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Dissertation on

"PREVALENCE OF PSYCHIATRIC CO-MORBIDITY AMONG CANCER PATIENTS ATTENDING THE TERTIARY CARE HOSPITAL"

DISSERTATION SUBMITTED FOR DOCTOR OF MEDICINE

BRANCH – XVIII (PSYCHIATRY)

MAY 2018

CERTIFICATE

This to certify that the Dissertation entitled **"PREVALENCE OF PSYCHIATRIC CO-MORBIDITY AMONG CANCER PATIENTS ATTENDING THE TERTIARY CARE HOSPITAL"** is a bonafide record work done by **Dr. KIRUPAKARA KRISHNAN.D** in the department of psychiatry, Thanjavur Medical College, Thanjavur, during his Post Graduate Course, under my direct supervision and guidance. This is submitted as partial fulfilment for the requirement of **M.D., Degree Examination - Branch XVIII (Psychiatry)** to be held in May 2018 under **The Tamil Nadu Dr. M.G.R. Medical University.**

Professor & Head
Department of Psychiatry,
Thanjavur Medical College,
Thanjavur.

The Dean,
Thanjavur Medical College,
Thanjavur.

DECLARATION

I, **Dr. KIRUPAKARA KRISHNAN.D,** solemnly declare that the dissertation titled **"PREVALENCE OF PSYCHIATRIC CO-MORBIDITY AMONG CANCER PATIENTS ATTENDING THE TERTIARY CARE HOSPITAL"** has been prepared by me. I also declare that this bonafide work or a part of this work was not submitted by me or any other for any award, degree, diploma to any other University board either in India or abroad.

This is submitted to The Tamil Nadu Dr. M. G. R. Medical University, Chennai, in partial fulfilment of the rules and regulation for the award of M.D degree Branch – XVIII (Psychiatry) to be held in MAY- 2018.

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Thanjavur Medical College

THANJAVUR, TAMILNADU, INDIA - 613001

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submitted by Dr. D. KIRUPAKARA KRISHNAN. **of**

Dept. of PSYCHIATRY **Thanjavur Medical College, Thanjavur**

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Thanjavur

Dated : 01.03.2017

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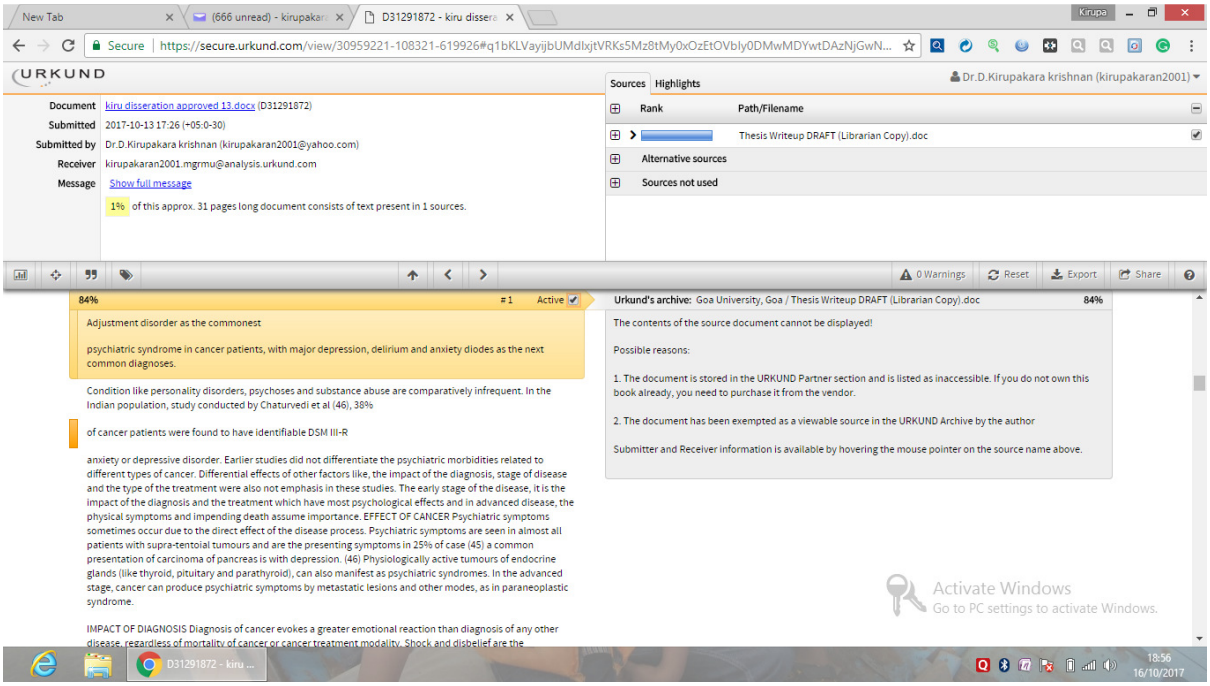
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Adjustment disorder as the commonest
psychiatric syndrome in cancer patients, with major depression, delirium and anxiety diodes as the next common diagnoses.
Condition like personality disorders, psychoses and substance abuse are comparatively infrequent. In the Indian population, study conducted by Chaturvedi et al (46), 38%
of cancer patients were found to have identifiable DSM III-R
anxiety or depressive disorder. Earlier studies did not differentiate the psychiatric morbidities related to different types of cancer. Differential effects of other factors like, the impact of the diagnosis, stage of disease and the type of the treatment were also not emphasis in these studies. The early stage of the disease, it is the impact of the diagnosis and the treatment which have most psychological effects and in advanced disease, the physical symptoms and impending death assume importance. EFFECT OF CANCER Psychiatric symptoms sometimes occur due to the direct effect of the disease process. Psychiatric symptoms are seen in almost all patients with supra-tentoial tumours and are the presenting symptoms in 25% of case (45) a common presentation of carcinoma of pancreas is with depression. (46) Physiologically active tumours of endocrine glands (like thyroid, pituitary and parathyroid), can also manifest as psychiatric syndromes. In the advanced stage, cancer can produce psychiatric symptoms by metastatic lesions and other modes, as in paraneoplastic syndrome.
IMPACT OF DIAGNOSIS Diagnosis of cancer evokes a greater emotional reaction than diagnosis of any other disease, regardless of mortality of cancer or cancer treatment modality. Shock and disbelief are the
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CONTENTS

ABBREVIATIONS

GHQ-12	:	General Health Questionnaire -12
CNS	:	Central Nervous System
DNA	:	Deooxyribo Nucleic Acid
DSM – IV	:	Diagnostic and Statistical Manual of Mental Disorders-fourth Edition
CVA	:	Cerebro-Vascular Accident
WHO	:	World Health Organization
PSA	:	Prostate Specific Antigen
USA	:	United States of America
QOL	:	Quality Of Life.
ICD-10	:	International Classification of Diseases and Related Health Problems- Tenth Revision.
OP	:	Out- Patients
IP	:	In-Patients
HRSD	:	Hamilton Rating Scale for Depression
HDRS	:	Hamilton Depression Rating Scale
HAM-D	:	Hamilton Rating scale for Depression.
HAM-A	:	Hamiltion Rating scale for Anxiety
RT	:	Radiotherapy
CT	:	Chemotherapy
ST	:	Surgical Treatment.

INTRODUCTION

Cancer is the one of the leading cause of death; worldwide accounting for 7.6 million deaths that are around 13% of all deaths in 2008, and about 70% of all Cancer deaths occurred in low and middle income countries. Death due to cancer are projected to continue to rise above 11million by 2030.[1]

In 1980, A Meta Analysis of 58 studies showed that younger patients [2] reported significantly more depression, anxiety and general distress than studies with older patients.

A study done by Derogatis et al[3] noted that prevalence of psychiatric co-morbidity is 47% of the cancer patients comparatively high than the general medical patients. More than two thirds of those represent adjustment disorders, 10 to 15 percent major depression, Adjustment disorder is the most common psychiatric co-morbidity seen cancer patients. In-patient studies show higher the incidence of 20% to 45% of depression and 15% to 75% of delirium. Conceptually, these are disorders with emotional and behavioural symptoms which are responses to an identifiable stressor.

Literally the term "Cancer" refers to a set of conditions that have the growth of cells that invade tissues and organs of the human body in common [2]. It is a multisystem illness. The presenting signs and symptoms may be due to

primary tumour itself, metastasis, and para-neoplastic syndrome or due to drug treatment.

The causes of Cancer are varied, but psychological and behavioural factors such as chronic stress, depression and social isolation may contribute to the initiation and progression of certain cancers by Reiche et.al [4,5].

The awareness about the cancer diagnosis and its relationship to psychiatric morbidity has been a subject of debate. The experience of having "Cancer" has been associated with high levels of psychological stress. Galan noted a relationship between dysphoric affect and cancer long ago. Correlation between Neoplasia and psychological disorder are noted by numerous 18th and 19th century physicians [6]. The non awareness on the part of the patients can be attributed to many causes notably illiteracy, denial, decision of family member, and their society. It may also be due to the stigma attached to the word cancer, fear of social and financial implication [7].

Despite of biomedical advance, Cancer is still considered as equal and synonymous with death, pain and suffering [8]. The diagnosis of Cancer causes a number of emotional reactions. These patients develop fear of pain, surgery, dependency, financial burden and fear of death which often result in depression and anxiety. The distress in a patient with cancer may be due to multiple factors. The un-remitting physical symptoms like pain, fatigue, nausea, sleep

disturbances may increase the distress. Patients who are being investigated to rule out Cancers also develop distress and anxiety about their outcome [9].

Recent studies found that the factors such as socio-economic status, social support, performance capacity, recent losses, and awareness of the diagnosis of Cancer might affect the rate of psychiatric disorders [9-11].

It is thought that socio-cultural context plays an important role in the occurrence of mental disorders. As Bailey et.al [12] suggested culture may influence symptom expression. In Asia, the individuals suffering from depression tend to presented with somatic symptoms. While neglecting the psychological symptoms. Some Asian patients believe that cancer is a form of God's punishment for their past mistakes [13]; therefore, patients and their families are reluctant to discuss their emotional distress and experiences due to cancer. In general, cultural beliefs can also influence, the way the health care system practices, medicine, as well as the mental health help-seeking behaviours of cancer patients with depression [14].

Various mental disorders are risk factors for the development of some cancers. Mental disorders may appear as co-morbidities with the clinical condition, which may negatively impact disease diagnosis and treatment and emotional and financial costs.

Psychiatric co-morbidity in the medically ill patients is a reality but is often under-diagnosed and untreated as there is a tendency to explain away the symptom experienced by the patients.

Attention to the psychosocial aspects of the disease is equally important to cancer treatment; especially regarding psychopathologies because they significantly impact morbidity, low adherence to treatment, hospitalization duration, prognosis, quality of life, and patient survival [15-18].

Scope of the study:

- By identifying the underlying psychiatric disorders in cancer patients. we will create awareness among the treating physicians to look for psychiatric morbidities.
- Early Identification and referral leads to prevention of potential risk like suicide.
- Identification of the factors associated with psychiatric disorders in cancer patients may contribute to the development of possible preventive measures.
- To plan interventions efficiently, it is important to gain insight into the prevalence, severity, course of the psychological sequelae, and the variables influencing them.
- It is in this context, that the study was planned to find the prevalence of psychiatric illnesses in cancer patients.

REVIEW OF LITERATURE

Historical Background

The history of cancer is the history of life itself. It's probably existed since the civilization began. Cancer has intense propensity to replicate and grow more rapidly than normal cells. Hippocrates in 400 BC coined the word "Karkinos" in Greek which means swelling or "onkos" (load mass) on one of the islands of Greece. The environment factors in the causation of cancer was addressed by Surgeon Sir Percivall Pott with high incidence of scrotal cancer in chimney sweeper due to the effect of soot, which is a chemical carcinogen.

The basic understandings of the normal and abnormal cells were studied by German pathologist Rudolf Virchow in 1855. The general consideration that the cancer is a genetic disease. Where, there is an alteration in the genome of the somatic cells, there is a progression of cancer. With these basis the field of oncology has improved to multiple levels.

Physicians were reluctant to discuss a diagnosis of cancer with patients and their families, as cancer represented inevitable death due to lack of effective treatments, to reveal a diagnosis of cancer was regarded as cruel and destructive. With the advent of Anaesthesia and Antisepsis, curative surgical resection of early stage tumours became possible.

The American Cancer Society was formed in 1913, to educate the public about the warning signs of cancer and to fight fatalism that interfered with early

presentation for treatment. In 1937 the National Cancer Institute was established to seek aetiology and treatments for cancer. In the 1950s the addition of chemotherapy to the combined treatment modalities resulted in cure of several childhood tumours. By the early 1970s, with improvements in survival, oncologist's became more comfortable in discussing cancer diagnoses with their patients, and the patients reluctance to identify themselves as cancer patients diminished.

Hospice programs were developed to improve pain management and palliative care. This program meant with increased interest in delivering the best supportive care to patients at the end of life. Clinician's enhanced comfort with communicating a diagnosis of cancer, increased concern for palliative symptom control, and the growing interest in quality of life and patient rights emphasized the need for supportive and psychological aspects of care.

In the 1980s psycho-oncology units began to develop in larger cancer centres. Prevalence studies of psychiatric and psychological sequelae in cancer were reported. Special units were developed throughout Europe and the United States during the 1970s. This is followed by societies such as the British Psychosocial Oncology Group (1983), the International Psycho-Oncology Society (1984), and the Japanese Psycho-Oncology Society (1985). Conferences, journals (Journal of Psychosocial Oncology, 1982; Psycho-Oncology, 1992), textbooks, and training programs followed thereafter.

In the 1990s, behavioural research in changing habits (e.g., smoking, diet, and lifestyle) improved education of the public on cancer prevention. Health-related quality-of-life assessments and more recently patient-reported outcomes have become part of outcome measures in clinical trials.

In the early 21st century, psycho-oncology, a relatively young discipline, continues to grow, with the development of novel psychotherapy modalities for advanced cancer patients, intervention trials to improve symptom control in the terminally ill, increased awareness of the role of communication skills training, researcher's efforts to understand and conceptualize the effects of chemotherapy on the central nervous system (CNS), and recognition of the special needs of elderly cancer patients with the rapidly growing elderly population worldwide.

It is important to emphasize that despite all the developments out-lined, historical attitudes toward cancer have contributed to the reluctance of patients and families to identify their emotional problems to the clinicians, even today, especially in underserved populations, different cultures, and several parts of the world.(Kaplan and Sadock,2009)[19] .

The advance in oncology has improved to multiple levels. In the recent years.

- There is redesigning of the genomic maps from a histological to a molecular level.

- Drugs that alter the molecular basis of cancer, shows improvement in treatment of cancers, which reveals that the somatic genetic alterations are the legitimate target of therapy.
- Alteration in the DNA which is tumour specific represents a highly sensitive biological marker for disease detection and to monitor the disease progress.
- Genotyping helps the oncologist to treat easily based upon the aetiology.

PSYCHO-ONCOLOGY IN INDIA

The role of psychosocial factor in cancer has been recognised as important since a long time by Indian clinicians. Active research and activities have been pursued over the last decade [(20)]. One of the factors for this has been the relatively low number of mental health professionals. In the country having to manage an extremely large number of people with mental illness; hence few could spare time for the care of those with severe physical disease as cancer.

Oncologist's are focus on the therapeutic or curative aspect of the large number of cancer patients. The system of "consultation-liaison psychiatry" is not well developed, such facilities being available in a few hospitals in India. The emphasis on psychiatry during the Undergraduate and Postgraduate Medical Training is limited. Psychological reaction to cancer are considered a natural phenomenon and less important than the physical care. Cancer patients

seek treatment when their disease is fairly advanced; care of physical condition is the major focus.

The occupation therapy centre at TATA Memorial Hospital Mumbai has proved to be an effective and well developed centre for the rehabilitation of cancer patients. The Indian cancer society provide the support and care for the cancer patients, Shanti Avedna Asham at Mumbai , Sevagram in Kerala provide palliative care and support to cancer patients. First palliative care out-patient clinic was opened at Calicut.

Studies have been conducted on emotional reaction of cancer patients, their personality, effects of radiation therapy other treatments, and communication patterns. Psychiatric aspects of patients with cancer pain and palliative care have also been studied. Head and Neck cancers, like Laryngeal cancers, and Haematological malignancies, like Leukaemia, have received relatively more attention by researches. Studies have also been carried out on quality of life aspects and subjective well being of cancer patients, especially those receiving radiotherapy.

These studies indicate that the reaction to cancer is quite similar to the Western population, with some cultural differences. Lack of awareness about the disease and treatment is quite widespread, because due to inadequate information provided to the patients as well as due to denial on the part of the patients.

Mixed anxiety depressive disorder is the commonest diagnosis in cancer patients. Fatalism and resort to religion were noted to be the commonest coping mechanism in Head and Neck cancer patients, as another study noted.

Subjective well being and quality of life was found to be satisfactory in patients receiving radiation therapy. A survey done among the Indian population in quality of life, documented that Indian patients more importance to spiritual issues, and have satisfaction. Families have been found to be very supportive.

FACTORS IN ADAPTATION TO CANCER

The cancer patient derived factors that modulate, adaptation to cancer originate from three sources: from three variables. [21]

Factors Determine the Adaption and Adjustment to Cancer.

1. Society derived	Open discussion versus unrevealed secrets Knowledge of treatment options, prognosis and participation as partner in treatment popular belief Example: stress causes cancer

2.Patients derived	1. Intrapersonal development stage at times of cancer, coping ability emotional maturity at the time of cancer, spiritual or religious belief that influence coping. 2. Interpersonal : spouse, family, friends, 3. Socioeconomic status is the thirds set of patient derived factor.
3.Cancer derived	Site, stage symptom and prognosis, treatment required (surgery, radiation, chemotherapy) altered body structure or function quality of psychological support provided by oncology staff.

The cancer-derived factors that affect adaptation to cancer are related to characteristics of the disease itself, such as stage of the disease, symptoms, site, prognosis, type of treatment, and the impact in functionality.[22]

The estimate of the prevalence of psychiatric disorders in persons with chronic medical illnesses is of considerable importance for several reasons.

1. The psychiatric disorders complicate the clinical assessment of chronic medical diseases.

2. The primary care physician may not always detect the psychiatric disorders in patients with medical diseases.[23]
3. Treatment of the two types of disorders may be complicated by drug interactions.[24]
4. The coexisting psychiatric disorders could increase both the utilization of services and disability of persons with chronic medical conditions.

Studies have determined that 5.9% of ambulatory primary care patients suffer from Major Depressive illness. Affective disorder found to occur in 22% to 33% of patients with medical illness in inpatient medical units. [25].

In a large community study, patients with or without one of the eight chronic medical disorders were compared on the basis of prevalence of psychiatric illnesses. The result showed that patients with one or more chronic illnesses had a 41% increase in the relative risk of having any psychiatric co-morbidity. The affective, anxiety and substance use disorders were more prevalent in persons with chronic medical conditions. [26]

Depression is common in medically ill patient as an affective disorder, as a symptomatic complaint or as a clinical syndrome and the presence of major or minor depression in medically ill patients has significant effect on patients morbidity and mortality.[27] Diagnosing major depression in medically ill patients historically has been an area fraught with controversy.

Cohen Cole et.al reviewed the four approaches to diagnose major depressive disorder in medically ill. [28]

They are as follows:

1. Inclusive Approaches: which include all symptoms and signs presented by the patient, whether or not they may be secondary to physical illness. This approach leads to false positive.
2. Etiological Approach: This attempt to operational guidelines of DSM-IV. The clinician tries to determine whether the symptoms are secondary to physical illness.
3. Substitutive Approach: This suggests changing the criteria for the diagnosis of depression in medically ill.
4. Exclusive Approach: which eliminate anorexia and fatigue from the list of nine symptoms of DSM depressive criteria and require four of the remaining seven symptoms.

CANCER: PROBLEM STATEMENT

Cancer may be regarded as a group of disease characterized by :

1. Abnormal growth of cells.

2. Ability to invade adjacent tissue and even distant organs,

3. The eventual death of the affected patient if the tumour has progressed beyond that stage when it cannot be successfully removed. Cancer can occur at any site or tissue of the body and may involve any type of cells.

The major categories of cancer are:

1. Carcinoma, which arises from epithelial cells lining the internal surface of the various organs and from skin epithelium.

2. Sarcomas, which arise from mesoderm cells of various connective tissues.

3. Lymphoma, myeloma, leukaemia arising from cells of bone marrow and Immune cells.

EPIDEMIOLOGY OF PSYCHIATRIC DISORDERS IN CANCER PATIENTS

The prevalence of psychiatric disorders in cancer patients is approximately 47 % Derogatis et al[3]. More than two thirds of those represent adjustment disorders, 10 to 15 percent major depression, and about 10 percent delirium. The prevalence is highest among patients with advanced cancer and poor prognosis.

In-patient studies show a higher incidence of 20% to 45% of depression and 15% to 75% of delirium. Studies of psychiatric consultation data reveal that treatable syndromes, such as major depression and delirium, continue to be under diagnosed and undertreated.

In Indian study conducted by Chaturvedi et al.[29] had found that 38% of cancer patients had identifiable DSM-III anxiety or depressive disorders.

Another National study by Alexander et.al.[30] has found the prevalence of psychiatric morbidity to be 40 % of the study population.

Another study by Ashraff et al.[31] at the malignant disease treatment centre, AFMC Pune found out that 44% of patients had a psychiatric diagnosis.

In the study conducted by Mishra et al.[32] found 63% of patients to have psychiatric morbidity. These points are towards the fact that the prevalence of psychiatric morbidity in Indian population is high.

Prevalence of depression in medical settings

Disorder	Prevalence
General population[33]	6.7%
Primary care[34]	5-20.7%
Emergency room[33]	7%
General hospital [35]	26%
Cardiology outpatients[36]	12-23%
Cardiology inpatients	16-20%
Endocrine outpatients[37]	12-18%
HIV patients[38]	16.2-36%
Oncology outpatients[39]	16.3%
Neurology In-patients ,post CVA[40]	20%

INCIDENCE OF CANCER AND MORTALITY RATES

Studies reported that the lifetime risk of developing cancer is less in men and more in women. Cancer stands the second most common cause of death after heart disease, accounting for one in every four deaths in united state. The 5-years relative survival rate for all cancers diagnosed between 1996 and 2002 is 66% this has improved from 51% in 1975 to 1977.

Prostate cancer in men and breast cancers in female are the most common type, but lung cancer is responsible for the highest rates of mortality in both groups. Lung cancer accounts for about 15 % of cancer diagnoses.

The incidence rates of lung cancer have been declining in men since the 1980; the incidence rates in women are approaching a plateau after a long period of increase. The 5year-survival rates for localized lung cancer are 49% and 16% of lung cancers are diagnosed in early stage.

Incidence rates of prostate cancer have changed substantially over the past 20 years, rapidly increasing from 1988 to 1992, declining sharply from 1992 through 1995, and modestly increasing since 1995. These trends largely reflect increased prostate cancer screening with prostate specific antigen (PSA) blood testing.

Death rates from breast cancer in women have decreased since 1990s due to a combination of earlier detection and improved treatment.

Colorectal cancer is the third most common cancer in both men and women. The incidence of colorectal cancer has decreased over the past two decades with screening colonoscopies, through removal of polyps.

GLOBAL BURDEN OF CANCER INCIDENCE AND MORTALITY IN 2000[41]

Site	Incidence		Mortality	
	Male	Female	Male	Female
Lung	901	337	810	292
Breast	-	1050	-	372
Colorectal	498	445	254	237
Stomach	558	317	405	241
Liver	398	165	383	164
Prostate	542	-	204	-
Cervix	-	470	-	233
Esophagus	278	13	226	110
Bladder	259	76	99	110
Lymphoma	166	120	93	67
Oral cavity	169	97	80	47
Leukemia	144	112	109	85
Pancreas	115	100	11	101
Ovary	-	192	-	114
Kidney	118	70	56	35

Source: WHO (2003), world cancer report, By Bernald W.Stewart and Paul Kleihues.

The global burden of cancer incidence and mortality is shown in terms of incidence, the most common cancer worldwide is lung cancer 12.3% and breast cancer is 10.4%, and colorectal cancer is 9.4%.

EPIDEMIOLOGY OF CANCER IN INDIA

In India the most common site of cancer in men is respiratory tract cancer and in women is cervical cancer. Among Indian women, cancer of cervix and breast account for nearly 60% of all cancers. [42]

PSYCHATRIC MORBIDITIES IN CANCER:

The diagnosis of cancer causes stress, on any individual which relates both to symptoms of disease and to the psychological meaning attached to cancer. The patient ability to manage these stresses depends on the prior level of emotional adjustment, threat the cancer posses to attainment of age appropriate goals (example: career, starting a family, retirement), the presence of emotionally supportive person in the environment and variable determined by the disease itself (disability symptoms, site of cancer, treatment required, presence of pain, and prognosis). [21]

The commonest reaction observed in the cancer patients is depression, it was considered as the only emotional response to cancer. Most of the earlier literature on psychiatric co-morbidity of cancer was from clinical experience or instructed interviews with patients and was largely anecdotal. There are considerable methodological problems in assessing the psychiatric co-morbidity

among cancer patients. This including medical professionals, view cancer as dreaded condition, a condition that tantamount to a death sentence. This is rated in the results of studies in which medical professional's were found to have rated cancer as a conditions which is more worthless than death. [43,44]

A patient with cancer is expected to have a certain level of psychological distress. Despite these difficulties, a majority of the studies have revealed a significant level of psychiatric co-morbidity among cancer patients. A study conducted on out-patients cancer population reported 34% to have a clinically significant level of psychological distress. In another study, of cancer patients admitted to three centres in USA, also revealed similar results. [45] These studies found Adjustment disorder as the commonest psychiatric syndrome in cancer patients, with major depression, delirium and anxiety diodes as the next common diagnoses. Condition like personality disorders, psychoses and substance abuse are comparatively infrequent.

In the Indian population, study conducted by Chaturvedi et al [46], 38% of cancer patients were found to have identifiable DSM III-R anxiety or depressive disorder. Earlier studies did not differentiate the psychiatric morbidities related to different types of cancer. Differential effects of other factors like, the impact of the diagnosis, stage of disease and the type of the treatment were also not emphasis in these studies. The early stage of the disease, it is the impact of the diagnosis and the treatment which have most psychological effects and in

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Psychiatric symptoms sometimes occur due to the direct effect of the disease process. Psychiatric symptoms are seen in almost all patients with supra-tentorial tumours and are the presenting symptoms in 25% of case [45] a common presentation of carcinoma of pancreas is with depression. [46]

Physiologically active tumours of endocrine glands (like thyroid, pituitary and parathyroid), can also manifest as psychiatric syndromes. In the advanced stage, cancer can produce psychiatric symptoms by metastatic lesions and other modes, as in paraneoplastic syndrome.

IMPACT OF DIAGNOSIS

Diagnosis of cancer evokes a greater emotional reaction than diagnosis of any other disease, regardless of mortality of cancer or cancer treatment modality. Shock and disbelief are the commonest initial responses, followed by anger, depression and a feeling of loss or grief. The normal reaction can vary from person to person. The intensity and duration of emotional distress and the degree to which interferes with patients life seems to determine whether the emotional response is normal or abnormal. Chakravorty et al. in a meta-analysis of 13 studies on the prevalence of denial, diagnosis in cancer found out

that the prevalence of denial varied from 4.3% to 46.7% which is highly variable[47].

Following the diagnosis of cancer, patients may have features of anxiety or depression. These psychiatric symptoms may persist for variable period, if left unmanaged. Women, who undergo screening for breast cancer or cervical carcinoma, may also develop significant levels of anxiety and depression who were waiting for the result. The sources of continuing emotional distress are fear of incurability, pain, disfigurement, recurrence of disease, and sense of helplessness over its treatment. Cancer may affect the family in similar way as it invades the body of the patients [48] and cause psychosocial distress or anxiety and depression among the family member also.

MORBIDITY ASSOCIATED WITH TREATMENT MODALITIES.

Differentiation of psychiatric morbidity related to cancer as such or from treatment is unclear. The three forms of treatment available (surgery, chemotherapy and radiotherapy) or age-associated psychiatric co-morbidity. Psychiatric co-morbidity with cancer therapies ranges from 18 to 40 %[49].

SURGERY

Surgery often generates fear of procedure and grief over the surgically removed body parts. Mastectomy is the surgical treatment which has been

studied extensively. Anxiety, depression and sexual problems were found in a substantial minority of patients who had undergone this treatment [49,50].

In the study conducted by Maguire et al.[50] Women with breast cancer were followed up for one year after the surgery. The anxiety symptoms noted were persistent tension, inability to relax, palpitation and panic attacks. Around one third of the patients had sexual problems also. They had either abstinent intercourse or ceased to enjoy it. Husbands of mastectomy patients also reported that decrease in sexuality and intimacy over the severely affected areas following the surgery (wellish DK et al).[51]. Other problems reported in this area were disturbances in body image and a feeling of personal inadequacy [52]. Ray et.al[53] reported the persistence of concerns regarding disfigurements for several years after the surgery. Subsequent studies confirmed these findings except one. [54]

Though the initial reports blamed mastectomy as the sole cause of the psychiatric co-morbidity. Later studies, comparing the psychiatric morbidity of mastectomy patients undergone conservative surgery, revealed that breast conservation did not categorically eliminate psychiatric problems.[55] Anxiety levels, in fact, were found to be little higher in the recovery phase, among patients who underwent conservative surgery, mastectomy group was different only in the negative body image and experienced , more intense and persistent negative feeling about their bodies.

Colostomy, laryngectomy and hysterectomy are the other surgical treatments studied in this respect. Colostomy patients had significantly more depression, sexual dysfunctions and other social problems than patients undergoing bowel resection without colostomy. [56, 57] Depression, anxiety, and disturbances in familial and social relationships have been noted as main problems in laryngectomy patients.[58,59] In a comparison of preoperative and post operative laryngeal and oral cancers in India (Chaturvedi SK et al) [59] concerns about speech and communication were reported to be 76% of laryngectomy following surgery.

Mastectomy, permanent colostomy, maxillofacial surgery and hysterectomy have been reported to produce immense psychological impact on patients, like depressive illness, psychosexual problems and social problems (isolation, loneliness, decreased social visits), drinking and occasionally suicide.

RADIOTHERAPY

Radiation treatment is associated with highly unpleasant side effect. The side effects includes nausea, vomiting and increased fatigue. A prospective study done by Schmale et al.[60] patients receiving radiotherapy had shown significant psychiatric problems in the first three months. Different authors have tried to correlated the psychiatric problems to the common side effect of radiotherapy[61,62] the fatigue, usually seen in radiotherapy patients, had a high correlation with psychiatric co-morbidity. Radiotherapy has also been reported

to cause nausea, a peculiar deserving kind of fatigue, poor psychosocial adjustment, unrealistic expectation about the outcome, and non-engagement with the physician. [63] . Chaturvedi et al. in a prospective study showed the levels of anxiety and depression in patients receiving radiation treatment in India. Anxiety and depressive disorders were detected frequently, both prior to treatment and later during follow up. Frequency of anxiety increased significantly after initiating radiotherapy, but later reduced during follow up assessment after a few months.

CHEMOTHERAPY

In some of the Neoplastic disorders, like Wilms tumour or Hodgkin disease, chemotherapy produces dramatic improvement. But most often the prolongation of life is achieved at the cost of Quality Of Life. The studies done by Morris et al [64] in this area, which judge outcome solely on the basis of survival, ignore quality of life (QOL) and psychiatric co-morbidity. This reflected in the result of the study which reported the quality of lives of patients receiving multiple chemotherapeutic drugs as unsatisfactory. The psychiatric co-morbidity related to chemotherapy has been studied extensively in patients with breast cancer. Adjuvant chemotherapy in mastectomy patients was found to be associated with a significant increase in the incidence of depression, anxiety and sexual problems.

Hughson et al.[65] found that chemotherapy in patients with breast cancer was associated with greater psychiatric co-morbidity than radiotherapy. In one study,[66] by Meyerowitz et al. the overall level of psychological distress did not significantly correlate with physical side effect of treatment. Silberfarb et al. studied two groups of patients with small cell carcinoma of lung, receiving different chemotherapeutic agents, and found that the patients receiving vinca alkaloid had a higher incidence of psychiatric problems.

All chemotherapeutic agents can produce organic psychiatric syndromes. The various psychiatric problems produced by the commonly used chemotherapeutic agents are listed below.

Drug causing Psychiatric symptoms

Mood symptoms	Anxiety	Halluncinations	Delirium
Vinblastine, dacarbazine, vincristine, L-aspaginase, Interferon	Interferon	Vincristine, hydroxy urea	All the chemotherapy agent.

Chemotherapy can produce nausea and vomiting as the immediate side effects. Though various chemotherapeutic agents vary in this vomiting potency, almost all have side effects. After an initial episode of nausea and vomiting, 15

to 65% of patients develop anticipatory nausea and vomiting. [45] Becomes so severe that they cannot continue treatment. Patients may also develop a conditioned response when exposed to sight and smells reminiscent of chemotherapy experience. Lung cancer patients receiving palliative chemotherapy were found to have depression and communication problems than those receiving no treatment at all.[67] In this case chemotherapy may promote a feeling of optimism. Maguire et al. noted that chemotherapeutic agents caused fatigue, nausea and irritability, along with adverse effects on the sexual life. Vinca alkaloids are especially known to cause depression.

Holland et al in 1993 has summed up the meaning attached to cancer as five D's as: Death, Disability, Disfigurement, Dependence, and Disruption of relationship. A study done by Latha et al[68] has revealed that thought evoked in person on first hearing that they have cancer, will provoke fear of physical dependence (98%) fear of treatment (80%), fear of death (64%), fear of pain (62%), and fear of recurrence (62%).

PREVALENCE OF PSYCHIATRIC DISORDER IN CANCER PATIENTS

DEPRESSION AND ANXIETY

Prevalence studies in cancer patients have predominantly focused on affective symptoms. Few have investigated for cognitive dysfunction [69,70] and other psychological issues. [71]. A landmark study done by Derogatis et al. investigated the association between cancer and psychiatric co-morbidity. In this study 215 randomly selected cancer patient who were new admission to three centres were examined for the presence of psychiatric co-morbidity. Each patient was assessed in a common protocol by a psychiatric interview. The patients were examined as per the diagnostic categories of DSM-III. Results indicated that 47% of the patient received a DSM-III diagnosis. (44% being diagnosed as manifesting a clinical syndrome and 3% with personality disorder). 68% of the psychiatric diagnosis (adjustment disorder with depression, anxiety or mixed mood. 13% presented with major affective disorder, 8% had organic psychiatric disorder, 4% had anxiety disorders and 7% had personality disorder). In the study, 85% of these patients with positive psychiatric condition were experiencing a disorder with depression or anxiety as a central symptom [3].

Other studies, investigated the prevalence of psychiatric disorder in cancer patients are summarized below.

PREVALENCE OF PSYCHIATRIC DISORDERS

IN CANCER PATIENTS.

Study	Sample population	Prevalence	Assessment methods
Craig (1974)	30 leukemia and Lymphoma patients	Anxiety in 30 % patients. Severe depression in 23%	Self administered questionnaire and symptom check list 90
Levine [72](1978)	Mixed 100 medical And surgical oncology patients. Patients referred to psychiatric consultation	Depression in 56% patients ,0nly 10%of depressed patients had CNS metastasis	Psychiatric interview diagnosis as per DSM-III
Hughus[63] (1982)	44 patients early breast cancer who underwent mastectomy	Pre-masectomy anxiety symptoms in 25% and post-mastectomy	60 items GHQ using cut of >11

		depressive symptoms in18 %	
Farber [73] (1984)	Out patients 141 breast cancer	Clinically relevant psychological distress 18% had severe, and 21 % had moderate	Hopkins symptom check list
Bukburg and Holland [74] (1984)	Hospitalized cancer patients	Severe depression 24%, moderate depression 18%, 14% had sadness, 44% had no depression	DSM-III criteria with elimination of physical symptom Hamilton depression scale and beck depression inventory.

In summary, adjustment disorder with depressed mood and major depression account for the majority of diagnosis. The prevalence of major depressive disorder in general population obtained from large community studies was 2-4%.[75,76] The number is more if the population studied is derived

from primary care setting with prevalence ranging from 4.8 to 9.2 % in ambulatory patient.[77]

The rate increases further among medical in-patients ranging between 27-33%. Magni et al. in 1986 used a structured psychiatric interview and found that 8% of the 220 geriatric medically ill in-patients suffered from major depression, 22% had dysthymia and 6% had atypical depression.[78]. The prevalence of major depression increases on comparing community, primary care, inpatients and severely medically ill patients. Several studies have confirmed the prevalence of depression in cancer patients in between 20 and 50%.

Some of the representative studies are summarized below.

PREVALENCE OF DEPRESSION IN CANCER PATIENTS

Study	No. and type of cancer	Depression
Fras et.al[79](1967)	47 Carcinoma pancreas	50%
Koenig et al [80] (1967)	36 carcinoma colon	25%
Devlin et al [81](1971)	Carcinoma colon	25%
Morris et al [52] (1977)	69 carcinoma breast	22%
Maguise et al [50](1977)	75 carcinoma breast Preoperative Postoperative	 13% 27%

Study	No. and type of cancer	Depression
Plumb and Holland et al[82](1981)	97 mixed cancer patients	24%
Evan et al [83] (1986)	83 Gynaecological cancer	23%
Kathol et al (1990)	808 mixed cancer	25%-38%
Llyod Williams et al [84] (2002)	72 mixed advanced cancer	26%
Hotopf et al [85] (2002)	A systematic review of 46 studies on advance cancer	29%
Llyod williams et al [86](2004)	74 mixed cancer	27%
Pandey et al [87] (2007)	123 head and neck cancer	11%

Depression in cancer patients result from stress related to cancer diagnosis and treatment, medications, biologically determined depression not related to precipitating events, and recurrence of bipolar mood disorder. A variety of other factors like past history of depression or suicidal attempts, history of alcohol dependence and other substance abuse, presence of neurotic traits, recent grief and frequent negative life events could also predispose to depression. [88] These facts make us to realize the necessity of prompt assessment and management of depression in cancer patients.

Advanced cancer patients who are depressed may also have physical symptoms which are difficult to palliate and these symptoms improve as their depression is treated.[86] Depressed cancer patients have been found to have higher than normal level of interleukin-6 pro-inflammatory cytokine. This could explain the presence of increased physical symptoms in this population.

SUICIDE AND CANCER

Although few cancer patients commit suicide, they may be at somewhat greater risk than the general population. [89,90] Passive suicidal thoughts are relatively common as patient battle a life-threatening illness. These thoughts provide a sense of control in those overwhelmed by suffering, uncertainty and helplessness. Below explains the risk factor for suicide in cancer.[91]

Risk factor for suicide in cancer patients

Personal	Male gender, prior history of depression or suicidal attempt, prior psychiatric disorder, prior alcohol or drug abuse/dependence, depression and hopelessness, social isolation
Medical	Pain, delirium with poor impulse control, advanced stage of disease, exhaustion, fatigue.

Studies by Cousin JP et al. have shown that suicidal depression has been associated with some chemotherapy treatment.[92] Patients with head and neck cancer are at slightly increased suicidal risk, since tumour in the mouth and the

pharynx are associated with alcohol and tobacco abuse which is often associated with pre-existing personality disorders.[93] Morbid preoccupation with suicide or ruminative plans to commit suicide in cancer patients for whom the disease is in remission or in whom a good prognosis exists require careful evaluation.[94] A review of all suicide in Finland in 1 year, revealed that 4.3%of suicide cases had cancer. A treatable major depressive episode may be precipitating their suicidal ideation.[95] Chochinav et al. studied the persistent desire for death in the terminally ill is closely associated with depression and it is particularly important to evaluate for the presence of hopelessness, which is a better predictor of suicidal risk than depression itself.[96] Louhivouri et al. and Hakama et al. studied 28,000 patients with cancer and found a 1.3 times greater risk for male and a 1.9 times greater risk for female patients. The highest risk was seen among patients who were not undergoing treatment. [97]

ADJUSTMENT DISORDER

This is the commonest psychiatric disorder seen in cancer patients. Derogatis et al. reported prevalence as 68% in their study population. The diagnosis of cancer may precipitate adjustment disorders which may be associated with depressed mood, anxious mood, and mixed emotional features. Diagnosis of cancer may lead to a normal stress reaction. But these patients use their normal coping mechanisms to correct their stresses, without functional impairment. Patients with poor coping skills land up with adjustment disorder.

In a study in Indian population conducted by Gopalan MR et al.[98] conclude that 41.7% had psychiatric disorders. Adjustment disorders were seen in 22.6%, 10.9% of subjects had major depressive disorder. Total of 33.5% of patients had diagnosis of Anxiety or depression. Adjustment disorder is most common psychiatric morbidity among the cancer patients.

The following are therapeutic indictors of poor coping skills;

- Those with previous history of psychiatric illness,
- Patient who belong to low educational and economic status,
- Patients with poor social support,
- Patients in the later stages of illness.

Hence a good rapport is ultimately needed to recognize, if the distress is due to the illness as such or due to underlying psychodynamic issues. Usually adjustment disorder gets resolve with the subsidence of the stressor. Some patients may need medications and counselling. (Kaplan and Sadock, 2009). [(19)]

ORGANIC PSYCHIATIC SYNDROME

The commonest organic psychiatric syndrome in the cancer patients is delirium.[(45)] Delirium can be produced either by cancer directly and its treatment, or because of associated psychiatric disorders and their treatment. Metabolic Encephalopathies, organ failure, electrolyte imbalance, nutritional deficiencies, infection and hypoxia are some of the medical disorders causing

delirium. Besides delirium, other organic psychiatric syndromes like dementia are also seen in cancer patients.

PSYCHOSIS

Schizophrenia and other functional psychosis are comparatively less frequent than the other above mentioned disorders, but contrary to the earlier beliefs, cancer is not rare in schizophrenic patients than in general populations.

OTHER PSYCHIATRIC DISORDER

Other psychiatric syndromes worth mentioning are substance abuse related problems, like alcohol, narcotic and other drug withdrawal syndromes, and somatoform disorders. Presence of a somatoform disorder in cancer can create management problems resulting either in delaying the treatment or over treating psychosomatic disorders. [99,100].

AIMS AND OBJECTIVES

To assess the Psychiatric disorder as co-morbidity in a group of cancer patients, attending a tertiary care hospital for the treatment. To assess the Typology and Frequency of Psychiatric co-morbidity.

OBJECTIVES

The present work is being undertaken:

1. To study the frequency, type and Psychiatric disorder as co-morbidity in cancer patients attending the tertiary care hospital.
2. To assess the correlation of psychiatric morbidity among the socio-demographic variables.
3. To assess the correlation of psychiatric morbidity and duration, nature and typology of cancer.
4. To study the correlation between psychiatric co-morbidity and Treatment variables.

HYPOTHEISIS

The following null hypothesis was postulated.

1. Patients with cancer have high prevalence of psychiatric morbidity than the general population.

2. The prevalence of psychiatric morbidity is higher in women with poor social support and lower education status.

3. The prevalence of psychiatric morbidity is higher in patients with longer duration of illness.

4. The prevalence of psychiatric morbidity is higher in patients in the later stages of illness.

5. Depression is the more prevalent in the patients receiving the radiotherapy treatment.

MATERIALS AND METHODS

Setting:

The study was conducted in the Patients, who attending the outpatient clinic and admitted in wards for the treatment of cancer, in the Department of Radiotherapy, Medical Oncology ward and Surgical ward, Thanjavur Medical College Hospital.

Study Design:

A "Cross Sectional – Descriptive Study Design" was used in this study.

Duration of Study:

Between the period of "January 2017 – June 2017".

Duration of study is 6 months.

Recruitment of Patients:

Consecutive Sample of 100 patients was selected for the study, those who attended the clinic in the Department of Radiotherapy, Surgery, and Medical ward for the treatment of cancer, Thanjavur Medical College, during the period of January 2017 – June 2017. Those who fulfilled and satisfied the inclusion criteria and willing for the study were selected.

Inclusion criteria:

1. Patients in the age group of 18 – 65 years.

2. Histologically proven cases of carcinoma.(ICD 10-C50)

3. Patients who were aware of their diagnosis.

4. Those who are willing for the study.

Exclusion criteria:

1. Patients below 18 years and above 65 years of age.
2. Patients with history of Psychiatric illness and on treatment before the onset of disease.
3. Patients who are in the immediate post-operative period and patients with severe physical illness.
4. Patients with Brain and Endocrine cancer (Thyroid, Parathyroid, Thymoma, Pituitary) are excluded.
5. Patients those who were unaware of the diagnosis and those who were unwilling for the study.

METHODOLOGY

A sample of 100 patients diagnosed with carcinoma who were attending OP/IP in Radiotherapy ward, medical and surgical ward were selected, assessed and included for the study.

OPERATIONAL DESIGN:

1. The study was been conducted at Thanjavur Medical College & Hospital, duration of 6 months, between the period of January 2017 to June 2017.

2. The study was approved by Institutional Ethical Committee, Thanjavur Medical College Hospital.
3. The sample was chosen those who attended Surgical, Medical and Radiotherapy OP/IP.
4. Every consecutive patient who met the inclusion and exclusion criteria were selected, and included in the study.
5. The subjects were explained about the nature of the study and informed consent was obtained from them.
6. Semi- structured proforma was used to collect the Socio Demographic details.
7. A Complete Physical Examination including Neurological Evaluation and detailed Mental Status Examination was done to all the selected subjects.
8. All subjects were assessed by General Health Questionnaire -12 (GHQ-12).
9. All subjects were assessed by MINI International neuropsychiatric interview for diagnosing psychiatric disorder and based on the diagnosis specific scales like Hamilton depression rating scale, Hamilton anxiety rating scale were administered.
10. All subjects were assessed by Kuppuswamy rating scale for socio economic status.
11. Likewise 100 consecutive patients were assessed.

Statistical design:

Statistical design was formulated using the data collected as above, for each of the scales and socio-demographic variables percentage analysis and descriptive analysis were used. The central values and dispersion were calculated. In comparison of the data for categorical variables chi-square were used. For multiple comparisons of more than two numerical variables, one way ANOVA and “f ” tests were used.

TOOLS USED

1. Semi – Structured Proforma
2. General Health Questionnaire -12 (GHQ – 12)[101]
3. MINI international neuropsychiatric interview.
4. Hamilton depression rating scale.
5. Hamilton anxiety rating scale.
6. Kuppuswamy rating scale for socio economic status.[102]

TOOLS USED

1. Semi – Structured Proforma:

Proforma includes personal socio-demographic details, Age, Sex, Religion, Marital status, Education, Occupation, Region, Socio Economic Status and social support were collected.

Time interval between knowledge and aware of illness, mode of treatment for cancer , number of chemotherapy and radiotherapy given, duration of last treatment, personal history, past history, family history, substance and drug history, medical co-morbidity, Mental status examination.

2.General Health Questionnaire – 12:

The GHQ was designed by Goldberg et al[(101)] (1972) in order to identify psychiatric morbidity in general practice. It is a self administered questionnaire, referring to recent symptoms, and require 10 minute for the subject to complete it. The questionnaire provides information about the recent mental status, thus identifying the presence of "possible psychiatric disturbances". However it neither provides information about the personality of the respondent, nor have any predictive value. The reliability and validity are established by the author. It become less useful when respondents are too defensive, patients suffering from dementia, or chronic schizophrenia. Similarly it may give erroneous inference if used on chronic patients during the 'good' phase of their illness. Twenty and twelve item questionnaires are designed from the original GHQ without losing the reliability and validity. The 12 item GHQ has a reported sensitivity of 95% and specificity of 88% (Goldberg 1972). The shorter version of the Questionnaire is less likely to be refused, and takes less time to be completed, and hence was used in this study. Each item in the test consists of a question asking whether the respondent has recently experienced a particular symptom, or item of behaviour, on a scale ranging from 'less than usual' to much more than usual'. The questionnaire starts with items with somatic, symptoms, since it is presented to the respondents as a general health questionnaire, as one proceeds, the symptoms become more overtly psychiatric and potentially more disturbing.

3.MINI international neuropsychiatric interview :

The M.I.N.I. is a structured interview for diagnosing the major Axis I psychiatric disorders in DSM-IV and ICD-10.The interview is short and takes about 15 minutes to administer. It can be administered after a brief training. It is a useful instrument in epidemiological studies and trials. It has precise questions about psychological problems and the answers are in yes or no format. The M.I.N.I. is divided into 16 modules identified by letters, each corresponding to a diagnostic category. M.I.N.I has been validated against the much longer structured clinical interview for DSM diagnosis (SCID-P) in English and French and against the composite International Diagnostic Interview for ICD-10(CIDI) in English, French and Arabic. It has also been validated against expert opinion in a large sample in four European countries (France, United Kingdom, Italy and Spain). Validation and reliability on comparing with several structured interviews were found to be good.

4.The Hamilton Rating Scale for Depression (HAM-D):

The Hamilton Rating Scale for Depression (HRSD) also called the Hamilton Depression Rating Scale (HDRS), or HAM-D. It is one of the most popular depression assessment instrument in the field of clinical and health psychology. It is a questionnaire with multiple items. It is used to evaluate depression and its

recovery. Max Hamilton published the scale in 1960 and was revised in 1966, 1967, 1969, and finally1980.

It is designed exclusively for assessment of depression in adults. The severity of depression is rated based on the prevailing mood, guilt feelings, suicide ideas, sleep disturbances, agitation or retardation, loss of weight and somatic symptoms.

It was considered the "Gold Standard" instrument for rating depression in research settings. But its use in clinical practice criticized because of over emphasize on insomnia than on suicide ideas and gestures. Hence this scale should not be used for diagnostic purpose.

The original version of this scale published in 1960 contains 17 items (HRSD-17). Each item is scored on a 3 or 5 point scale, and the total score is rated. It is assessed in 20 minutes. The 21 item scale includes four more items namely (diurnal variation, depersonalization/de-realization, paranoid symptoms and obsession and compulsion symptoms). Another 24 item version contain three more items namely; helplessness, hopelessness and worthlessness (Paykel, 1985, Rosenthal and Klerman, 1966).

Many psychometric properties of this scale are adequate and meet the needed criteria. The internal, inter-rater, and retest reliability is good. At the item level the inter-rater and re-test coefficients are weak for many items. But

this is not considered as a terminal flaw. Whether the items as a whole provide adequate reliability is the determining factor.

5.Hamilton Rating Scale for Anxiety (HAM-A):

The Hamilton anxiety rating scale is one of the widely used rating scales for assessment of severity of anxiety. It was first devised by Max Hamilton in1959. It is a clinician rated scale and has an administration time of 10 to 15 minutes. It is a semi-structured scale but structured interview guide is available. It has a good sensitivity to change during anxiolytic treatment. It has 14 items, each one of which is defined by a series of symptoms.

The scale measures both psychological and somatic anxiety. All the items in the scale are scored from 0 (not present) to 4(severe). The total score ranges from 0 to 56. Less than 17 indicate mild anxiety. 18 to 24 indicate mild to moderate anxiety and 25 to 30 indicates moderate to severe anxiety. Total above 30 indicates very severe anxiety. Administration of the scale takes about 10-20 minutes. HAM-A scale has been translated into Cantonese for China, and also in French and Spanish.

6.Kuppuswamy socio economic status scale:

Kuppuswamy scale is widely used to measure the socio-economic status of an individual based on three variables namely, education, occupation and income. It was originally proposed in 1976. It consists of ten categories are

grouped with 5 social class namely very high, high, upper middle, lower middle and very low. (S.E.Gupat, B.P.Sethi et al, and Kuppusamy 1961). Socio Economic Status (SES) is recognized determinant of wellbeing. Kuppuswamy's socioeconomic status scale is an essential tool in hospital and community based research in India. The scale was revised in 2012 were the monthly family income was modified based on current consumer price index.(BP Ravi Kumar et al, 2012).

RESULTS

Table – 1: Socio Demographic Variable among cancer patients

Socio demographic variable	Cancer patients (N=100)	
	No. of respondents (n=100)	**Percentage (100%)**
AGE(in years)		
a) 18 to 35yrs	20	20.0
b) 36 to 49yrs	46	46.0
c) 50 to 65yrs	34	34.0
SEX		
a) Male	38	38.0
b) Female	62	62.0
Marital status		
a) Married	98	98.0
b) Unmarried	2	2.0
Religion		
a) Hindu	90	90.0
b) Christian	3	3.0
c) Muslim	7	7.0
Socio Economic status		
a) Upper	0	0
b) Upper middle	2	2.0
c) Lower Middle	54	54.0
d) Upper lower	27	27.0
e) Lower	17	17.0
Type of family		
a) Nuclear type	87	87.0
b) Joint type	13	13.0
Domicile		
a) Rural area	88	88.0
b) Urban	12	12.0
Education		
a) Illiterate	53	53.0
b) Primary school	37	37.0
c) High school	2	2.0

d) Higher secondary	7	7.0
e) Diploma/degree	1	1.0
Occupation		
a) Skilled	5	5.0
b) Semi skilled	17	17.0
c) Unskilled	13	13.0
d) Unemployed	65	65.0
Substance use		
a) Tobacco	29	29.0
b) Alcohol and smoking	34	34.0
c) No substance	37	37.0

Table – 1 : A total of 100 patients diagnosed with malignancy were included for the study. Patients' age ranged from 18 to 65 years with the mean age of 48.29 years and the median age is 49 years. Among the 100 cancer patients 38 (38.0%) were males and 62(62.0%) were females, majority of them belong to the age group of 36 – 50 years (46.0 %) , 34.0% of patients belong to 50 – 65 years and remaining 20.0% belong to 18 – 35 years group. Among them 88.0% patients were from rural area and remaining 12.0% were from the urban locality. Considering the education status 53% patients were illiterate and 37% of patients were studied primary school. 2.0% studied up to high schools and 7.0% finished higher secondary education only one of them completed degree. Regarding the occupational status, 65.0% were unemployed, 17.0% were employed in semi skilled jobs, 13.0% under unskilled and 5.0% were skilled workers. Among the study groups 54.0% belonged to lower middle, 2.0% from the upper middle, and 27.0% were from upper lower and 17.0%

were from the lower socio economic status. Majority of them were married (98.0%) and only 2.0% were unmarried. Most of them (87.0%) belonged to the nuclear family and remaining (13.0%) belonged to joint family. Among the cancer group 29.0% had the past history of using tobacco alone in the form of chewing and smoking, where as 34.0% had past history of alcohol and tobacco. The remaining 37.0% were not exposure to any kind of substances in the past.

Figure – 1: Age distribution among the cancer patients

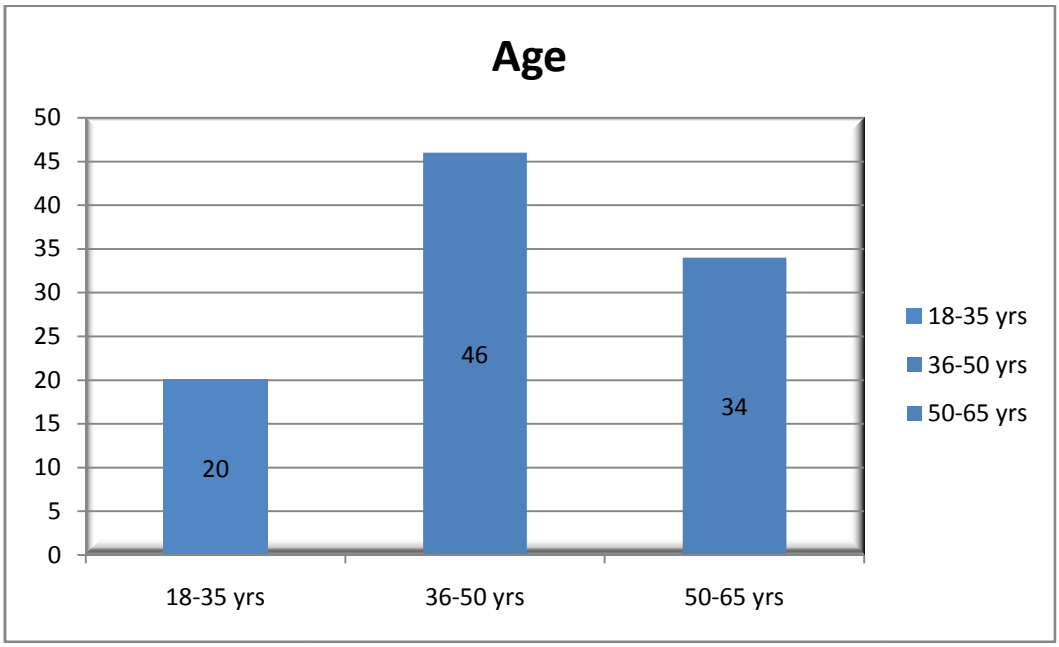

Figure -1 shows majority of patients belong to the age of 36 – 50 years (46.0 %) , while 34.0% of patients belong to 50 – 65 years and remaining 20.0% are 18 – 35 years of age.

TABLES- 2: SITE OF CANCER IN SAMPLE POPULATION

LOCATION	Sample size N=100	Percentage %
Head and Neck Cancer	32	32.0%
Thorax	23	23.0%
GIT	13	13.0%
Genito -Urinary System	26	26.0%
Haematological Malignancy	3	3.0%
Skin	3	3.0%
Total	**100**	**100.0%**

Table 2: shows the distribution of patients according to the site of cancer. 32 patients with head and neck cancer,23 patients with thoracic cancer, 13 patients with GIT cancer, 3 patients with hematological malignancy and 3 patients with skin cancer.

TABLE 3: TOTAL GHQ-12

TOTAL GHQ		
N	Valid	100
	Missing	0
Mean		16.17
Median		17.00
Std. Deviation		5.021
Minimum		1
Maximum		27

Table 3: shows the mean score of 16.17 in GHQ-12, median score is 17.00 with minimum score 1 and maximum of 27 among the cancer patients.

TABLE – 4: PREVELANCE OF PSYCHIATRIC CO-MORBIDITY IN SAMPLE POPULATION

Psychiatric disorder	Sample size(n=100)	Percentage (100%)
Yes	58	58.0
No	42	42.0

Table-4 shows about 58 patients had psychiatric disorder and remaining 42 patients were without psychiatric disorder among the cancer patients.

TABLE 5: DIAGNOSTIC ENTITY OF PSYCHIATRIC CO-MORBIDITY AMONG THE SAMPLE POPULATION

MINI PLUS Diagnosis	SAMPLE SIZE N=58	Percentage
Depression	16	27.6%
Dysthymia	3	5.2%
Panic disorder	4	6.9%
PTSD	2	3.4%
GAD	6	10.3%
Adjustment disorder	27	46.6%

Table 5: shows Prevalence of psychiatric co-morbidity among the cancer patients. Majority of the patients had Adjustment disorder - 27(46.6%), 16 (27.6%) had Depression, 3(5.2%) patients had Dysthymia, 6 (10.3%) patients had GAD, 4 (6.9%) had panic disorder and remaining 2 (3.4%) patients had PTSD.

FIGURE – 2 : PREVALENCE OF PSYCHIATRIC MORBIDITY AMONG THE SAMPLE POPULATION

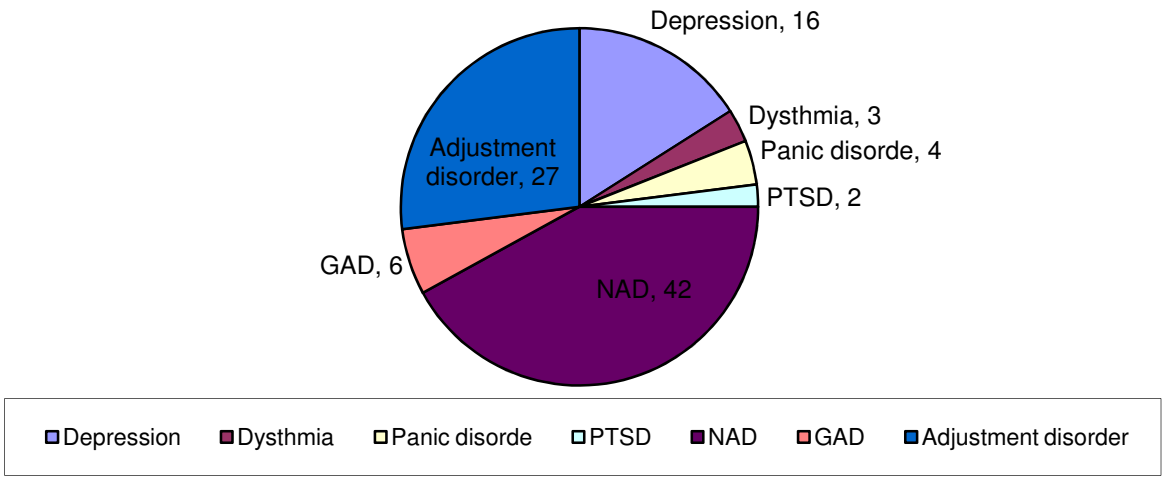

Figure 2: shows the prevalence of psychiatric morbidity among the sample population. Majority of the patients had Adjustment disorder of 27(46.6%), 16 (27.6%) had Depression, 3(5.2%) patients had Dysthymia, 6 (10.3%)patients had GAD, 4 (6.9%) had panic disorder and 2 (3.4%)had PTSD.

TABLE 6: SEVERITY OF DEPRESSION ON HAM-D

Ham-D	DEPRESSIVE DISORDER (Depression and Dysthymia)	
	N=19	***Percentage %***
Mild	4	21.1%
Moderate	5	26.3%
Severe	5	26.3%
Very Severe	5	26.3%
Total	**19**	**100.0%**

Table 6: shows the severity of depression on HAM-D score. Total of 19 patients were include both Depression Disorder and Dysthymia. Among them 4 patients scored mild, 5 had moderate, 5 were severe and 5 patients scores very severe on Hamilton rating score for depression.

TABLE 7: SEVERITY OF ANXIETY ON HAM-A

HAM –A	Anxiety disorder	
	N=12	Percentage %
Mild	2	16.7%
Mild-Moderate	4	33.3%
Moderate-severe	6	50.0%
Total	12	100.0%

Table 7: shows the severity of Anxiety on HAM-A. Among the 12 patients(6 patients GAD, 2PTSD, 4 panic disorder), 2 patients scored mild, 4 had mild to moderate and 6 patients score between the moderate to severe anxiety on HAM-A.

TABLE – 8 : DISTRIBUTION OF PATIENTS WITH MODE OF TREATMENT

Mode of treatment	Sample size N=100	Percentage %
Radiotherapy	39	39.0%
Chemotherapy	30	30.0%
Surgery	31	31.0%

Table 8: shows distribution of patients in various modalities of cancer

TABLE - 9 : COMPARISION OF AGE GROUP AND PSYCHIATRIC CO-MORBIDITY

AGE	Psychiatric disorder						Statistical inference
	Yes		No		Total		
a) Below 48yrs	29	50.0%	19	45.2%	48	48.0%	X^2=.221 Df=1 .638>0.05 Not Significant
b) Above 48yrs	29	50.0%	23	54.8%	52	52.0%	

<0.05* - significant<0.01**- highly significant

Table 9: shows the mean age of 48.2 years and median of 49 years. On comparing the two age groups namely below 48 years and above 48 years, who were having psychiatric morbidity and not having psychiatric morbidity, the p=value is 0.638 which is not statistically significant.

FIGURE -3: AGE GROUP AND PSYCHIATRIC CO-MORBIDITY

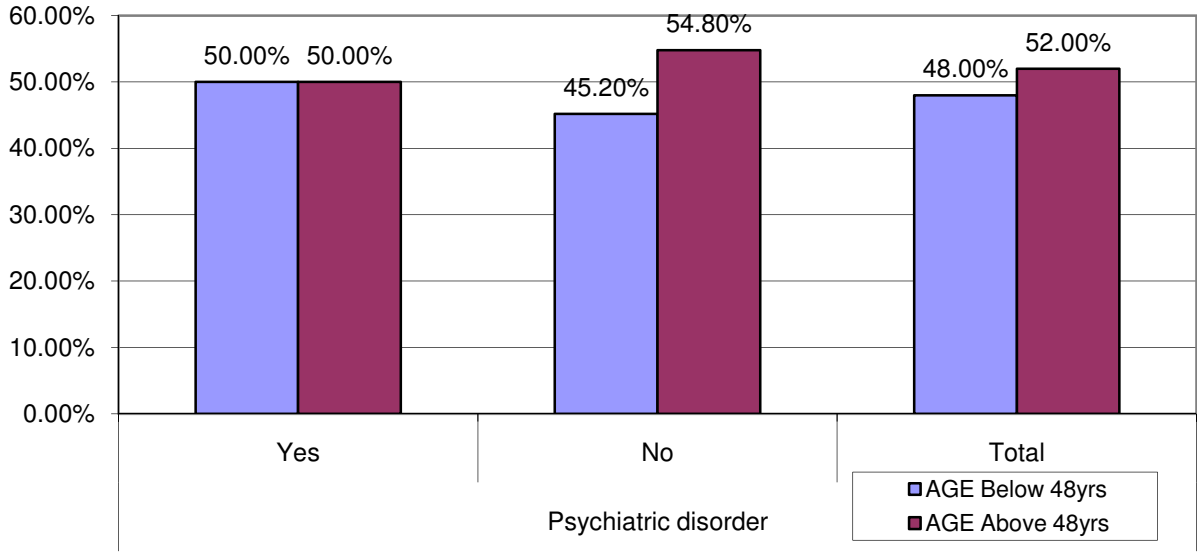

Figure - 3 shows the Age distrubution of cancer patients with and without psychiatric morbidity among the sample population..

TABLE 10 : SEX DISTRUBUTION AND PSYCHIATRIC CO-MORBIDITY

Sex	Psychiatric disorder						Statistical inference
	Yes		No		Total		
a) Male	17	29.3%	21	50.0%	38	38.0%	X^2=4.426 Df=1 .035<0.05 **p=0.035*** Significant
b) Female	41	70.7%	21	50.0%	62	62.0%	

<0.05* - significant<0.01**- highly significant

Table:10 shows, on comparing the sex distrubution and psychiatric morbidity it was found that the p value is 0.035 which is statistically significant.

TABLE – 11: EDUCATION STATUS AND PSYCHIATRIC CO-MORBIDITY

EDUCATION	Psychiatric disorder						Statistical inference
	Yes		No		Total		
a) Illiterate	32	55.2%	21	50.0%	53	53.0%	X^2=8.707 Df=4 .069>0.05 Not Significant
b) Primary School	23	39.7%	14	33.3%	37	37.0%	
c) High School	2	3.4%	0	.0%	2	2.0%	
d) HSC	1	1.7%	6	14.3%	7	7.0%	
e) Diploma	0	.0%	1	2.4%	1	1.0%	
Total	58	100.0%	42	100.0%	100	100.0%	

<0.05* - significant<0.01**- highly significant

Table:11 shows no significant association between the education and psychiatric morbidity.

FIGURE – 4: EDUCATIONAL LEVEL WITH PSYCHIATRIC MORBIDITY

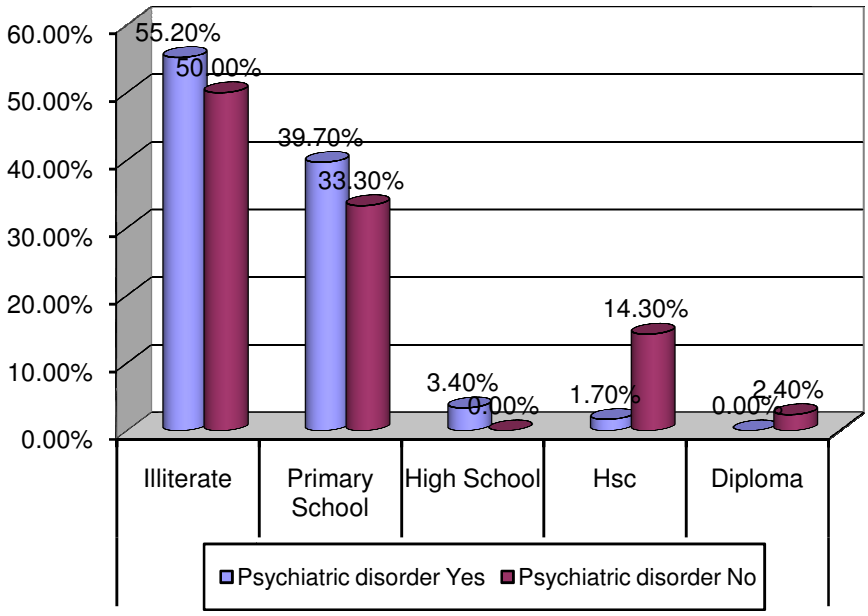

Figure:4 shows the educational status of the sample population. 55.2% who were illiterates had psychiatric disorder.

TABLE – 12: SOCIO ECONOMIC STATUS AND PSYCHIATRIC CO-MORBIDITY

SOCIO ECONOMIC STATUS	Psychiatric disorder				Total		Statistical Inference
	Yes		No				
a) Lower	11	19.0%	6	14.3%	17	17.0%	X^2=1.657 Df=3 .647>0.05 Not Significant
b) Upper lower	13	22.4%	14	33.3%	27	27.0%	
c) Lower Middle	33	56.9%	21	50.0%	54	54.0%	
d) Upper middle	1	1.7%	1	2.4%	2	2.0%	
e) Upper	0	0	0	0	0	0%	

Table: 12 shows there was no significance when comparing socio economic status of the population with psychiatric morbidity.

TABLE: 13- PATIENTS WITH FAMILY HISTORY OF PSYCHIATRIC ILLNESS AND PSYCHIATRIC CO-MORBIDITY IN PATIENTS

FAMILY H/O Psychiatric illness	Psychiatric disorder				Total		Statistical inference
	Yes		No				
a) Absent	47	81.0%	40	95.2%	87	87.0 %	X^2=4.345 Df=1 .037*<0.05 Significant
b) Present	11	19.0%	2	4.8%	13	13.0 %	

<0.05* - significant<0.01**- highly significant

Table – 13: shows statistical significance between patients with family history of psychiatric illness and cancer patients with psychiatric morbidity. p valve 0.037 which is statistically significant.

TABLE- 14: SUBSTANCE USE AND PSYCHIATRIC CO-MORBIDITY

SUBSTANCE	Psychiatric disorder				Total		Statistical inference
	Yes		No				
a) No substance	20	34.5%	17	40.5%	37	37.0%	X^2=.439 Df=2 .803>0.05 Not Significant
b) Tobacco	17	29.3%	12	28.6%	29	29.0%	
c) Alcohol	21	36.2%	13	31.0%	34	34.0%	

Table 14: shows the correlation between substane use and psychiatric morbidity which not significanct.

TABLES- 15: SITE OF MALIGNANCY AND PSYCHIATRIC CO-MORBIDITY

Site	Psychiatric disorder		Without psychiatric disorder		Total	
Head and Neck Cancer	16	27.6%	16	38.1%	32	32.0%
Thorax	14	24.1%	9	21.4%	23	23.0%
GIT	11	19.0%	2	4.8%	13	13.0%
Genito -Urinary System	15	25.9%	11	26.2%	26	26.0%
Haematological Malignancy	1	1.7%	2	4.8%	3	3.0%
Skin	1	1.7%	2	4.8%	3	3.0%
Total	**58**	**100.0%**	**42**	**100.0%**	**100**	**100.0%**

Table 15: shows the frequency of association between the site of cancer and psychiatric morbidity. Among 32 patients with head and neck cancer, 16 patients had psychiatric disorder. Out of 23 patients with thoracic cancer, 14 had psychiatric disorder. Out of 13 patients with GIT cancer, 11 patients had psychiatric disorder. Comparing the hematological maligancy out of 3 patients, 1 patient had psychiatric disorder and 2 patients were not found to have any psychiatric disorder.

FIGURE 5 : SITE OF MALIGANCY AND PSYCHIATRIC CO-MORBIDITY

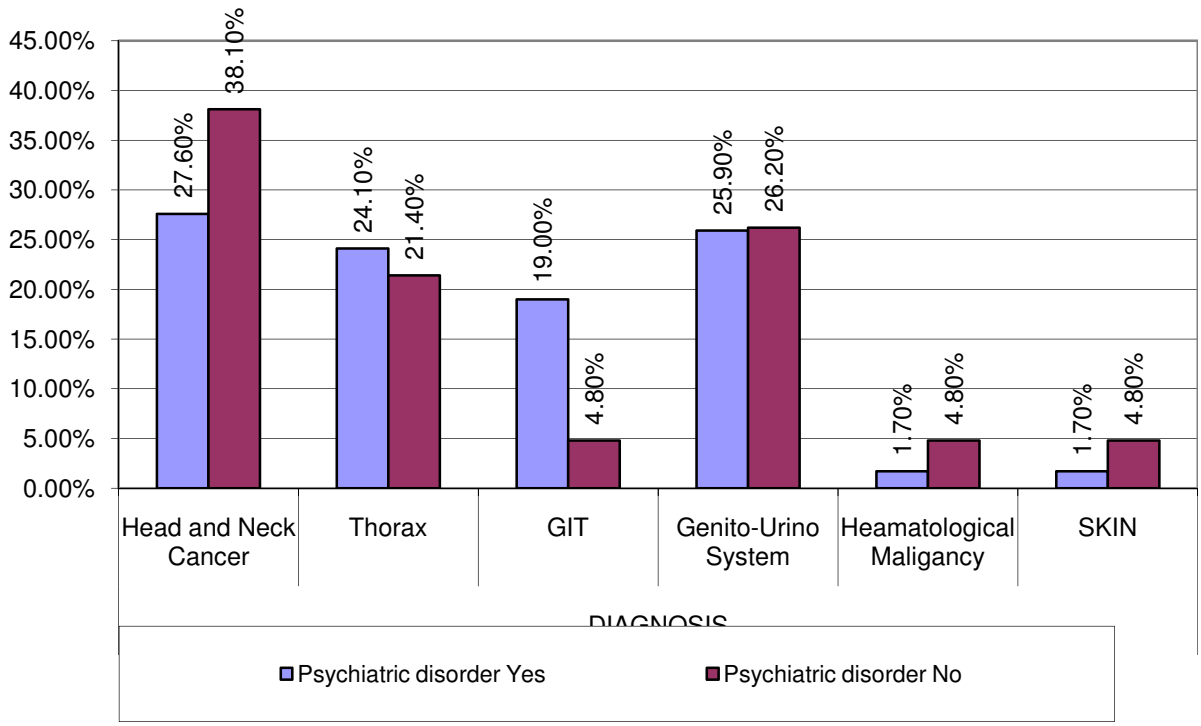

Figure 5: shows the prevalence of psychiatric morbidity in relation to the site of maligancy. Head and Neck cancer 27.6% had psychiatric disorder, Thoracic cancer 24.1% had psychiatric disorder, GIT cancer 19.0% had psychiatric morbidity, Genito urinary cancer 25.9% had psychiatric disorder, Heamatological and skin cancer 1.7% had psychiatric disorder.

TABLE – 16: STAGE OF CANCER AND PSYCHIATRIC CO-MORBIDITY

STAGE	Psychiatric disorder				Total		Statistical inference
	Yes		No				
a) Early Carcinoma	26	44.8%	20	47.6%	46	46.0%	X^2=.076 Df=1 .782>0.05 Not Significant
b) Advanced Carcinoma	32	55.2%	22	52.4%	54	54.0%	

Table 16: shows the prevalance of psychaitric morbidity among the early stage of cancer (44.80%) and advance stage (55.2%) as compared to patients without the psychiatric disorder 47.60% in early and 52.40% in advanced cancers. The results were not found to be statistically significant.

TABLE – 17 : MODE OF TREATMENT WITH PSYCHIATRIC CO-MORBIDITY

MODE OF TREATMENT	Psychiatric disorder				Total		Statistical inference
	Yes		No				
Radiotherapy	23	39.7%	16	38.1%	39	39.0%	X^2=1.344 Df=2 .511>0.05 Not Significant
Chemotherapy	15	25.9%	15	35.7%	30	30.0%	
Surgery	20	34.5%	11	26.2%	31	31.0%	

<0.05* - significant<0.01**- highly significant.

Table 17: shows no significance between the mode of treatment and psychaitric morbidity.

TABLE 18: PSYCHIATRIC MORBIDITY WITH TREATMENT VARIABLE

PSYCHIATRIC DISORDER	RT		CT		ST		TOTAL		STATISTICAL INFERENCE
Depression	6	15.4%	3	10.0%	7	22.6%	16	16.0%	X^2=12.709 Df=12 .391>0.05 Not Significant
Dysthymia	0	.0%	2	6.7%	1	3.2%	3	3.0%	
Panic disorder	0	.0%	1	3.3%	3	9.7%	4	4.0%	
PTSD	0	.0%	1	3.3%	1	3.2%	2	2.0%	
GAD	3	7.7%	1	3.3%	2	6.5%	6	6.0%	
Adjustment disorder	14	35.9%	7	23.3%	6	19.4%	27	27.0%	
NAD	16	41.0%	15	50.0%	11	35.5%	42	42.0%	

Table 18 : prevalence of psychiatric morbidity among the patients who receiving the Radiotherapy, chemotherapy and surgery. Among the 39 Patients who receiving the radiotherapy treatment, 6 had depression, 3 had GAD, 14 patients had Adjustment disorder. 30 patients on chemotherapy treatment, 3 had depression , 2 had Dysthymia , 1 panic disorder,1 had PTSD, 1 had GAD and 7 patients had Adjustment disorder. Among 31 patients on surgical treatment, 7 had depression, 1 had Dysthymia, 3 had panic disorder,1 had PTSD,2 had GAD and 6 patients had Adjustment disorder. The results found no significance.

TABLE 19: DURATION OF RT/CT/ST AND PSYCHIATRIC CO-MORBIDITY

DURATION OF TREAMENT	Psychiatric disorder				Total		Statistical inference
	Yes		No				
Below 3weeks	12	20.7%	16	38.1%	28	28.0%	X^2=3.661 Df=1 .056>0.05 Not Significant
Above 3weeks	46	79.3%	26	61.9%	72	72.0%	

<0.05* - significant<0.01**- highly significant.

Table 19: show duration of treatment and psychiatric morbidity found no significance.

TABLE 20: DURATION OF TREATMENT OF RADIOTHERAPY AND PSYCHIATRIC CO-MORBIDITY

Duration of Radiotherapy	Psychiatric disorder		Normal		Total N=39		Statistical inference
Below 3 weeks	7	30.4%	11	68.8%	18	46.2%	X^2=5.574 Df=1 .018<0.05 Significant
Above 3 weeks	16	69.6%	5	31.3%	21	53.8%	
Total	2	100.0%	16	100.0%	39	100.0%	

<0.05* - significant<0.01**- highly significant.

Table 22: shows Duration of Radiotherapy Treatment and psychiatric morbidity. The p value is 0.018 which is statistically significant.

TABLE 21: DURATION OF TREATMENT OF CHEMOTHERAPY AND PSYCHIATRIC CO-MORBIDITY

DURATION OF TREAMENT	MINI PLUS						Statistical inference
	Psychiatric disorder		Normal		Total N=30		
Below 3weeks	2	13.3%	4	26.7%	6	20.0%	X^2=.833 Df=1 .361>0.05 Not Significant
Above 3weeks	13	86.7%	11	73.3%	24	80.0%	
Total	**15**	**100.0%**	**15**	**100.0%**	**30**	**100.0%**	

Table 21 : shows duration of Chemotherapy treatment and psychiatric co-morbidity, among the 30 patients received CT 13 patients had psychiatric co-morbidity belong to more than 3 weeks of duration, 2 patients have psychiatric co-morbidity below 3 weeks which is statistically not significant.

TABLE 22: DURATION OF TREATMENT OF SURGERY AND PSYCHIATRIC CO-MORBIDITY

DURATION OF TRREAMENT	MINI PLUS						Statistical inference
	Psychiatric disorder		Normal		Total N=31		
Below 3weeks	3	15.0%	1	9.1%	4	12.9%	X^2=.220 Df=1 .639>0.05 Not Significant
Above 3weeks	17	85.0%	10	90.9%	27	87.1%	
Total	**20**	**100.0%**	**11**	**100.0%**	**31**	**100.0%**	

Table : 22 shows the duration of surgical treatment and psychiatric co-morbidity, among the 31 patients undergone surgical treatment, 17 had psychiatric co-morbidity above 3 weeks and 3 had psychiatric co-morbidity below 3 weeks. This is statistically not significant.

TABLE 23: NUMBER OF TREATMENT OF CT/RT/SURGERY AND PSYCHIATRIC MORBIDITY

NO. CT/RT	Psychiatric disorder				Total		Statistical inference
	Yes		No				
Below 3 numbers	26	44.8%	21	50.0%	47	47.0%	X^2=3.616 Df=2 .164>0.05 Not Significant
Above 3 numbers	32	55.2%	21	50.0%	53	53.0%	

Table 23: shows number of chemotherapy, radiotherapy and psychiatric morbidity found no significance.

TABLE 24: DURATION FROM LAST TREATMENT AND PSYCHIATRIC MORBIDITY

DURATION LAST Treatment	Psychiatric disorder				Total		Statistical inference
	Yes		No				
Below 7 weeks	20	34.5%	25	59.5%	45	45.0%	X^2=6.172 Df=1 .013<0.05 Significant
Above 7 weeks	38	65.5%	17	40.5%	55	55.0%	

<0.05* - significant<0.01**- highly significant.

Table 24: shows the duration from last treatment and psychiatric morbidity p value found statistically significant. (p = 0.013).

DISCUSSION

The aim of the study is to evaluate the psychiatric co-morbidity among the cancer patients attending the oncology clinic in tertiary care South Indian Hospital, and to assess the type of psychiatric co-morbidity among the various cancer patients.

As the concept of 'General Hospital Psychiatry' or better to say 'consultation liaison psychiatry' is gaining around in the field, more and more researches focusing on psychiatric aspects of medical diseases are coming forth.

This study was taken to contribute to the growing body of literature in psycho-oncology worldwide, as data in this respect is limited for Indian population.

The present study is a cross sectional descriptive study; consecutive sampling methods were used to recruit the subjects, those who were attending the OP and IP of Oncology Department, South Indian Tertiary Care Hospital for treatment. The sample size consisted of 100 patients. Recruitment was accomplished by using inclusion and exclusion criteria and consent was obtained for participation in the study from each and every patient.

All subjects were evaluated using socio-demographic proforma, Kuppuswamy rating scale for socioeconomic scale, General Health Questionnaire-12 (GHQ-12) for screening psychiatric disorder in the medical

out-patient population, MINI International Neuropsychiatric Interview for assessing psychiatric co-morbidity, Hamilton Rating Scale(HAM-D and HAM-A) for assessing the severity of Anxiety and Depression. The order of presentation of instruments was kept identical for all subjects. The patients' Socio-demographic profile, Site of Cancer, Stage of Cancer, Duration of treatment, Treatment variables- Chemotherapy group, Radiotherapy group and Surgical group were compared and analysed.

Socio-demographic profile of cancer patients.

A total of 100 patients diagnosed with malignancy were evaluated for the study. Among them, majority of patients belonged to the age group of 36 – 50 years (46.0 %) , 34.0% of patients belonged to 50 – 65 years and remaining 20.0% belonged to 18 – 35 years. This study had patients' age ranging from 30 to 65 years, with the mean age of 48.29 years and median age of 49 years.

In this study the sample population consisted more of female patients (62.0%), as compared with the male patients 32.0% (Male Vs Female ratio of 1:1.6).

Among the 100 cancer patients, 88.0% of them were from rural area and remaining 12.0% were from urban area.

Considering theeducational level of patients, 53% patients were illiterate and 37% of them studied upto primary school , 2.0% studied upto high schools

and 7.0% completed their higher secondary education, and only one completed degree.

Regarding the occupational status, 65.0% were unemployed, 17.0% were employed in semiskilled job, 13.0% under unskilled and remaining 5.0% skilled workers.

Among the study groups, 54.0% belonged to lower middle, 2.0% from upper middle, 27.0% from upper lower and 17.0% from the lower socio economic status.

Majority of the patients were married(98.0%) and only 2.0% unmarried.

Most of them (87.0%) belong to the nuclear family and about 13.0% belonged to joint family.

Among the cancer group, 29.0% had history of using tobacco alone in the form of chewing and smoking, whereas 34.0% had history of using both alcohol and tobacco,the remaining37.0% were not exposed to any kind of substance.

In this study among 100 cancer patients, only 13 patients had family history of psychiatric disorder.

Considering the medical co-morbidity like Hypertension and Diabetes mellitus among the sample population, only 16 patients out of 100 had history of Hypertension and Diabetes Mellitus.

Socio demographic profile and psychiatric co-morbidity in study sample

In this study we consider the mean age to be 48 years. On comparing the median age of 48 years, both the groups are equally distributed among the psychiatric co-morbidity (50%). A Meta Analysis of 58 studies after 1980, showed that studies with younger patients[(2)] reported significantly more depression, anxiety and general distress than studies with older patients with mean age 50 years or over.

On comparing the sex distribution of the patients, 38% were males and 62% were females with a male female ratio of 1:1.6. Among the 38 male patients, 17 patients had psychiatric co-morbidity and remaining 21 patients were without psychiatric disorder. Among the 62 female patients, 41 patients had psychiatric co-morbidity and 21 patients were without psychiatric disorder. p value =0.035 was statistically significant. Results on comparing found that psychiatric co-morbidity is significantly high among the female cancer patients. A study from Kerala by Pandey et al.[103] also showed the similar results as compared with this study.

Comparing the Educational status, among the 58 cancer patients having psychiatric disorder, majority of them wereilliterates(55.0%),39.7% studied upto primary school, 3.4% upto high schol and 1.7 % completed upto higher secondary school. In an Indian study conducted by Mendonsa et al, 2010, psychiatric co-morbidity was found to be high among illiterate population, those

from lower economic group, rural population and in house-wives. It is argued that people of low social class are unaware of the high risk behaviour that initiates cancer. There is also a reduced knowledge on the early signs of cancer and therby the treatment seeking is also delayed.[104]

Comparing the distribution of patients with psychiatric co-morbidity in terms of type of family, out of 58 patients, 49 patients (84.5%) belong to nuclear family, 9 patients (15.5%) belong to joint family. In a study conducted by Mishra et al[32], 73% of the patients belong to nuclear family.[105]

Comparing the distribution of patients with psychiatric co-morbidity in terms of socio economic status, out of 58 patients, 11 patients (19%) belonged to lower class, 13 patients (22.4%) belonged to upper lower class, 33 patients (56.9%) belonged to lower middle class and 1 patient (1.7%) were in upper middle class. In studies conducted by Agarwal et al, 1990, and Laura E Simonelli et al, 2008, these results argue that psychiatric co-morbidity is common in rural population, and in low socio economic group.[106,107]

Comparing the distribution of patients with psychiatric co-morbidity in terms of family history of psychiatric illness, out of 58 patients, 11 patients (19%) had positive family history and the remaining 47 patients (81%) were without positive family history. Report shows that the family history of psychiatric illness is a predictor of depression in the patients (Kaplan and Saddock, 2009)[25]

Site of cancer among sample population.

In this study among the 100 patients, 32% had Head and neck cancer which include the upper Aerodigestive system (tongue, cheek, lip, nasal, larynx and pharyneal carcinoma), 23% had Thoracic cancer which include breast and lung, 13% had GIT cancer which include pancreas, liver, stomach, colon, small intestine, 26% had Genito urinary cancer (bladder, cervix,ovary,testicular), 3% had Hematological maligancy consisting of lymphoma and leukemia, and 3% had Skin cancer (malignant melanoma). In the reference from WHO 2003, world cancer report, Ed.By Bernald W.Stewart and Paul Kleihues., the global burden of cancer incidence and mortality is shown in terms of incidence, the most common cancer worldwide is lung cancer 12.3% and breast cancer is 10.4% and colorectal cancer is 9.4%.[34]

Site of cancer among sample population and psychiatric co-morbidity:

In this study among the 100 cancer patients, 58% of the study population were found to be having psychiatric co-morbidity.

In this study, among 100 cancer patients, comparing withthe site of cancer andpsychiatric co-morbidity, among 32 patients with head and neck cancer, 16 (27.6%)of them had psychiatric co-morbidity and the remaining16 patients were without psychiatric illness. Amongthe 23 Thoracic cancer patients,14 (24.1%) of them had psychiatric illness and 9 patients were without psychiatric disorder. Among the 13 patients with GIT cancer, 11(19.0%)

patients had psychiatric co-morbidity and 2 patients were without psychiatric disorder. In genito urinary cancers,out 26 patients, 15(25.9%)patients were found to have psychiatric co-morbidity and 11 patients were without psychiatric disorder. In Heamotological maligancy, 1 (1.7%)patient had psychiatric co-morbidity and 2 patients were without psychiatric disorder. Among the 3 skin cancer patients, 1 (1.7%)patient had psychiatric co-morbidity and 2 patients were without psychiatric co-morbidity.The results found that no significant association were identified between the site of maligancy and psychiatric co-morbidity, which is in concordance with the study conducted by Gagan Hane, Mohammed M.Dar, et al, 2015.[108]

Stage of cancer among sample population and psychiatric co-morbidity:

Comparing the distribution of patients with psychiatric co-morbidity with stage of cancer, out of 58 patients, 26 patients (44.8%) were in early carcinoma stage and the remaining 32 patients (55.2%) were in the advance carcinoma stage. In a study conducted by Toshiko matsushitha et al, 2007, argues that the anger-hostility score was found to be lowerst in the patients in advance stage of illness and the highest in those with benign illness.[109]

PREVALENCE OF PSYCHIATRIC CO-MORBIDITIES IN CANCER PATIENTS

The psychiatric co-morbidity in the cancer patients is often under-diagnosed. Data regarding the prevalence of psychiatric disorders in cancer patients is sparse.

In this study among the 100 cancer patients, 58% of the study population were found to be having psychiatric co-morbidity. This high prevalence of psychiatric disorder is comparable with that of study done by Derogatis et al[5]in which47% of the study population had psychiatric co-morbidity. This result which is lower than this study, shows that psychiatric co-morbidity is high among the Indian population.

In Indian study conducted by Chaturvedi et al[41] had found that 38% of cancer patients had identifiable DSM-III anxiety or depressive disorders. This result is also lower than this study results, stressing the high prevalence in South Indian population.

Another National study by Alexander et.al.[30]has found psychiatric co-morbidity in 40 % of the study population, which again is also lower than this study having 58% psychiatric co-morbidity.

Another study by Ashraff et al. at the malignant disease treatment centre, AFMC Pune found out that 44% of patients had a psychiatric diagnosis which is also lower than this study.

In the study conducted by Mishra et al[105], 63% of patients were found to have psychiatric co-morbidity, which is higher than this study results. These points are towards the fact that the prevalence of psychiatric co-morbidity in South Indian population is high.

In this study the prevalence of Adjustment disorder is 46.6%. In a study done by Derogatis et al[5], prevalence of Adjustment disorders is 68%. This results were low compared with the above study signifies the prevalence of adjustment disorder is low among South Indian population. In a study in Indian population conducted by Gopalan MR et al. conclude that 41.7% had psychiatric disorders. Adjustment disorders were seen in 22.6%, 10.9% of subjects had major depressive disorder. Total of 33.5% of patients had diagnosis of Anxiety or depression. Adjustment disorder is most common psychiatric morbidity among the cancer patients.

The diagnosis of cancer may precipitate adjustment disorders which may be associated with depressed mood, anxious mood, and mixed emotional features. Diagnosis of cancer may lead to a normal stress reaction. But these patients use their normal coping mechanisms to tackle these stresses and continue living without functional impairment. Patients with poor coping skills land up with adjustment disorder.

Prevalence of Depressive Disorders:

In this study out of 58 patients with psychiatric co-morbidity, prevalence of depressive disorders were 27.6 %. When compared with the study done by Alexander et al.[103] with total prevalence of depressive disorders to be 32%, the prevalence of depressive disorders in this study population is low.

In another study, conducted by the Massie et al. reported that prevalence of major depression varied from 0% to 38% which was explained by the associative factors as varying in the conceptualization of major and minor depression, different criteria were used to define depression, difference in methodological approach to assess the depression and different population studied. Another study has noted that depression range from 12 to 30% in general medical and primary practice populations. Comparing with all the above study results, the prevalence of depression in this study is similar.

Prevalence of Anxiety Disorders:

In this study, 20.6% had Anxiety disorders among the cancer patients, (6.9% had Panic disorder, 10.3% had Generalised Anxiety disorder and 3.4% had PTSD). The study conducted by Craig et al (1974) among the haematological cancer patients found to have 30% of anxiety disorders. This result is high compared to this study, which signifies the low prevalence of anxiety disorders among the sample population.

Prevalence of Depression and Anxiety Disorders:

In various studies, depression and anxiety disorders together accounted over 90% of all psychiatric diagnoses[68]. In this study depression (27.6%) and anxiety disorders (20.6%) together accounted to 48.2% and adjustment disorders of about 46.6%, with a total of 94.8% are in keeping with the observation of Derogatis et al. and Alexander et al. that depressive and anxiety disorders comprise the majority of psychiatric diagnoses in cancer patients.

Treatment variables and psychiatric co-morbidity:

Chemotherapy:

In this study out of 30 patients undergoing Chemotherapy, 16.7%patients (depression 10.0% and dysthymia 6.7%) had depressive disorder, 9.9% patients (Panic disorder 3.3%, PTSD 3.3%, GAD 3.3%) had anxiety disorder and 23.3% patients had adjustment disorder.

In the study from kerala by Pandey et al[106], it was shown that among the patients undergoing chemotherapy, 16.23% had depression and 15.38% had anxiety disorder. The history of chemotherapy has been shown to be associated with psychiatric problems. This study result is similiar to the depression and low prevalence in anxiety disorder, and high prevalence of adjustment disorder. This points towards the fact that the prevalence of psychiatric co-morbidity is high in chemotherapy population in South Indian Population.

Surgery:

In this study, among 31patients who had undergone surgical treatment, 25.8% (depression 22.6%, dysthymia 3.2%) of had depressive disorders, 19.4% (panic disorder 9.7%, PTSD 3.2%, GAD 6.5%) had anxiety disorder and 19.4% had Adjustment disorder.

In a study conducted by morris et al. found 22% prevalence of depression in who had undergone mastectomy for breast cancer and Maguire et.al.[81] found 26% moderate or severe depression among women who had undergone mastectomy compared with a 12% of prevalence of depression in women with benign disease. The prevalence of depression in this study is similar to the above mentioned studies.

Radiotherapy:

In this study, among the 39 patients who had undergone Radiotherapy, 15.4% had depression, 7.7% had anxiety disorder and 35.9% had adjustment disorder. In the study done by Schmale et al[55] have shown significant psychiatric problems associated with radiotherapy.

Duration of treatment in Radiotherapy and psychiatric co-morbidity:

In this study patient with psychiatric co-morbidity in Radiotherapy patient compare with duration of treatment , below 3 weeks had 30.4% had psychiatric co-morbidity, 69.6% above 3 weeks of RT had psychiatric co-morbidity. This result was found to be significant (p=0.018). This result shows high prevalence of psychiatric co-morbidity, in patients had more duration of Radiotherapy treatment.

CONCLUSION

The study findings reveal, with respect to the Hypothesis that

1. Psychiatric co-morbidity is highly prevalent in patient with cancer patients.
2. Adjustment disorder and depression are the most common Psychiatric co-morbidity associated with Cancer patients.
3. There is significantly high prevalence of psychiatric co-morbidity among the female cancer patients.
4. There is high prevalence of psychiatric morbidity among the patients with the positive family history of psychiatric illness.
5. No difference with respect to age, Socioeconomic class is seen in terms of co-morbid psychiatric disorders.
6. There is no risk of developing a co-morbid psychiatric illness with stage of cancer.
7. There is no difference with respect to Duration of Illness, in the presentation of psychiatric co morbidity.
8. There is significant prevalence of psychiatric morbidity, among the patients with duration of last treatment.
9. There is high prevalence of psychiatric morbidity among the patient receiving Radio therapy than CT/ST.

LIMITATIONS OF THE STUDY

1. This study is a cross sectional descriptive study, hence the longitudinal course and outcome of the patients could not be assessed.
2. Socio – demographic matching was difficult in this study as limited number of cancer admissions in our Hospital during study time period. This result can't be generalised.
3. The study sample is small. Further studies on a larger sample are needed.
4. A hospital based method of sampling, only on those patients who were admitted in hospital for evaluation. Hence the results cannot be generalized to all people diagnosed as having cancer.
5. Duration of diagnosis of the illness to assessment time was not included. This will be reflected in the result.

Future direction:

Different types of treatment in cancer patient and psychiatric morbidities would help us in comprehensive understanding of psycho-oncology. More prospective studies are needed to study the association of psychiatric morbidities and cancer patients as these would be more accurate in diagnosing the psychiatric condition.

BIBLIOGRAPHY

1. Ferlay J, Shin HR, Bray F, Forman D, Mathers C, Parkin DM. GLOBOCAN 2008 v2.0, Cancer Incidence and Mortality Worldwide: IARC Cancer Base No. 10. Lyon, France: International Agency for Research on Cancer; 2010. Available from: http://www.globocan.iarc.fr. [Last accessed on 2012 Dec 02].
2. van't Spijker A, Trijsburg RW, Duivenvoorden HJ. Psychological sequelae of cancer diagnosis: A meta‐analytical review of 58 studies after 1980.Psychosom Med 1997;59:280‐93.
3. Derogatis LR, Morrow GR. Fetting J, et al. The prevalence of psychiatric disorders among cancer patients. JAMA 1983; 249 : 751-757.
4. Instituto Nacional do Cancer, Minist´erio da Sa´ude, *Talking about Cancer and Its Risk Factors*, Minist´erio da Sa´ude, Rio de Janeiro, Brazil, 2nd edition, 1998.
5. E. M. V. Reiche, S. O. V. Nunes, and H. K. Morimoto, "Stress, depression, the immune system, and cancer," *The Lancet Oncology*, vol. 5, no. 10, pp. 617–625, 2004.
6. J. B. Williams, D. Pang, B. Delgado et al., "A model of gene environment interaction reveals altered mammary gland gene expression and increased tumor growth following social isolation," *Cancer Prevention Research*, vol. 2, no. 10, pp. 850–861, 2009.
7. Guy R. An Essay on Scirrhus Tumors and Cancers. London: J and A Churchill; 1759.
8. Khanna R., Singh R.P., Terminal illness in an Indian setting: problem of communication. Indian J Psychiatry 1988; 30-33.

9. Powe BD, Finne R. Cancer fatalism: the state of the science. Cancer Nursing 2003; 454-465.
10. Harrison J, Maguire P. Predictors of psychiatric morbidity in cancer patients.Br J Psychiatry 1994; 165: 593-598. (PMID: 7866674).
11. Pettingale KW, Morris T, Greer S. Mental attitudes to cancer: an additional prognostic factor. Lancet 1985; 1:750. (PMID: 2858012)
12. Bailey R, Geyen D, Scott-Gurnell K, Hipolito M, Bailey T and Beal J. Understanding and treating depression among cancer patients. Int J Gynecol Cancer 2005;15:203-208.
13. Yeo S, Meiser B, Barlow-Stewart K, Goldstein D, Tucker K and Eisenbruch M. Understanding community beliefs of Chinese-Australians about cancer: initial insights using an ethnographic approach. Psychooncology 2005;14:174-186.
14. Tang L, Groot Jd and Bultz B. Psychosocial oncology in China——Challenges and opportunities.Chinese-German J Clin Oncol 2009; 8: 123-128.
15. J. R. Satin, W. Linden, and M. J. Phillips, "Depression as a predictor of disease progression and mortality in cancer patients: a meta-analysis," *Cancer*, vol. 115, no. 22, pp. 5349–5361, 2009.
16. M. Pinquart and P. R. Duberstein, "Depression and cancer mortality: a meta-analysis," *Psychological Medicine*, vol. 40, no. 11, pp. 1797–1810, 2010.
17. B.D. Bultz and C. Johansen, "Screening for distress, the 6th vital sign: where are we, and where are we going?" *Psycho-Oncology*,vol. 20, no. 6, pp. 569–571, 2011.
18. S. O. Dalton, T. M. Laursen, L. Ross, P. B. Mortensen, and C. Johansen, "Risk for hospitalization with depression after a cancer diagnosis: a nationwide, population-based study of cancer patients in Denmark from

1973 to 2003," *Journal of Clinical Oncology*, vol. 27, no. 9, pp. 1440–1445, 2009.

19. Kaplan and Sadock's, Comprehensive Textbook of Psychiatry, 9th edition, 2009.

20. Chaturvedi SK, Psycho-oncology. In:Vyas JN,Ahuja N.Eds, Recent advance in Psychiaty. Vol.1.New Delhi: Jaypee Brothers, 1993, PP 114-129.

21. Holland JC. Principles of Psycho oncology. In Cancer Medicine (3rd ed)Holland JC, Frei RC, Bast RC et al (eds.) Lea and Febiger, Philadelphia, 1019-1033 (1993).

22. Lichtenthal W, Nilsson M, Zhang B et al. Do rates of mental disorders and existential distress among advanced stage cancer patients increase as death approaches? Psychooncology 2009; 18: 50–61.

23. Goldberg D, Steele JJ, Johnson A. et al. Ability of primary care physician to make accurate rating of psychiatric symptoms. Archives of General psychiatry 1982;39:829-833.

24. Jefferson J. Treating affective disorders in presence of cardiovascular disease. Psychiatric clinics of North American 1983;6:141-155.

25. Knights EB, Folstein MF. Unsuspected emotional and cognitive disturbance in medical patients. Annals of Internal Medicine.1977;87:723-724.

26. Wells KB, Golding JM, Burman MA. Psychiatric disorder in a sample of the general population with or without chronic medical conditions. American Journal of Psychiatry 1988;145:976-981.

27. Rodin G, Voshart K. Depression in the medically ill :An overview. American Journal of psychiatry 1986;143:696-707.

28. Cohen-Cole SA, Brown FW, McDonald JS. Assessment of depression and grief reaction in the medically ill psychiatric care of medical patient. In Stuoudemine A and BS Togel (Ed): New Oxford University Press, 1993;53-69.
29. Chaturvedi SK Chandra P, ChannabasavannaSM, Detection of anxiety and depression in cancer patients. NIMHANS J 1994;12;141-144.
30. Alexander PJ, Dinesh N. Psychiatric morbidity among cancer patients and its relationship with awareness of illness and expectations about treatment outcome, Acta Oncologica 1993; 32 :623-626.
31. Ashraff S, Gupta AK, Chaudhury S, Sudarsanan S, Raju MSVK, Salujha SK , Srivastava K Effect of short term Psychiatric intervention in cancer patients. MJAFI 2004, 60 : 109-112.
32. Mishra SK, Mohapatra PK, Bhattacharya K, Gupta T, Aggarwal JP, Prevalence of Psychiatric disorder in asymptomatic or minimally symptomatic cancer patients on treatment, J Cancer Res Ther 2006; 2(3) : 136- 139.
33. Kessler RC, Berglund P, Demler O, Jin R, Merikangas KR, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. Arch Gen Psychiatry. 2005;62(6):593–602.
34. Ansseau M, Dierick M, Buntinkx F, Cnockaert P, De Smedt J, Van Den Haute M, et al. High prevalence of mental disorders in primary care. J Affect Disord. 2004;78(1):49–55.
35. Cigognini MA, Furlanetto LM. Diagnosis and pharmacological treatment of depressive disorders in a general hospital. Rev Bras Psiquiatr. 2006;28(2):97–103.
36. Jiang W, Xiong G. Epidemiology of the comorbidity between depression and heart disease. In: Glassman SH, Maj M, Sartorius N, editors. Depression and heart disease. Sussex: Wiley; 2011.

37. Park M, Katon WJ, Wolf FM. Depression and risk of mortality in individuals with diabetes: a meta-analysis and systematic review. Gen Hosp Psychiatry. 2013;35(3):217–25.
38. Bing EG, Burnam MA, Longshore D, Fleishman JA, Sherbourne CD, London AS, et al. Psychiatric disorders and drug use among human immunodeficiency virus-infected adults in the United States. Arch Gen Psychiatry. 2001;58(8):721–8.
39. Mitchell AJ, Chan M, Bhatti H, Halton M, Grassi L, Johansen C, Meader N. Prevalence of depression, anxiety, and adjustment disorder in oncological, haematological, and palliative- care settings: a meta-analysis of 94 interview-based studies. Lancet Oncol. 2011;12:160–74.
40. Huffman JC, Brennan MM, Smith FA, Stern TA. Patients with neurologic conditions. Stern TA, Fricchione GL, Caseem NH, Jellinek MS, Rosenbaum JF, editors. Massachusetts General Hospital handbook of general hospital psychiatry. 6th ed. Philadelphia, PA: Saunders; 2010.
41. WHO (2003), World Cancer Report, Ed by Bernard W. Steward and Paul Kleitues.
42. Govt of India, (2001-2002), Annual Report, Ministry of Health and family Welfare, New Delhi.
43. Sherman CD,Williams CM. A survey of the attitude of second, third and fourth year medical students towards the curability of breast cancer 1970:20:365-367.
44. Crary WG, Crary GC. Emotional crisis and cancer. cancer 1974; 24:36-39.
45. Lederrberg MS, Holland JC. Psychooncology In:Kaplan HI sadock BJ eds. Comprehensive Textbook of psychiarry. V Ed. Vol II. Baltimore: Williams and Wilkins, 1989.
46. Chaturvedi SK Chandra P, ChannabasavannaSM, Detection of anxiety and depression in cancer patients. NIMHANS J 1994;12;141-144.

47. Chakravorty SG, Chakravorty SS, Patel RR,DeSouza CJ, Doongaji DR. Delay in specialist consultation in cancer patients. Indian J Cancer1993; 30 : 61–66
48. Pakes CM. The emotional impact of cancer on patients and their families. J Oto laryngeal 1975;89;1271-1279.
49. Mories T,Greer HS, white P.Psychological and social adjustment to mastectomy.a one year follow up study. Cancer 1977;40;2381-2387.
50. Maguire GP, lee EG, Bevington DJ, etal. Psychiatrric problems in the first year after mastectomy, Br Med J 1980;1;963-965.
51. Wellish DK,Jamison K, Pashau RO.Psychological aspects of mastectomy. II. The man perspective AM J Psychiaty 1978;135;543-546.
52. Morris T.Psychological adjustment to mastectomy. Cancer treat Rec 1979; 6;41-61.
53. Ray C Adjustment to mastectomy. The psychological impact of disfigurement in Band PC,Cankeep PA Eds. Breast Cancer,psychosocial aspect of early detecting and treatment Baltimore, university park press 1978.
54. Battersby C, Armstong J, Abraham SM. Mastectomy in lager public hospital ANS J surg 1978;48;401-404.
55. Schain WS, Teresa M Angala RN mastectomy versus conservative surgery and radiation therapy. Cancer 1994;733;1221-12225.
56. Devlin HB, Plant JA,Giffin M. Aftemath of surrgey fo anorectal cancer B Med J 1971;3;413-418.
57. Wirsching M, Drunet Hu, Herrman C, Result of psychosocial adjustment to long term colostomy. Psychother psychosom 1975;26;245-256.
58. Barton RT. Life after laryngectomy. Laryngoscope 1965;75;1408-1415.
59. Chaturvedi SK, Prasad KMR, senthilnathan SM et el. Quality of life of oral cancer patients In: oral cancer therapy.VolIIIB, new delhi, Macmillan india, 1994,pp 528-531.

60. Schmale AH,Morrrow GR,Davis A et al. pretrreatment behavioural profiles associated with subsequent psychosocial adjustment in radiation therapy patients. A prospective study Int J Psychiatry Med 1982;12;187-195.
61. Holland JCm Rowland J, Lebovits RA.eaction to cancer treatment. Assessment of emotional response to adjuvant radiotherapy as a guide to planned intervention. Psychiatry clini N Am 1979;2;347-358.
62. Silberfarb PM, Maurerr LH, Crouthamel cs. Psychosocial aspects of neoplasic disease. I Functional status of breast cancer patients during different treatment regimes. AM J Psychiaty 1980; 137;450-455.
63. Hughes J. Emotional reaction to the diagnosis and treatment of early breast cancer J Psychosom Res 1982;26;277-283.
64. Morris JM, The midlands cooperative trial of adjuvant chemotherapy for operable breast cancer. Cancer treat Rev 1979;12;213-228.
65. Hughson AVM, Cooper AF, Mcardle CS, et al. psychiatric morbidity in disease free survivour following radio therapy and adjuvant chemotherapy for breast cancer; A two year follow up study. Br J Surg 1980;67;70-376.
66. Meyerowitz BE,spaks FC,Speas IK, adjuvant chemotherapy for beast carcinoma. Psychosocial implication. Cancer 1979;433;1613-1618.
67. Hughes JE Depressive illness and lung cancer II follow up of inoperable patients. Euro J Surg Oncol 1985;11;21-24.
68. Latha PT. Psychological issue in cancer patients. In:Chandra PS, Chaturvedi SK, Channabasavanna SM (Eds) Lecture notes in psychooncology. NIMHANS, Bangalore (1996).
69. Silberfarb PM, Maurer LH, Crouthamel CS. Psychological aspects of neoplastic disease, functional status of breast cancer patients during different treatment regimen. American Journal of Psychiatry 1980;137:450-455.

70. Massie MJ, Holland JC, Glass E. Delirium in terminally ill cancer patients. American Journal of Psychiatry 1983;140:8.
71. Chaturvedi SK. Exploration of concerns and role of psychosocial interventions in palliative care-A study from Indian Annals. Acad.Med.Singapore 1994;12:256-260.
72. Levine PM, Silberfarb PM, Lipowski ZJ. Mental disorders in cancer patients, a study of 100 psychiatric referrals. Cancer 1978;42:1385.
73. Farber JM, Weinerman BH, Kuypers JA. Psychosocial distress in oncologypatients. Journal of psychosomatic oncology 1984;2: 109-118.
74. Bulaberg T, Penman D, Holland JC. Depression in hospitalized cancer patients. Psychosoma med 1984;46:199-217.
75. Weissman MM, Mayers JK, Thompson WD. Depression and its treatment in a US Urban community. Arch Gen Psychiatry 1985;38:417-421.
76. Robind LN, Helzer JE, Weissman M et al. Life time prevalence of specific psychiatric disorder in three sites. Arch Gen Psychiatry 1984;41:949-958.
77. Barret JE, Banet JA, Oxman TE et al. The prevalence of psychiatric disorders in primary care practice. Arch Gen Psychiatry 1988;45: 1100-1106.
78. Magni G, Schifano F, Leo D. Assessment of depression is an elderly medical population. J.Affective Disorder 1986;11:121-124.
79. Fras I, Litia EN, Pearson JS. Comparison of psychiatric symptoms in carcinoma of pancreas with those in some other intraabdominal neoplasm. American J Psychiatry 1967;123:1553-1562.
80. Koeing R, Levin SM, Brennan MJ. The emotional status of cancer patients as measured by psychological test. J.Chronic disease 1967;20:923-926.
81. Delvin HB, Plant JA, Griffin M. Afermath of Surgery for anorectal cancer. Br Med J 1971;3:413-418.

82. Plumb M, Holland J. Comparative study of psychological function in patient with advanced cancer. II:Interviewer rated current and past psychological symptoms. Psychosom Med 1981;43:243-254.94
83. Evan DL, McCartney CP, Nemeroff CB et al. Depression in women treated for gynaecological cancer: Clinical and neruoendocrine assessment. Am J Psychiatry 1988;143:447-452.
84. Lloyd Williams M, Riddleston H. The stability of depression score in patients who are receiving palliative care. J pain symptom manage 2002;24:593-597.
85. Hotopf M, Childgrey J, Addington, Hall J, Lanly K. Depression in advanced disease: A systematic review. Part 1. Prevalence and case finding. Palliative medicine 2002;16:81-97.
86. Lloyd Williams M, Dennis M, Taylor F. A prospective study to determine the association between physical symptoms and depression in patients with advanced cancer. Palliative Med 2004;18:558-563.
87. Pandey M, Singh SP, Behere PB, et al. Quality of life in patients with early and advanced carcinoma of the breast. Eur J Surg Oncol 2000;26:20-24.
88. Bukberg J, Penman D, Holland JC. Depression in hospitalzed cancer patients.Psychosomatic Med 1984;46:199-217.
89. Louhivouri KA and Hakama M. Risk of suicide among cancer patients. Am J Epidemiolo 1979;109:59-65.
90. Fox BH, Stanck EJ, Boldy SC, et al. Suicide rates among cancer patients in Connecticut J Chronic Disease 1982;35:85-100.
91. Breitbart WS. Suicide in patients with cancer. JC Holland, JH Roxland (Eds) Handbook of psycho-oncology 1989. P 291-299, New York: Oxford University Press.

92. Cousin JP, Harper L. Neurobiochemical changes from Taxol/Neupogen chemotherapy for metastatic breast carcinoma corresponds with suicidal depression. Cancer Lett 1996;20:110(1-2):163-167.
93. Henderson JM, Ord RA. Suicide in head and neck. Cancer patients. J Oral Maxillofac Surg 1997;55:1217-1221.
94. Rosenfeld B, Krevo S, Brietbart W et al. Suicide assisted suicide and eutharasia in terminally ill. In: Chochinov H, Brietthart W, eds. Handbook of psychiatry in palliative medicine, New York, NY: Oxford University Press;2000:51-63.
95. Hietanen P, Lonnavist J. Cancer and Suicide. Ann oncol 1991;2:19.
96. Chochinov HM, Wilson KG, Ennis M, lander S. Are Yon depressed?Screening for depression in the terminally ill. Psycho-somatics 1998;39(4):366-370.
97. Louhivouri KA and Hakama M. Risk of suicide among cancer patients. Am J Epidemiolo 1979;109:59-65.
98. Gopalan MR, Karunakaran V,Prabhakaran A, Prevalenceof psychiatric morbidity among cancer patients- hospital bases, cross-sectional survery. Iandian J Psy 2016;58:275-8-
99. Chaturvedi SK,Hopwood P,Maguire GP,somatizaion in cancer patients. Euro J Cancer 1993;29;1006-1008.
100. Chaturvedi SK,Maguire P.Persisent somatisation in cancer; A controlled follow up study,J Psychosom Res.
101. Goldberg D. William P. A user`s guide to the General Health Questionnaire (GHQ). Windsor, Berkshire. NFER-NELSON Publishing Co.Ltd:England; 1988.
102. Kuppuswamy B. Manual of SocioeconomicStatus (urban), Delhi, Manasayan, 1981.

103. Pandey M, Sarita GP, Devi N, Thomas BC, Hussain BM, Krishnan R Distress, anxiety, and depression in cancer patients undergoing chemotherapy. World J Surg Oncol 2006;4:68.
104. Mendonsa RD, Appaya P. Psychiatric morbidity in outpatients of gynecological oncology clinic in a tertiary care hospital. Indian J Psychiatry, 2010;52:327-32.
105. Mishra SK, Mohapatra PK, Bhattacharya K, Gupta T, Aggarwal JP, Prevalence of Psychiatric disorder in asymptomatic or minimally symptomatic cancer patients on treatment, J Cancer Res Ther 2006; 2(3): 136-139.
106. Agarwal P, Malik S, Padubidri V. A study of psychiatric morbidity in a gynecological oupatient clinic. Indian J Psychiatry. 1990;32:57–63
107. Laura E. Simonelli, Ph.D., Jeffrey Fowler, M.D., Physical Sequelae and Depressive Symptoms in Gynecologic Cancer Survivors: Meaning in Life as Mediator. Ann Behav Med. 2008 June;35(3): 275–284. doi:10.1007/s12160-008-9029-8.
108. Gagan Hans, Mohammad M. Dar Delhi Psychiatry Journal 2015; 18:(1) © Delhi 40 Psychiatric Society.
109. Toshiko Matsushita , Hinako Murata, Eisuke Matsushima, Yu Sakata, NaoyukiMiyasaka, and Takeshi Aso : Emotional state and coping style among gynecologic patients undergoing surgery Psychiatry and Clinical Neurosciences (2007), 61, 84-93.

ANNEXURE I

SEMISTRUCTURED PROFORMA

PROFORMA

NAME: **OP/IP NO:**

AGE: **INFORMANT:**

ADDRESS: **PHONE NUMBER:**

EDUCATIONAL STATUS: Profession/Graduate or post graduate/Intermediate or post high school diploma/High school/ Middle school/Primary school/Illiterate

OCCUPATION: Profession/Semi-Profession/Clerical, Shop-owner, Farmer/Skilled worker/Semi-skilled worker/Unskilled worker/Unemployed

INCOME:

MARITAL STATUS: **TYPE OF FAMILY**: nuclear/joint/extended

Number of family members:

PRESENTING COMPLAINTS :(carcinoma)

Duration : Time of consultation:

Diagnosis :

Site of lesion :

Mode of treatment: CT/RT/ST

Number of CT/RT/ST :

Duration of last treatment: <7 weeks / >7weeks

PRESENTING COMPLAINTS: (PSYCHIATRIC)

Duration: H/O Treatment

PAST HISTORY:

Psychiatric illness: Suicidal attempt: Stressors:

Medical/surgical illness: others:

FAMILY HISTORY:

Type of family: H/O psychiatric illness:

No of family members: H/O suicidal attempts:

Earning members: H/O missing persons/MR:

Total income:

PERSONAL HISTORY:

AN/PN history: Developmental milestones:

Academic performance: Occupational history:

Substance /Drug intake History: 1. Alcohol **2. Tobacco.**

PREMORBID PERSONALITY:

GENERAL EXAMINATION:

B.P: mm. Hg P.R: /Min

Self-Inflicted Wounds:

C.V.S:

R.S:

ABDOMEN:

C.N.S:

MENTAL STATUS EXAMINATION:

General appearance/co-operation:

Psychomotor activity:

Talk:

Thought:

Perception:

Mood

DIAGNOSIS:

LAB INVESTIGATIONS:

ANNEXURE II

KUPPUSAMY'S SOCIO ECONOMIC SCALE:

Kuppuswamy's socio-economic status scale-2012

	(A) Education	Score
1	Profession or Honours	1
2	Graduate or post graduate	2
3	Intermediate or post high school diploma	3
4	High school certificate	4
5	Middle school certificate	5
6	Primary school certificate	6
7	Illiterate	7

	(B) Occupation	Score
1	Profession	1
2	Semi-Profession	2
3	Clerical, Shop-owner, Farmer	3
4	Skilled worker	4
5	Semi-skilled worker	5
6	Unskilled worker	6
7	Unemployed	7

(C) Monthly family income in Rs		Score	Modified for 1998 in Rs	Modified for 2012 in Rs
1	≥ 2000	12	≥ 13500	≥32050
2	1000-1999	10	6750 - 13499	16020 – 32049
3	750-999	6	5050 - 6749	12020 – 16019
4	500-749	4	3375 - 5049	8010 – 12019
5	300-499	3	2025 - 3374	4810 – 8009
6	101-299	2	676 - 2024	1601 – 4809
7	≤ 100	1	≤ 675	≤ 1600

Total Score	Socioeconomic class
26-29	Upper (I)
16-25	Upper Middle (II)
11-15	Middle/Lower middle (III)
5-10	Lower/Upper lower (IV)
<5	Lower (V)

ANNEXURE - III

GENERAL HEALTH QUESTIONNAIRE

Name…….

We want to know how your health has been in general over the last few weeks. Please read the questions below and each of the four possible answers. Circle the response that best applies to you. Thank you for answering all the questions.

Have you recently:

1. been able to concentrate on what you're doing?

(0) better than usual (1) same as usual (2) less than usual (3)much less than usual.

2. lost much sleep over worry?

(0) Not at all (1) no more than usual (2)rather more than usual (3) much more than usual.

3. felt that you are playing a useful part in things?

(1) more so than usual (1)same as usual (2) less so than usual (3) much less than usual.

4. felt capable of making decisions about things?

(0) more so than usual (1) same as usual (2) less than usual (3)much less than usual.

5. felt constantly under strain?

(0) Not at all (1) no more than usual (2) rather more than usual (3)much more than usual.

6. felt you couldn't overcome your difficulties?

(0) Not at all (1) no more than usual (2) rather more than usual (3)much more than usual.

7. been able to enjoy your normal day to day activities?

(0) more so than usual (1) same as usual (2) less than usual (3)much less than usual.

8. been able to face up to your problems?

(0) more so than usual (1) same as usual (2) less than usual (3)much less than usual.

9. been feeling unhappy or depressed?

(0) Not at all (1) no more than usual (2) rather more than usual (3)much more than usual.

10. been losing confidence in yourself?

(0) Not at all (1) no more than usual (2) rather more than usual (3)much more than usual.

11. been thinking of yourself as a worthless person?

(0) Not at all (1) no more than usual (2) rather more than usual (3)much more than usual.

12. been feeling reasonably happy, all things considered?

(0) more so than usual (1) same as usual (2) less than usual (3)much less than usual.

ANNEXURE IV

MINI INTERNATIONAL NEUROPSYCHIATRIC INTERVIEW

	MODULES	TIME FRAME	MEETS CRITERIA	DSM-IV	ICD-10	
A	MAJOR DEPRESSIVE EPISODE	Current (2 weeks)	☐	296.20-296.26 Single	F32.x	❐
		Recurrent	☐	296.30-296.36 Recurrent	F33.x	❐
	MDE WITH MELANCHOLIC FEATURES Optional	Current (2 weeks)	☐	296.20-296.26 Single	F32.x	❐
				296.30-296.36 Recurrent	F33.x	❐
B	DYSTHYMIA	Current (Past 2 years)	☐	300.4	F34.1	❐
C	SUICIDALITY	Current (Past Month) Risk: ☐ Low ☐ Medium ☐ High	☐			❐
D	MANIC EPISODE	Current	☐	296.00-296.06	F30.x-F31.9	❐
		Past	☐			
	HYPOMANIC EPISODE	Current	☐	296.80-296.89	F31.8-F31.9/F34.0	❐
		Past	☐			
E	PANIC DISORDER	Current (Past Month)	☐	300.01/300.21	F40.01-F41.0	❐
		Lifetime	☐			
F	AGORAPHOBIA	Current	☐	300.22	F40.00	❐
G	SOCIAL PHOBIA (Social Anxiety Disorder)	Current (Past Month)	☐	300.23	F40.1	❐
H	OBSESSIVE-COMPULSIVE DISORDER	Current (Past Month)	☐	300.3	F42.8	❐
I	POSTTRAUMATIC STRESS DISORDER	Current (Past Month)	☐	309.81	F43.1	❐
J	ALCOHOL DEPENDENCE	Past 12 Months	☐	303.9	F10.2x	❐
	ALCOHOL ABUSE	Past 12 Months	☐	305.00	F10.1	❐
K	SUBSTANCE DEPENDENCE (Non-alcohol)	Past 12 Months	☐	304.00-.90/305.20-.90	F11.1-F19.1	❐
	SUBSTANCE ABUSE (Non-alcohol)	Past 12 Months	☐	304.00-.90/305.20-.90	F11.1-F19.1	❐
L	PSYCHOTIC DISORDERS	Lifetime	☐	295.10-295.90/297.1/	F20.xx-F29	❐
		Current	☐	297.3/293.81/293.82/ 293.89/298.8/298.9		
	MOOD DISORDER WITH PSYCHOTIC FEATURES	Lifetime	☐	296.24/296.34/296.44	F32.3/F33.3/ ❐	
		Current	☐	296.24/296.34/296.44	F30.2/F31.2/F31.5 F31.8/F31.9/F39 ❐	
M	ANOREXIA NERVOSA	Current (Past 3 Months)	☐	307.1	F50.0	❐
N	BULIMIA NERVOSA	Current (Past 3 Months)	☐	307.51	F50.2	❐
	ANOREXIA NERVOSA, BINGE EATING/PURGING TYPE	Current	☐	307.1	F50.0	❐
O	GENERALIZED ANXIETY DISORDER	Current (Past 6 Months)	☐	300.02	F41.1	❐
P	ANTISOCIAL PERSONALITY DISORDER Optional	Lifetime	☐	301.7	F60.2	❐

ANNEXURE – III

HAMILTON DEPRESSION RATING SCALE (HDRS)

Instructions: for each item select the one "cue" which best characterizes the patient. Be sure to record the answers in the appropriate spaces (score 0 to 4).

1 DEPRESSED MOOD *(sadness, hopeless, helpless, worthless)*

0 |__| Absent.

1 |__| These feeling states indicated only on questioning.

2 |__| These feeling states spontaneously reported verbally.

3 |__| Communicates feeling states non-verbally, i.e. through facial expression, posture, voice and tendency to weep.

4 |__| Patient reports virtually only these feeling states in his/her spontaneous verbal and non-verbal communication.

2 FEELINGS OF GUILT

0 |__| Absent.

1 |__| Self reproach, feels he/she has let people down.

2 |__| Ideas of guilt or rumination over past errors or sinful deeds.

3 |__| Present illness is a punishment. Delusions of guilt.

4 |__| Hears accusatory or denunciatory voices and/or experiences threatening visual

hallucinations.

3 SUICIDE

0 |__| Absent.

1 |__| Feels life is not worth living.

2 |__| Wishes he/she were dead or any thoughts of possible death to self.

3 |__| Ideas or gestures of suicide.

4 |__| Attempts at suicide (any serious attempt rate 4)

4 INSOMNIA: EARLY IN THE NIGHT

0 |__| No difficulty falling asleep.

1 |__| Complains of occasional difficulty falling asleep, i.e.more than 1⁄2 hour.

2 |__| Complains of nightly difficulty falling asleep.

5 INSOMNIA: MIDDLE OF THE NIGHT

0 |__| No difficulty.

1 |__| Patient complains of being restless and disturbed during the night.

2 |__| Waking during the night – any getting out of bed rates 2 (except for purposes of voiding).

6 INSOMNIA: EARLY HOURS OF THE MORNING

0 |__| No difficulty.

1 |__| Waking in early hours of the morning but goes back to sleep.

2 |__| Unable to fall asleep again if he/she gets out of bed.

7 WORK AND ACTIVITIES

0 |__| No difficulty.

1 |__| Thoughts and feelings of incapacity, fatigue or weakness related to activities, work or hobbies.

2 |__| Loss of interest in activity, hobbies or work – either directly reported by the patient or indirect in listlessness, indecision and vacillation (feels he/she has to push self to work or activities).

3 |__| Decrease in actual time spent in activities or decrease in productivity. Rate 3 if the patient does not spend at least three hours a day in activities (job or hobbies) excluding routine chores.

4 |__| Stopped working because of present illness. Rate 4 if patient engages in no activities except routine chores, or if patient fails to perform routine chores unassisted.

8 RETARDATION (slowness of thought and speech, impaired ability to concentrate, decreased motor activity)

0 |__| Normal speech and thought.

1 |__| Slight retardation during the interview.

2 |__| Obvious retardation during the interview.

3 |__| Interview difficult.

4 |__| Complete stupor.

9 AGITATION

0 |__| None.

1 |__| Fidgetiness.

2 |__| Playing with hands, hair, etc.

3 |__| Moving about, can't sit still.

4 |__| Hand wringing, nail biting, hair-pulling, biting of lips.

10 ANXIETY PSYCHIC

0 |__| No difficulty.

1 |__| Subjective tension and irritability.

2 |__| Worrying about minor matters.

3 |__| Apprehensive attitude apparent in face or speech.

4 |__| Fears expressed without questioning.

11 ANXIETY SOMATIC (physiological concomitants of anxiety) such as:

gastro-intestinal – dry mouth, wind, indigestion, diarrhea, cramps, belching

cardio-vascular – palpitations, headaches respiratory – hyperventilation, sighing

urinary frequency sweating

0 |__| Absent.

1 |__| Mild.

2 |__| Moderate.

3 |__| Severe.

4 |__| Incapacitating.

12 SOMATIC SYMPTOMS GASTRO-INTESTINAL

0 |__| None.

1 |__| Loss of appetite but eating without staff encouragement. Heavy feelings in abdomen.

2 |__| Difficulty eating without staff urging. Requests or requires laxatives or medication for bowels or medication for gastro-intestinal symptoms.

13 GENERAL SOMATIC SYMPTOMS

0 |__| None.

1 |__| Heaviness in limbs, back or head. Backaches, headaches, muscle aches. Loss of energy and fatigability.

2 |__| Any clear-cut symptom rates 2.

14 GENITAL SYMPTOMS (symptoms such as loss of libido, menstrual disturbances)

0 |__| Absent.

1 |__| Mild.

2 |__| Severe.

15 HYPOCHONDRIASIS

0 |__| Not present.

1 |__| Self-absorption (bodily).

2 |__| Preoccupation with health.

3 |__| Frequent complaints, requests for help, etc.

4 |__| Hypochondriacal delusions.

16 LOSS OF WEIGHT ***(RATE EITHER a OR b)***

a) According to the b) According to weekly patient: measurements:

0 |__| No weight loss. 0 |__| Less than 1 lb weight loss in week.

1 |__| Probable weight 1 |__| Greater than 1 lb weight loss loss associated with in week. present illness.

2 |__| Definite (according 2 |__| Greater than 2 lb weight loss to patient) weight in week. loss.

3 |__| Not assessed. 3 |__| Not assessed.

17 INSIGHT

0 |__| Acknowledges being depressed and ill.

1 |__| Acknowledges illness but attributes cause to bad food, climate, overwork, virus, need for rest, etc.

2 |__| Denies being ill at all.

Total score: |__|__|

SCORING: <7 normal, 8-13 mild, 14-18 moderate, 19-22 severe, >23 very severe.

ANNEXURE VI

HAMILTON ANXIETY RATING SCALE (HAM-A)

Below is a list of phrases that describe certain feeling that people have. Rate the patients by finding the answer which best describes the extent to which he/she has these conditions. Select one of the five responses for each of the fourteen questions. 0 = Not present, 1 =Mild, 2= Moderate, 3 =Severe, 4= Very severe.

1 Anxious mood - 0 1 2 3 4

Worries, anticipation of the worst, fearful anticipation, irritability.

2 Tension - 0 1 2 3 4

Feelings of tension, fatigability, startle response, moved to tears easily, trembling, feelings of restlessness, inability to relax.

3 Fears - 0 1 2 3 4

Of dark, of strangers, of being left alone, of animals, of traffic, of crowds.

4 Insomnia 0 1 2 3 4

Difficulty in falling asleep, broken sleep, unsatisfying sleep and fatigue on waking, dreams, nightmares, night terrors.

5 Intellectual 0 1 2 3 4

Difficulty in concentration, poor memory.

6 Depressed mood 0 1 2 3 4

Loss of interest, lack of pleasure in hobbies, depression, early waking, diurnal swing.

7 Somatic (muscular) 0 1 2 3 4

Pains and aches, twitching, stiffness, myoclonic jerks, grinding of teeth, unsteady voice, increased muscular tone.

8 Somatic (sensory) 0 1 2 3 4

Tinnitus, blurring of vision, hot and cold flushes, feelings of weakness, pricking sensation.

9 Cardiovascular symptoms 0 1 2 3 4

Tachycardia, palpitations, pain in chest, throbbing of vessels, fainting feelings, missing beat.

10 Respiratory symptoms 0 1 2 3 4

Pressure or constriction in chest, choking feelings, sighing, dyspnea.

11 Gastrointestinal symptoms 0 1 2 3 4

Difficulty in swallowing, wind abdominal pain, burning sensations, abdominal fullness, nausea, vomiting, borborygmi, looseness of bowels, loss of weight, constipation.

12 Genitourinary symptoms 0 1 2 3 4

Frequency of micturition, urgency of micturition, amenorrhea, menorrhagia, development of frigidity, premature ejaculation, loss of libido, impotence.

13 Autonomic symptoms 0 1 2 3 4

Dry mouth, flushing, pallor, tendency to sweat, giddiness, tension headache, raising of hair.

14 Behavior at interview 0 1 2 3 4

Fidgeting, restlessness or pacing, tremor of hands, furrowed brow, strained face, sighing or rapid respiration, facial pallor, swallowing, etc.

Scoring: <17 mild, 18-24 mild to moderate, 25-30 moderate to severe.

KEY TO MASTER CHART

AGE	1 : 18 TO 35 2 : 36 – 50 3 : 51 – 65
RELIGION	1 : HINDU 2 : CHIRISITIAN 3 : MUSLIM
MARITAL STATUS	1 : UNMARRIED 2 : MARRIED 3 : WIDOW 4 : DIVORCEEING
EDUCATIONAL QUALIFICATION	1 : ILLITEARATE 2 : PRIMARY SCHOOL 3 : HIGH SCHOOL 4 : HIGHER SECONDARY 5: DIPLOMA
OCCUPATION	1 : SKILLED 2 : SEMI SKILLED 3 : UNSKILLED 4 : UN EMPLOYED
SOCIO- ECONOMIC STATUS	1 : LOWER 2 : UPPER LOWER 3 : MIDDILE 4 : UPPER MIDDLE 5 : UPPER
DOMICILE	1 : RURAL 2 : URBAN
TYPE OF FAMILY	1 : NUCLEAR FAMILY 2 : JOIN FAMILY
SUBSTANCE USE	1 : ALCOHOL 2: TOBACCO(CHEWABLE/SMOKING) 3: BOTH

TYPE OF CANCER	1 : BENIGN 2: MALIGNANT
STAGE OF CANCER	1 : EARLY BREAST CARCINOMA 2 : ADVANCED BREAST CARCINOMA
TYPE OF TREATMENT	1: SURGERY 2: CHEMOTHERAPY 3: RADIOTHERAPY
DURATION OF TREATMENT	1: < 3 WEEKS 2 : => 3WEEKS
NO. OF CHEMOTHERAPY/RADIOTHERAPY	0: NIL 1: < 3 NOS 2: > 3 NOS
DURATION OF LAST CT/RT AND LAST SURGERY	1: < 7 WEEKS 2: > 7 WEEKS
PAST H/O MENTAL ILLNESS	1 : ABSENT 2 : PRESENT
FAMILY H/O MENTAL ILLNESS	1 : ABSENT 2 : PRESENT
MEDICAL CO MORBIDITY	0: ABSENT 1: PRESENT
HAM – D	1 : NORMAL(<7) 2 : MILD(8-13) 3 : MODERATE(14-18) 4 : SEVERE(19-22) 5 : VERY SEVERE(>23)
HAM – A	1: MILD (< 17 SCORE) 2: MILD – MODERATE (18- 24) 3: MODERATE – SEVERE (25 – 30) 4: SEVERE (>30)

MASTER CHART

SL No	AGE	AGE	SEX	MARITAL STATUS	DOMICLE	EDUCATION	OCCUPATION	SES STATUS	FAMILY	RELIGION	SUBSTANCE	DIAGNOSIS	TYPE	STAGE	MODE OF TREATMENT RT/CT/ST	DURATION OF TRREAMENT <3/>3 WEEK	DURATION LAST RT/CT <7/>7 WEEKS	NO. CT/RT/ <3/>3 NOS
1	2	38	2	2	1	1	4	2	1	1	2	CA CERVIX	2	1	3	1	1	1
2	2	50	2	2	1	1	4	2	1	1	2	CA CERVIX	2	2	3	2	2	2
3	2	49	2	2	1	1	2	1	1	1	3	CA TONGUE	2	2	3	2	1	2
4	2	50	2	1	1	1	4	1	1	1	0	CA TONGUE	2	2	3	2	2	2
5	2	50	2	2	1	2	4	3	2	1	0	CA CERVIX	2	2	3	2	2	2
6	2	40	2	2	1	2	2	2	1	1	2	CA CERVIX	2	2	3	2	2	2
7	2	45	2	2	1	1	4	3	2	1	2	CA CERVIX	2	2	3	2	1	2
8	2	48	2	2	1	2	3	1	1	1	3	CA PHARYNX	2	2	3	2	2	2
9	2	40	2	2	1	1	3	3	2	1	0	CA OVARY	2	1	3	2	1	2
10	2	48	1	2	2	1	2	2	1	1	3	CA PHARYNX	2	2	3	2	2	2
11	2	47	2	2	1	1	4	3	1	1	2	CA CERVIX	2	2	3	2	2	2
12	2	48	2	2	1	1	4	3	1	1	2	CA TONGUE	2	2	3	2	1	2
13	2	50	2	2	1	1	3	3	1	1	0	CA CERVIX	2	2	3	2	1	2
14	2	49	2	2	2	2	4	2	1	1	0	CA CERVIX	2	2	3	2	1	2
15	2	46	2	2	2	1	4	2	1	1	0	CA CERVIX	2	2	3	2	1	2
16	3	55	1	2	1	4	3	2	1	1	3	CA TONGUE	2	2	3	2	2	2
17	2	46	1	2	1	2	3	2	1	1	3	CA CHEEK	2	2	3	2	2	2
18	1	35	2	2	1	1	4	1	1	1	2	CA TONGUE	2	2	3	2	1	2
19	2	50	2	2	1	4	4	2	1	1	0	CA CERVIX	2	2	3	2	2	2

SL NO.	FAMILY H/O Psychiatric illness	PAST H/O Psychiatric illness	AWARE / UNWARE	Medical & morbidity	GHQ1	GHQ2	GHQ3	GHQ4	GHQ5	GHQ6	GHQ7	GHQ8	GHQ9	GHQ10	GHQ11	GHQ12	TOTAL GHQ	MINI PLUS	HAM –A	HAM – D
1	1	1	1	0	1	2	1	2	2	2	1	2	2	2	0	2	19	ADJUSTMENT DISORDER	2	3
2	2	1	1	0	1	1	1	1	2	1	1	2	2	2	1	2	16	DEPRESSION	2	5
3	1	1	1	0	1	1	1	1	1	1	2	2	2	1	1	2	16	ADJUSTMENT DISORDER	2	3
4	1	1	1	0	1	0	1	1	0	0	1	1	0	0	0	1	6	NORMAL	1	1
5	1	1	1	0	2	1	1	1	2	1	1	1	2	1	2	1	16	DYSTHYMIA	1	2
6	2	1	1	0	1	2	1	1	2	1	1	1	2	2	1	2	17	PANIC DISORDER	2	2
7	1	1	1	0	1	1	1	1	1	1	1	1	2	2	2	2	15	PANIC DISORDER	2	1
8	1	1	1	0	2	2	2	2	2	2	1	1	3	3	2	2	24	DEPERSSION	2	4
9	1	1	1	0	2	2	1	1	2	2	2	1	2	1	2	2	18	ADJUSTMENT DISORDER	2	2
10	2	1	1	0	1	2	1	2	2	1	1	1	2	2	0	1	16	ADJUSTMENT DISORDER	1	1
11	1	1	1	0	1	2	1	1	2	2	2	1	2	1	2	1	18	ADJUSTMENT DISORDER	2	1
12	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	12	DYSTHYMIA	2	1
13	1	1	1	0	1	0	1	1	0	0	1	1	0	0	0	1	6	NORMAL	1	1
14	2	1	1	0	2	2	1	1	0	1	1	2	2	2	2	1	17	DYSTHYMIA	2	2
15	1	1	1	0	0	2	2	1	1	2	3	1	2	1	2	1	18	PTSD	2	3
16	1	1	1	0	1	2	2	1	2	1	2	2	2	2	2	2	21	DEPRESSION	2	5
17	2	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	12	DEPRRESSION	2	5
18	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	2	12	NORMAL	2	2
19	1	1	1	0	3	0	1	1	2	0	1	2	2	2	1	1	16	ADJUSTMENT DISORDER	1	1

20	3	54	2	2	1	1	3	3	1	1	2	CA PHARYNX	2	1	3	2	1	2
21	2	45	2	2	1	1	3	3	1	1	0	CA BREAST	2	2	3	2	2	2
22	3	51	2	2	2	4	1	3	1	1	0	CA CERVIX	2	2	3	2	2	2
23	1	34	1	2	1	2	3	1	1	1	2	CA CHEEK	2	2	3	2	1	2
24	2	45	2	2	1	2	4	1	1	1	0	CA CERVIX	2	2	3	1	2	1
25	2	40	1	2	1	2	4	3	1	1	3	CA PHARYNX	2	1	3	1	2	1
26	2	48	2	2	1	1	1	3	1	1	2	CA LIP	2	1	3	2	1	2
27	2	49	2	2	1	1	4	2	2	1	2	CA CERVIX	2	1	3	2	1	2
28	2	47	1	2	1	1	2	3	1	1	3	CA CHEEK	2	1	3	2	2	2
29	2	50	1	2	1	1	1	3	1	1	3	CA LIP	2	2	3	2	1	2
30	1	34	1	2	1	1	1	3	1	1	3	CA CHEEK	2	2	3	2	2	2
31	1	30	1	2	1	2	1	4	1	1	3	CA PHARYNX	2	2	3	2	1	2
32	3	55	1	1	1	2	4	3	2	2	3	CA LIP	2	2	3	2	2	2
33	3	55	2	2	1	1	4	1	1	1	0	CA CERVIX	2	2	3	2	2	2
34	2	50	1	2	1	2	4	3	1	1	3	CA CHEEK	2	1	3	1	2	1
35	2	40	1	2	1	1	4	3	1	1	3	CA CHEEK	2	2	3	2	2	2
36	1	35	1	2	1	2	4	2	1	1	2	CA LARYNX	2	2	3	1	1	2
37	2	37	2	2	1	2	4	3	2	1	0	CA CERVIX	2	2	2	2	1	2
38	1	35	1	2	1	2	4	3	2	1	3	CA LUNG	2	1	2	2	2	2
39	2	49	2	2	1	2	4	3	1	1	0	CA CERVIX	2	1	2	2	1	2
40	1	34	2	2	1	2	2	2	1	1	2	CA CERVIX	2	1	2	2	2	2
41	2	50	2	2	1	1	4	3	2	3	0	CA CERVIX	2	2	2	2	1	2
42	2	45	2	2	2	1	1	3	2	1	2	CA BREAST	2	1	2	2	1	2

20	1	1	1	0	1	0	1	0	0	0	1	1	1	1	0	1	7	NORMAL	1	1
21	1	1	1	0	1	0	1	0	0	0	1	1	1	1	0	1	8	NORMAL	2	3
22	1	1	1	1	1	0	1	1	0	0	1	1	2	0	0	1	8	NORMAL	1	1
23	1	1	1	0	1	0	1	1	0	3	1	1	2	2	0	1	13	ADJUSTMENT DISORDER	1	1
24	1	1	1	1	1	0	1	1	0	0	1	1	1	1	1	1	9	NORMAL	1	1
25	1	1	1	0	2	2	2	1	0	2	3	2	2	3	2	1	21	DEPRESSION	3	5
26	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	1	NORMAL	1	1
27	1	1	1	0	2	2	1	1	2	1	1	2	1	3	1	3	21	DEPRESSION	2	3
28	1	1	1	0	1	1	0	1	1	1	1	1	1	1	1	1	11	NORMAL	1	1
29	1	1	1	0	1	0	0	0	1	0	0	0	0	0	0	1	3	NORMAL	1	1
30	1	1	1	1	1	0	1	1	1	1	1	0	1	1	1	1	10	NORMAL	1	1
31	2	1	1	0	2	2	1	1	1	1	1	1	2	2	1	1	15	DEPRESSION	2	3
32	2	1	1	0	0	1	1	1	1	1	0	1	1	3	0	1	11	NORMAL	1	2
33	1	1	1	1	1	1	1	1	2	1	1	1	1	0	0	1	11	NORMAL	1	3
34	2	1	1	0	1	0	0	0	1	0	1	1	1	1	0	0	6	NORMAL	1	1
35	2	1	1	0	2	2	1	2	1	2	2	1	2	2	1	2	20	DEPRESSION	2	5
36	1	1	1	0	1	1	1	1	1	1	1	1	0	1	1	1	11	NORMAL	2	2
37	1	1	1	0	1	1	1	0	0	0	0	1	2	1	1	1	9	NORMAL	1	1
38	1	1	1	0	1	1	1	2	2	2	2	2	2	2	2	2	21	GAD	3	1
39	1	1	1	0	1	0	1	1	0	0	1	0	1	0	0	1	6	NORMAL	1	1
40	1	1	1	0	1	1	1	1	0	0	1	0	1	1	1	1	9	NORMAL	1	1
41	1	1	1	0	1	2	1	1	2	1	1	1	2	2	2	1	17	ADJUSTMENT DISORDER	2	1
42	1	1	1	0	2	0	1	1	1	0	1	1	1	0	0	0	8	NORMAL	1	0

43	2	38	2	2	2	2	4	2	1	1	0	CA LUNG	2	2	2	2	2	1
44	2	46	2	2	1	1	4	3	1	1	2	CA CERVIX	2	1	2	1	1	1
45	3	54	2	2	1	3	3	3	1	1	3	LYMPHOMA	2	1	2	2	1	2
46	1	34	1	2	1	5	1	4	2	2	3	CA COLON	2	1	2	2	1	2
47	1	32	1	2	1	4	2	3	1	1	3	CA PANCREAS	2	1	2	1	1	1
48	1	34	1	2	1	4	2	3	1	1	0	CML	2	1	2	1	2	1
49	1	35	2	2	1	4	4	3	1	1	0	CA BREAST	2	2	2	2	2	1
50	2	48	2	2	2	3	4	3	2	1	0	CA BREAST	2	2	2	2	1	1
51	3	53	2	2	1	2	4	3	1	1	0	LYMPHOMA	2	2	2	2	1	2
52	3	53	2	2	1	1	4	2	1	1	2	CA BREAST	2	1	2	2	1	1
53	1	34	1	2	1	4	2	3	1	1	3	CA PANCREAS	2	1	2	2	2	1
54	1	35	1	2	1	1	4	1	1	1	3	CA PANCREAS	2	2	2	2	1	1
55	3	63	1	2	1	2	2	3	1	3	3	CA STOMACH	2	2	2	2	1	1
56	1	34	2	2	1	2	4	2	1	1	0	CA BREAST	2	2	2	2	2	2
57	2	48	2	2	1	2	4	3	2	3	0	CA BREAST	2	1	2	2	2	2
58	3	54	1	2	1	2	4	2	1	1	3	CA STOMACH	2	2	2	2	2	2
59	3	55	2	2	1	1	4	3	1	1	2	CA CERVIX	2	1	2	1	1	2
60	3	55	1	2	1	2	4	3	1	1	3	CA BLADDER	2	2	2	2	2	2
61	2	40	1	2	1	1	4	3	1	1	2	CA CHEEK	2	1	2	2	2	2
62	3	62	2	2	1	1	4	3	1	1	0	CA CERVIX	2	2	2	2	2	2
63	3	60	1	2	1	1	4	2	1	1	3	CA PANCREAS	2	2	2	1	2	1
64	1	35	2	2	1	1	3	2	1	1	3	CA STOMACH	2	1	2	2	2	2
65	2	43	1	2	1	2	4	2	1	1	3	CA PANCREAS	2	2	2	2	2	2

43	2	1	1	0	0	1	1	1	1	0	2	1	2	1	1	2	13	ADJUSTMENT DISORDER	2	0
44	1	1	1	0	1	0	0	0	0	1	1	1	1	1	1	1	8	NORMAL	1	1
45	1	1	1	0	1	2	2	1	2	0	1	1	0	0	2	1	13	NORMAL	1	1
46	1	1	1	0	2	2	1	1	0	1	1	2	2	1	1	1	17	ADJUSTMENT DISORDER	2	2
47	1	1	1	0	1	2	1	1	2	1	2	1	2	1	2	1	17	NORMAL	2	1
48	1	1	1	0	1	1	1	1	2	1	2	1	2	1	2	1	16	GAD	2	2
49	2	1	1	0	1	1	1	1	1	1	2	2	2	2	2	2	18	DEPRESSION	2	3
50	1	1	1	0	1	0	1	0	0	0	1	1	1	2	1	0	8	NORMAL	1	1
51	1	1	1	0	2	2	1	2	1	1	2	2	1	0	0	1	15	NORMAL	1	1
52	1	1	1	0	0	1	0	0	1	0	0	0	1	1	0	0	4	NORMAL	1	1
53	1	1	1	1	2	1	0	2	2	2	2	1	0	0	0	0	11	ADJUSTMENT DISORDER	2	2
54	1	2	1	1	1	1	1	2	2	2	2	2	1	1	1	1	17	GAD	3	2
55	1	1	1	1	0	0	1	1	1	1	0	2	2	1	1	1	11	GAD	3	1
56	1	1	1	1	1	1	2	1	1	0	0	0	0	1	1	1	9	ADJUSTMENT DISORDER	2	2
57	1	1	1	0	2	1	2	1	1	1	1	1	1	2	2	1	16	ADJUSTMENT DISORDER	1	3
58	1	1	1	1	1	2	1	1	2	2	2	1	2	1	1	2	18	DEPRESSION	2	4
59	1	1	1	0	1	1	1	1	1	2	2	2	1	1	1	1	15	NORMAL	1	1
60	2	1	1	0	1	1	3	1	2	2	3	3	3	3	2	1	24	DEPRESSION	3	4
61	1	1	1	0	3	0	2	2	2	1	0	1	2	0	2	1	16	ADJUSTMENT DISORDER	1	2
62	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	12	NORMAL	1	1
63	1	1	1	1	0	1	2	2	2	2	2	2	2	2	2	2	21	ADJUSTMENT DISORDER	2	3
64	1	1	1	1	1	1	1	1	1	1	1	1	2	2	2	2	16	ADJUSTMENT DISORDER	2	3
65	1	1	1	1	1	0	1	1	1	1	2	1	1	1	1	1	14	PANIC DISORDER	3	2

66	3	65	2	2	1	1	4	2	1	1	0	CA BREAST	2	2	2	1	2	1
67	3	64	2	2	1	1	4	2	1	1	0	CA OVARY	2	2	2	1	1	2
68	1	34	2	2	1	1	2	1	1	1	0	CA BREAST	2	2	1	2	2	2
69	3	57	2	2	2	2	2	3	1	1	0	CA BREAST	2	1	1	2	2	2
70	3	65	1	2	1	1	3	3	1	3	3	CA COLON	2	2	1	1	2	1
71	3	55	1	2	2	1	4	2	1	1	3	CA COLON	2	2	1	2	2	2
72	1	35	2	2	2	1	4	2	1	1	0	CA BREAST	2	2	1	2	1	2
73	3	64	1	2	1	2	2	1	1	1	3	CA PROSTATE	2	2	1	1	2	1
74	2	47	2	2	1	2	2	3	1	1	0	CA BREAST	2	1	1	2	1	1
75	1	35	2	2	2	2	4	3	2	3	0	CA BREAST	2	1	1	2	2	1
76	3	57	1	2	1	2	2	3	1	1	0	CA SARCOMA	2	1	1	1	2	1
77	3	60	2	2	1	2	3	1	1	1	2	CA CHEEK	2	1	1	2	2	1
78	3	60	1	2	1	1	4	3	1	3	3	CA CHEEK	2	1	1	2	2	1
79	2	43	1	2	1	2	3	1	1	1	2	CA CHEEK	2	2	1	2	1	2
80	2	50	2	2	1	2	4	1	1	1	0	CA BREAST	2	2	1	1	2	1
81	1	35	1	2	1	1	4	3	1	1	2	CA CHEEK	2	1	1	1	1	1
82	1	34	2	2	1	1	4	3	1	1	2	CA CHEEK	2	1	1	1	1	1
83	2	50	2	2	1	1	2	2	1	1	0	CA CERVIX	2	1	1	1	1	1
84	2	49	2	2	1	1	4	1	1	1	0	CA BREAST	2	2	1	2	2	2
85	2	49	2	2	1	1	4	1	1	1	0	CA BREAST	2	2	1	2	2	2
86	3	60	2	2	2	2	4	2	1	1	2	CA LIP	2	2	1	2	1	2
87	3	65	1	2	1	1	2	3	1	1	3	CA CHEEK	2	1	1	1	2	1
88	3	62	1	2	1	2	4	3	1	1	3	CA STOMACH	2	2	1	1	1	1

66	1	1	1	0	2	2	1	1	2	2	2	2	2	2	2	2	22	PTSD	2	3
67	1	1	1	0	0	2	1	1	1	1	1	1	1	1	1	1	14	NORMAL	1	1
68	1	1	1	0	1	1	1	1	1	1	1	2	1	2	1	1	13	ADJUSTMENT DISORDE	1	2
69	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	12	ADJUSTMENT DISORDER	1	1
70	1	1	1	0	1	1	2	1	1	1	1	1	1	1	1	1	13	ADJUSTMENT DISORDER	2	2
71	1	1	1	0	2	2	1	2	2	2	2	2	2	2	2	1	22	DEPRESSION	2	4
72	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	12	NORMAL	1	1
73	2	1	1	0	2	2	1	1	2	1	2	1	2	1	2	2	19	DEPRESSION	2	2
74	1	1	1	0	2	2	1	1	2	1	2	1	2	2	2	2	18	NORMAL	1	2
75	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	12	NORMAL	1	2
76	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	12	NORMAL	1	2
77	1	1	1	0	1	1	2	2	1	1	1	1	1	1	1	1	13	GAD	2	1
78	1	1	1	0	1	2	1	2	2	2	1	2	1	2	2	2	20	GAD	3	3
79	1	1	1	0	1	1	2	0	1	1	3	0	1	1	1	0	9	NORMAL	1	1
80	1	1	1	0	2	2	2	2	2	2	2	1	2	1	1	1	22	ADJUSTMENT DISORDER	2	2
81	1	1	1	0	1	1	1	1	2	2	2	2	1	1	1	1	16	ADJUSTMENT DISORDER	2	3
82	1	1	1	0	3	3	1	1	1	1	1	2	1	3	1	0	18	NORMAL	1	1
83	1	1	1	0	2	2	0	0	1	2	2	1	2	2	0	1	15	ADJUSTMENT DISORDER	1	3
84	1	1	1	0	0	1	1	1	1	1	1	1	1	1	1	1	11	NORMAL	1	1
85	1	1	1	0	2	2	1	1	2	0	2	1	0	0	1	0	12	DEPRESSION	2	3
86	1	1	1	0	1	2	1	2	1	3	1	1	2	1	2	1	18	NORMAL	2	1
87	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	12	NORMAL	1	2
88	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	12	NORMAL	1	1

89	3	65	1	2	1	1	4	3	1	1	2	CA BREAST	2	2	1	1	1	1
90	2	50	2	2	1	2	4	3	1	1	2	CA COLON	2	2	1	1	2	2
91	2	45	2	2	1	1	4	2	1	2	3	CA PAROTID	2	1	1	1	1	1
92	3	55	2	2	1	2	4	3	1	1	0	CA BREAST	2	1	1	1	1	2
93	2	45	1	2	1	1	4	3	1	1	3	MELANOMA	2	1	1	1	2	1
94	3	65	1	2	1	2	2	3	1	1	0	MELANOMA	2	1	1	2	2	2
95	3	58	2	2	1	2	4	1	1	1	2	CA TONGUE	2	1	1	1	2	1
96	3	60	2	2	1	2	4	3	2	3	2	CA BREAST	2	1	1	1	2	1
97	3	64	2	2	1	1	4	3	1	1	2	CA LIP	2	1	1	2	1	1
98	3	50	1	2	1	1	2	1	1	1	3	CA CHEEK	2	1	1	2	1	2
99	3	63	2	2	1	1	4	2	1	1	2	CA BREAST	2	2	1	1	2	1
100	3	65	2	2	1	1	4	3	1	1	2	CA BREAST	2	1	1	1	1	2

89	1	1	1	0	3	3	2	2	1	2	2	2	2	2	2	2	25	DEPRESSION	2	3
90	1	1	1	0	1	1	1	1	2	2	2	2	1	1	1	1	16	PANIC DISORDER	2	3
91	1	1	1	1	0	0	0	1	1	1	1	1	1	0	1	1	8	NORMAL	1	1
92	1	1	1	0	1	3	1	3	0	3	1	0	3	1	1	1	19	ADJUSTMENT DISORDER	3	2
93	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	12	ADJUSTMENT DISORDER	2	2
94	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12	NORMAL	1	1
95	1	1	1	1	1	1	2	2	1	1	1	1	2	1	1	1	15	ADJUSTMENT DISORDER	2	3
96	1	1	1	0	1	2	1	1	1	1	1	2	2	2	2	2	18	DEPRESSION	2	4
97	1	1	1	0	1	2	1	1	2	1	1	1	2	0	0	1	13	NORMAL	1	3
98	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	12	ADJUSTMENT DISORDER	2	2
99	1	1	1	0	1	0	1	1	1	1	1	1	1	1	1	1	11	NORMAL	1	1
100	1	1	1	0	1	1	1	1	1	1	1	1	1	1	1	1	12	ADJUSTMENT DISORDER	1	1