  हल्का सा दर्द है पर दवाई की जरूरत नहीं है।
   🗆 मुझे थोडा दर्द है - नियमित दवाई की जरूरत है (कोडीव या अन्य दर्द निवारक)
   🗆 मुझे बहुत तेज दर्द है जो सिर्फ नारकोटिक से कंट्रोल में आता है।
   🗆 मुझे बहुत तेज दर्द है जो किसी नाएकोटिक से कंट्रोल में नहीं आता है।
2. रूप (कृपया सही उत्तर बॉक्स 🗹 में टिक करें)
   🗆 मेरे बाहरी ऊप में कोई बदलाव नहीं है।
   🗆 मेरे बाहरी ऊप का बदलाव बहुत ही आंशिक है।
   मुझे अपना बाहरी ऊप का बदलाव परेशान करता है पर मैं व्यस्त रहता हूँ।
   🗆 मुझे अपना रूप खंडित लगता है और इसलिए मैं अपना काम काज सीमित रूप
    से करता हूँ।
   🗆 मैं अपने बाहरी रूप के कारण नोगों के साथ नहीं रह सकता।

    एक्टिविटी/कार्यशीलता (कृपया सही उत्तर बॉक्स 🗹 में टिंक करें):

   में उतना ही एक्टिव है जितना पहले था।
   🗆 कभी ऐसा होता है जब मैं पहले जैसे एक्टिव नहीं होता, पर ऐसा कम होता है।
   🗆 मैं अक्सर थक जाता है और अपनी कार्यशैली को कम करता है पर फिर भी मैं
      बाहर जाता हूँ।
   मा बाहर नहीं जाता क्योंकि मुझमें ताकत नहीं हैं।
   🗆 मैं अक्सर लेटता हूँ या कुर्सी पर बैठता हूँ और घर के बाहर नहीं जाता।
```

- मनोरंजन (कृपया सही उत्तर बॉक्स M में टिंक करें):
  - घर या बाहर मुझे मनोरंजन के हर क्षण में मजा आता है।
  - वुछ चीजें ऐसी हैं जो मैं कर नहीं सकता पर फिर भी बाहर जाकर जीवन में मजा लेता हूँ।
  - अक्सर मैं चाहता हूँ कि मैं अधिक बाहर जा सकूँ पर मैं कर नहीं पाता।
  - मेरे हर काम में मुझे अनेक बाधा आती है सो मैं अक्सर घर में रहकर टीवी देखता हूँ।
  - 🗆 मैं कुछ भी ऐसा नहीं कर पाता जिसमें मुझे मजा आये।

#### निगलना (कृपया सही उत्तर बॉक्स 🗹 में टिंक करें):

- 🗆 मैं पहले जैसे निगल सकता हूँ।
- में कुछ सोलिड खाना नहीं खा पाता।
- में सिर्फ तरल खाने के पटार्थ निगल सकता हूँ।
- में बिलकुल निगल नहीं सकता क्योंकि वो गलत तरु चला जाता है और मैं चोक हो जाता हूँ।
- 6. चबाना (कृपया सही उत्तर बॉक्स ☑ में टिंक करें):
  □ मैं पहले जैसे चबा सकता हूँ।
  □ मैं सॉफ्ट सोलिड खाना चबा सकता हूँ पर हर तरह का खाना नहीं चबा सकता ।
  □ मैं सॉफ्ट सोलिड खाना भी नहीं चबा सकता हूँ।
- 7. बोलचाल: (कृपया सब प्रश्नों का सही उत्तर बॉक्स ☑ में टिक कर)
   □ मेरी बोलचाल पहले की तरह है।
   □ मुझे कुछ शब्द कहने में तकलीफ होती है पर लोग मुझे फोन पर समझ लेते हैं।
   □ सिर्फ मेरे परिवार और मित्र मेरी बातचीत समझते हैं।
   □ मुझे कोई भी बिल्कुल नहीं समझ पाता।
- 8. कंधा : (कृपया सही उत्तर बॉक्स ☑ में टिक करें)
   □ मुझे अपने कंधे में कोई तकलीफ नहीं है।
   □ मेरा कंधा थोडा कडा है पर इससे मेरे काम काज या शक्ति में कोई फर्क नहीं पडा है।
   □ कंधे में दर्द या कमजोरी के कारण मुझे अपना काम बदलना पडा है।
   □ मैं कंधे की तकलीफ के कारण कोई काम नहीं कर पाता ।

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 रचाद : (कृपया सही उत्तर बॉक्स 🗹 में टिंक करें)

   मुझे खाने का खाद नार्मल आता है।
   ज्यादातर खाने की चीजों का स्वाद नार्मल आता है।
   में कुछ चीजें का स्वाद पाता हूँ।
   🗆 मुझे खाने का स्वाट नहीं पता चलता ।
10. थूक : (कृपया सही उत्तर बॉक्स 🗹 में टिंक करें)
   मेरे थूक का गाढापन नार्मल है।
   मेरे मुँह में कम थूक है पर वो नार्मल है।
   मेरे मुँह में बहुत कम थूक है।
   मेरा मुँह एकदम सूखा है।
11. मन:स्थिति: (कृपया सही उत्तर बॉक्स 🗹 में टिंक करें)
   मेरी मन:स्थिति उत्तम तथा मेरें कैंसर से अप्रभावित हैं।
   मेरी मन:स्थिति सामान्यत: अच्छी सहती हैं और कभी कबार मेरें कैंसर से प्रभावित
      होता है।
   में मेरे कैंसर को लेकर न अच्छी मन:स्थिति में हूँ और न ही उदास हूँ।
   में मेरे कैसर के बारे में थोडा उदास है।
   में मेरे कैसर के बारे में बहुत उटास हूँ।
12. चिन्ता : (कृपया सही उत्तर बॉक्स 🗹 में टिंक करें)
   में मेरे कैंसर के बारे में चिन्तित नहीं हूँ।
   में मेरे कैं सर के बारे में थोडा चिन्तित है।
   में मेरे कैंसर के बारे में चिन्तित है।
   में मेरे कैसर के बारे में बहुत चिन्तित हूँ।
पिछले सात दिन में आपके लिए क्या सबसे विशेष महत्व का था ? (किसी भीं तिन बॉक्स
🗹 में टिंक करें)
   □ टर्ट
                         □ निगलना
                                                   🗆 स्वाद
   □ ऊ प
                         🗆 चबाना
                                                   □ থুক
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🗆 बातचीत

🗆 केधे

🗆 मन:स्थिति

🗆 चिन्ता

#### आम प्रश्न

कैं सर होने के एक महीने पहले और आज में आप आपके स्वास्थ्य में क्या फर्क लगता है? (कृपया सब प्रश्नों का सही उत्तर बॉक्स ☑ में टिंक करें)

□ पहले से बहुत अच्छा □ थोडा बेहतर □ करीब करीब वैसे ही □ पहले से बदतर □ बहुत खराब

स्वास्थ्य और क्वालिटी ऑफ लाइफ का <u>पिछले सात दिन</u> का सन्तुलन कैसा रहा है? (कृपया सब प्रश्नों का सही उत्तर बॉक्स ☑ में टिंक करें)

□ बहुत बढिया □ बहुत अच्छा □ अच्छा □ टीक टीक □ कोई खास नहीं □ बहुत खराब

समग्र ऊप से क्वालिटी ऑफ लाइफ आपके शारीरिक और मानसिक स्वास्थ्य के अलावा परिवार, मित्र, आस्मिक और मनोरंजन के कार्यक्रम पर भी निर्धारित हैं। इनसे आप जीवन का मजा ले सकते हैं। हर वो चीज आपको सुख देती है उसे ध्यान में रखते हुए <u>पिछले सात दिनों में समग्र रूप से आपकी क्वालिटी ऑफ लाइफ</u> कैसी रही ? (कृपया सही उत्तर बॉक्स ☑ में टिक करें)

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□ बहुत बढिया
□ बहुत अच्छा
□ अच्छा
□ टीक टीक
□ कोई खास नहीं
□ बहुत खराब
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ऐसे कुछ प्रश्न होंगे जो इस प्रश्नावली में नहीं हैं पर वो आपको अपने जीवन को संपूर्ण ऊप से जानने के लिए जरूरी है। कृपया उसके बारे में लिखें।

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