"A STUDY TO EVALUATE THE PREVALENCE OF DEPRESSION AND ANXIETY AND ITS IMPACT ON QUALITY OF LIFE IN CERVICAL CANCER PATIENTS IN A TERTIARY CARE HOSPITAL"

By

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Dissertation submitted to

SRI DEVARAJ URS ACADEMY OF HIGHER EDUCATION AND RESEARCH CENTRE, KOLAR

In partial fulfillment of the requirements for the degree of

DOCTOR OF MEDICINE (M.D.)

IN

PSYCHIATRY

Under the guidance of

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The Institutional Ethics Committee of Sri Devaraj Urs Medical College, Tamaka, Kolar has examined and unanimously approved the synopsis entitled **"A study to evaluate the prevalance of depression and anxiety and its impact on quality of life in cervical cancer patients in a tertiary care hospital"** being investigated by **Dr.Afra Shaz Rahimulla** & Dr.Mohan Reddy in the Department of Psychiatry at Sri Devaraj Urs Medical College, Tamaka, Kolar. **Permission is granted by the Ethics Committee to start the study.**

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ABSTRACT

BACKGROUND AND OBJECTIVE

Among women worldwide, cervical cancer is the fourth most common cancer to be diagnosed. In women, it ranks as the fourth most common cause of cancer related mortality. India accounts for 25% of the world's mortality rate as well. Women who have cervical cancer are more likely to be depressed and anxious.

Patients may experience severe adverse effects from the diagnosis and treatment of cervical cancer, which can significantly lower their quality of life. A cancer diagnosis is often accompanied by significant psychological distress. Multiple studies state the burden of psychiatric morbidities is notable in gynaecology clinic setting. Patients who have depression and anxiety concurrently tend to experience more severe symptoms, require longer period for recovery, use more healthcare resources, and generally face worse prognosis compared to individuals with only one of these disorders. Therefore, evaluation of cancer patients should include persons take on the disease, medical, personal and family history of psychiatric co-morbidities along with suicidal tendencies. The present mental and physical condition, treatment side effects and their impact on health are crucial factors to consider. Therefore, the main objective of this research is to evaluate the prevalence of anxiety and depression among the subjects with cervical cancer and to investigate relationship between these conditions and quality of life.

METHODOLOGY

This cross-sectional observational research study was carried out at B.L. Jahappa Hospital, a teaching hospital of Sri Devaraj Urs Medical College, a constituent college of Sri Devaraj Urs Academy of

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"A STUDY TO EVALUATE THE PREVALANCE OF DEPRESSION AND ANXIETY AND ITS IMPACT ON QUALITY OF LIFE IN CERVICAL CANCER PATIENTS IN A TERTIARY CARE HOSPITAL" ABSTRACT BACKGROUND AND OBJECTIVE Among women worldwide, cervical cancer is the fourth most common cancer to be diagnosed. In women, it ranks as the fourth most common cause of cancer related mortality. India accounts for 25% of the world's mortality rate as well. Women who have cervical cancer are more likely to be depressed and anxious. Patients may experience severe adverse effects from the diagnosis and treatment of cervical cancer, which can significantly lower their quality of life. A cancer diagnosis is often accompanied by significant psychological distress. Multiple studies state the burden of psychiatric morbidities is notable in gynaecology clinic setting. Patients who have depression and anxiety concurrently tend to experience more severe symptoms, require longer period for recovery, use more healthcare resources, and generally face worse prognosis compared to individuals with only one of these disorders. Therefore, evaluation of cancer patients should include persons take on the disease, medical, personal and family history of psychiatric co morbidities along with suicidal tendencies. The present mental and physical condition, treatment side effects and their impact on health are crucial factors to consider. Therefore, the main objective of this research is to evaluate the prevalence of anxiety and depression among the subjects with cervical cancer and to investigate relationship between these conditions and quality of life. METHODOLOGY This cross-sectional observational research study was carried out at R.L.Jalappa Hospital, a teaching hospital of Sri Devaraj Urs Medical College, a constituent college of Sri Devaraj Urs Academy of Higher Education and Research. All in-patients diagnosed with cervical cancer meeting study criteria were interviewed and a pretested, semi structured proforma applied for clinical socio demographic profile, relevant scales that is HAM-A, HDRS and EORTC QLQ-C30were applied after obtaining informed consent for same. RESULTS Of the 76 patients studied following findings were revealed-53.8 years was the average age of subjects in this study. Majority of the research subjects were found to be illiterate (71%), daily wage workers (54%), belonging to BPL category (96%) living in a nuclear setup (68%), bearing 1-3 children (62%), married between15-25 years (74%) and diagnosed within timeframe of 4-26 weeks (79%). A large proportion of study subjects (39%) were diagnosed with cervical cancer, stage 3b. Majority of patients were noted to suffer from moderate-severe anxiety (48.7%) as well as moderate depression (39.5%), along with moderate quality of life (67.1%). The HDRS scores correlated with carcinoma stage showed statistical significance (P=0.0001). Stage 3b, 3c, 4a had severe depression compared to 2b. Patients without formal education had better quality of life when compared to literate (P=0.003). Association of QoL and occupation of the patients also showed statistically significant results (P=0.0079) revealing employed participants to have better QoL compared to unemployed. Correlation of degree of anxiety and depression resulted in P=< 0.01which was significant, likewise was correlation of QoL and level of anxiety (P=0.0048). The association of life quality and depression levels also showed significance (P=0.0002) CONCLUSION This research highlights anxiety and depression prevalence women with carcinoma cervix with moderate quality of life. Cervical cancer is easily treatable if diagnosed early but the burden worsens with coexisting psychiatric morbidities which also impacts the compliance of treatment, mortality and prognosis of the cancer. This study throws light on the need for comprehensive approach to treatment of cervical cancer patients by addressing their mental health and necessary intervention to improve overall outcome in individuals afflicted with cancer of cervix. KEYWORDS: Cervical cancer, depression, anxiety, quality of life, HDRS, HAMA, EORTC QLQ-C30 INTRODUCTION INTRODUCTION: Cancer significantly affects morbidity and mortality globally (1, 2). Genital organ and breast cancer are frequently diagnosed cancer in women. (3,4,5). These cancers are known to have negative effect on patients' quality of life. Among women worldwide, cervical cancer is the fourth most common cancer to be diagnosed. In women, it ranks as the fourth most common cause of cancer related mortality (10). India accounts for 25% of the world's mortality rate as well (11). Back in 2005, around 250,000 deaths were linked to this disease, with over 80% occurring in developing nations like India. Experts predict that this number could jump by 25% in the near future. Most women affected by cervical cancer are in their

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Gratitude is nothing if not heartfelt. On that note I would first and foremost offer my gratitude to Almighty. Writing one's thesis acknowledgement is such a fulfilling experience in itself. It's a labour of love. I thank God for bestowing upon me this feeling and honor of having purpose in life.

Being a psychiatric resident, it's worth reflecting that Psychiatry in its essence is rooted in how man is a social being. If that aspect is hampered everything goes haywire. We all are exactly where we belong but there are a lot of people who help us get there. Here is where I would like to thank all those people who have played a significant role in my life and helped me get here.

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For where I stand, I am grateful.

Date: Signature of Candidate

Place: **DR. AFRA SHAZ RAHIMULLA**

LIST OF ABBREVIATIONS

WHO	World health organizations
CC	Cervical Cancer
HPV	Human papilloma virus
CCRT	Concurrent chemoradiotherapy
QoL	Quality of life
HDI	Human development index
GBD	Global burden of disease
DALYs	Disability adjusted life years
GAD	Generalized anxiety disorder
CBT	Cognitive behavioral therapy
SSRIs	Selective serotonin reuptake inhibitors
HAMA	Hamilton anxiety rating scale
HDRS	Hamilton depression rating scale
EORTC QLQ-C30	European organization for the research and treatment of cancer Quality of life questionnaire
GABA	Gama amino butyric acid
DSM	Diagnostic and statistical manual
MDD	Major depressive disorder
HRQoL	Health related quality of life
CCS	Cervical cancer survivors
SES	Socioeconomic status
FIGO	International federation for gynecology and obstetrics classification
HADS	Hospital anxiety and depression scale

SEER	Surveillance, Epidemiology and End Results Program
NCRP	National Cancer Registry Program
CIN	Cervical Intraepithelial Neoplasia
OC Pills	Oral Contraceptive Pills
FIGO	International Federation Of Gynecology and Obstetrics
AJCC	American Joint Committee on Cancer
TNM	Tumor, Node, Metastass
NCBIR	National Center for Disease Information and Research
ICMR	Indian Council of Medical Research
SSRIs	Selective Serotonin Reuptake Inhibitors
IL6	Interleukin 6
CRP	C Reactive Protein
DSM-5-TR	Diagnostic and Statistical Manual of Mental Disorders, 5th edition, Text Revision

ABSTRACT

BACKGROUND AND OBJECTIVE

Among women worldwide, cervical cancer is the fourth most common cancer to be diagnosed. In women, it ranks as the fourth most common cause of cancer related mortality. India accounts for 25% of the world's mortality rate as well. Women who have cervical cancer are more likely to be depressed and anxious.

Patients may experience severe adverse effects from the diagnosis and treatment of cervical cancer, which can significantly lower their quality of life. A cancer diagnosis is often accompanied by significant psychological distress. Multiple studies state the burden of psychiatric morbidities is notable in gynaecology clinic setting. Patients who have depression and anxiety concurrently tend to experience more severe symptoms, require longer period for recovery, use more healthcare resources, and generally face worse prognosis compared to individuals with only one of these disorders. Therefore, evaluation of cancer patients should include persons take on the disease, medical, personal and family history of psychiatric co morbidities along with suicidal tendencies. The present mental and physical condition, treatment side effects and their impact on health are crucial factors to consider.

Therefore, the main objective of this research is to evaluate the prevalence of anxiety and depression among the subjects with cervical cancer and to investigate relationship between these conditions and quality of life.

METHODOLOGY

This cross-sectional observational research study was carried out at R.L.Jalappa Hospital, a teaching hospital of Sri Devaraj Urs Medical College, a constituent college of Sri Devaraj Urs Academy of Higher Education and Research. All in-patients diagnosed with cervical cancer meeting study criteria were interviewed and a pretested, semi structured proforma applied for clinical socio demographic

profile, relevant scales that is HAM-A, HDRS and EORTC QLQ-C30were applied after obtaining informed consent for same.

RESULTS

Of the 76 patients studied following findings were revealed- 53.8 years was the average age of subjects in this study. Majority of the research subjects were found to be illiterate (71%),

daily wage workers (54%), belonging to BPL category (96%) living in a nuclear setup (68%), bearing 1-3 children (62%), married between15-25 years (74%) and diagnosed within timeframe of 4-26 weeks (79%). A large proportion of study subjects (39%) were diagnosed with cervical cancer, stage 3b. Majority of patients were noted to suffer from moderate-severe anxiety (48.7%) as well as moderate depression (39.5%), along with moderate quality of life (67.1%).

The HDRS scores correlated with carcinoma stage showed statistical significance (P=0.0001). Stage 3b, 3c, 4a had severe depression compared to 2b. Patients without formal education had better quality of life when compared to literate (P=0.003). Association of QoL and occupation of the patients also showed statistically significant results (P=0.0079) revealing employed participants to have better QoL compared to unemployed. Correlation of degree of anxiety and depression resulted in P=< 0.01which was significant, likewise was correlation of QoL and level of anxiety (P=0.0048). The association of life quality and depression levels also showed significance (P=0.0002)

CONCLUSION

This research highlights anxiety and depression prevalence women with carcinoma cervix with moderate quality of life. Cervical cancer is easily treatable if diagnosed early but the burden worsens with coexisting psychiatric morbidities which also impacts the compliance of treatment, mortality and prognosis of the cancer. This study throws light on the need for comprehensive approach to treatment of cervical cancer patients by addressing their mental health and necessary intervention to improve overall outcome in individuals afflicted with cancer of cervix.

KEYWORDS:

Cervical cancer, depression, anxiety, quality of life, HDRS, HAMA, EORTC QLQ-C30

TABLE OF CONTENTS

LIST OF TABLES

LIST OF GRAPHS

INTRODUCTION

INTRODUCTION:

Cancer significantly affects morbidity and mortality globally [1, 2]. Genital organ and breast cancer are frequently diagnosed cancer in women [3,4,5]. These cancers are known to have negative effect on patients' quality of life [6-9].

Among women worldwide, cervical cancer is the fourth most common cancer to be diagnosed. In women, it ranks as the fourth most common cause of cancer related mortality [10]. India accounts for 25% of the world's mortality rate as well [11]. Back in 2005, around 250,000 deaths were linked to this disease, with over 80% occurring in developing nations like India. Experts predict that this number could jump by 25% in the near future. Most women affected by cervical cancer are in their reproductive years and have dependents, such as children, family, or parents.

Cervical cancer can be preventable and treatable. Most of these cancers arise from infection the human papillomavirus (HPV). Currently, more than a million women are to be living with this condition. Every eight minutes, a woman in India loses her life to cervical cancer. Cervical cancer patients have greater rates of depression and anxiety in comparison with general women population[12]. Being diagnosed with carcinoma cervix is linked to significant psychological distress[13].According to many studies the burden of psychiatric morbidities is notable in gynecological setting [14,15,16].

Patients who have depression and anxiety concurrently tend to experience more severe symptoms, require longer period for recovery, use more healthcare resources, and generally face worse prognosis compared to individuals with only one of these disorders.

Depression includes feeling down, having trouble making decisions or concentrating, lacking energy, losing interest in things they used to enjoy, experiencing sleep and appetite changes, feeling restless or slowed down, and having thoughts of ending their own life [17, 18]. Depression can have major

negative influence on one's quality of life and immune system which can have negative effect on prognosis as well [19, 20].

The standard treatments for cervical cancer include hysterectomy for stage 1A patients, radical hysterectomy with lymph node removal for stage 1B patients, and a combination of external radiation therapy, brachytherapy, and chemotherapy for more advanced cases[21]. Since survival rates for cervical cancer survivors are typically high after five years following treatment completion, it's essential to focus on their outcomes and QoL[22].

Women experience various side effects due to the cervical cancer treatment and also the diagnosis itself can negatively affect quality of life. These side effects may include sleep disturbances and fatigue [23]; problems with urination [24]; gastrointestinal issues like nausea and bowel obstruction [23]; lymphedema [22-23]; sexual difficulties such as pain during intercourse[24] or loss of interest; menopausal symptoms; infertility [22-24]; as well as psychological distress like depression and anxiety[24]. Additionally, those who undergo chemotherapy may experience delayed symptoms such as sleep issues, low mood, and fatigue [24].Women's sexuality is also affected due to the stress of anticancer therapies [24]. Therefore, evaluation of cancer patients should include persons take on the disease, medical, personal and family history of psychiatric co morbidies along with suicidal tendencies.

The present mental and physical condition, treatment side effects and their impact on health, with life related stress factors, and the support available are crucial factors to consider [25]**.** Apart from physical discomfort, cancer patients must cope with financial burdens and emotional distress [26, 27].

Cervical cancer have been a huge social and economic burden in developing countries like India, also there is limited research on its psychological impact. There is a crucial need for studies focusing on mental health issues related to this disease. The aim of this study is to uncover the prevalence of anxiety and depression in cervical cancer patients along with its effect on quality of life.

AIMS AND OBJECTIVES

AIM AND OBJECTIVE

AIM:

- To establish the association between anxiety, depression and its influence on quality of life in cervical cancer patients.

OBJECTIVES:

- To study prevalence anxiety and depression in patients with confirmed cervical cancer diagnosis
- To assess the quality of life in patients with confirmed cervical cancer diagnosis

REVIEW OF LITERATURE

CERVICAL CANCER:

Abnormal and unchecked proliferation of cervical cells leads to cervical cancer, typically arising from the intersection between squamous cells and columnar epithelial cells which is the cervical canal lining. This cancer often develops slowly, beginning with dysplasia in cervical cells exposed to oncogenic factors. If left untreated, these abnormal cells can progress to become malignant and proliferate uncontrollably [28].

Histologically, cervical cancer is categorized into adenocarcinoma (AC, developing in the endocervix) and squamous cell carcinoma (SCC, developing in the ectocervix). SCC constitutes the majority, which accounts for approximately 70% of cases[29]. Human papillomavirus (HPV) is prominently linked with etiology of this cancer, which is detected in nearly 99.7% of these cases [30]. This infection progresses to cause dysplastic cells and finally leading to cancer.

HPV has two variants described as low risk and high risk depending on its potential to cause precancerous, benign or cancerous legion [31]. Chronic high risk HPV 16 or 18 infections has been correlated to high grade disease, with 70% of the cases associated to it [32,33].

In India, HR HPV is associated with 7% to 13% infections with HPV 16 and 18 subtypes which are predominant [34]. The progression from HPV infection to CIN typically takes between 2 to 15 years, while progression from CIN to advanced stages usually occurs over 10 to 20 years [35,36].

RISK FACTORS-

Age- Cancer cervix, affects females across all age groups, although the highest vulnerability is typically observed between 35 and 55 years. According to Zeller et al. (2007), the peak age varies among different populations, displaying a bimodal pattern with the first peak occurring between 30 and 40 years and a second peak between 65 and 70 years [37]. India reported highest cases among the 45 to 54 years age group [38].

Ethnicity- The incidence rate and the mortality rate (per 100,000 population) differ across different ethnic groups in USA as reported by the SEER program [39]:

- American Indian/Alaska Native: Incidence of 10.1 and mortality rate of 2.9 is reported
- Hispanic American: Incidence of 10 and a mortality rate of 2.5
- Non-Hispanic Black American: Incidence of 9 and a mortality rate of 3.3
- Non-Hispanic White American: Incidence of 7.1 and a mortality rate of 2
- Asian American or Pacific Islander: Incidence of 6.3 and a mortality rate of 1.6

Socioeconomic status- Socioeconomic status has significant association on incidence rate and mortality among cervical cancer patients. Regions associated with lower and medium HDI levels exhibit substantially higher rates of CC compared to regions with higher HDI levels. Education and years of schooling, components of HDI, also play a crucial role in shaping these rates [40]. There is a clear reduction in rate of cervical cancer with the increase in HDI [41].

Socioeconomic disparities among different countries significantly influence compliance with cervical cancer screening programs [42].

Sexually Transmitted Infections-

Chlamydia Trachomatis-

Koskela et al., found a strong correlation between Chlamydia trachomatis infection and cervical cancer. Specifically, this bacterial DNA was found in 40% of infected squamous cells in cervical cancer patients. The infection may elevate this risk by potentially increasing susceptibility to HPV infection or enhancing its effects. Chronic C. trachomatis infection induces inflammation, which can generate reactive oxygen species, thereby damaging DNA and potentially facilitating HPV-associated carvers [43].

Additionally this infection diminishes the clearance of HPV infection leading to further chronic infection which cervical hypertrophy and squamous metaplasia [44]. This squamous metaplasia

resulting from this process makes the subject more vulnerable to HPV infection which in turn heightens the chances of developing cervical cancer.

HIV - This infection makes the subject more vulnerable to HPV infection which in turn heightens the chances of developing cervical cancer, particularly during periods of immune suppression. Studies consistently show that patients who are HIV positive are at high risk developing cervical precancerous legions , with a stronger association observed among those with lower CD4/T-lymphocyte counts [45, 46].

Furthermore, women co-infected with HIV and HPV have greater chances of developing these legions compared to women infected with either of the infections [47]. A meta analysis study suggests that women infected with HPV, regardless of its type have double the chances of contracting HIV infection [48]. Research also highlights that patients infected with HIV are at greater risk of developing chronic HPV infection with various oncogenic strains, more anomalous paps smear results and higher chances of CIN and advanced cervical cancer [49,50].

Herpes Simplex Virus- Smith et al. suggested that HSV-2 antibodies in the serum are associated with advanced cervical cancer and squamous cell carcinoma [51].

Sexual and Reproductive Factors:

Sexual Partners: Women having more sexual partners are at high risk of contracting HPV infection leading to cervical cancer [52]. Liu et al. in their study concluded that even after the control of HPV infection, the chances of developing cervical cancer remains elevated, suggesting additional factors may contribute to this association. Moreover, first intercourse at early part of life poses higher chances of developing cervical cancer [53].

Parity Factor: Majority of the studies have found that term pregnancy is strongly associated with developing invasive cervical cancer [54]. Additionally, higher parity also heightens the risk of this cancer [55]. Direct correlation has been established between cervical cancer and parity according to an

international epidemiological research. Whereas, there is no correlation found between this cancer and age at first pregnancy [56].

According to a cohort study(over 13 years) childbirth was one of the strong predictor for developing CIN grade 3, whereas significant correlation could not be established in this study with HR HPV infection in infected women [57]. Furthermore, Drain et al., concluded that countries with higher number of cervical cancer also tend to have higher total fertility rates and lower age for the first childbirth [58].

OC Pills: There is a strong correlation established between recent use OC pills and cervical cancer [59]. If the usage of OCs exceeds duration of 5 years, it doubles the chances of developing this cancer. Additionally, women using injectable progesterone for the duration of 5 years or more are strongly associated with developing invasive cervical cancer [60].

Women infected with HPV and had also taken OC pills more than 5 years had 3 times higher chances of developing cervical cancer according to a multi centre trial [61].

Lifestyle &Behavioral Factors-

Smoking- Smoking has consistently been linked to developing of CC [62]. Research indicates that the risk of carcinoma decreases by 50% among individuals who quit smoking for at least 10 years compared to those who continue smoking. According to this study there is no correlation of cervical cancer with passive smoking.

Smoking can elevate the risk of carcinoma cervix via various mechanisms. Tobacco metabolites locally induce immune suppression, whereas nicotine and its metabolites have direct effect on damaging DNA of squamous cells [63].

Obesity – Women with high BMI has high chances of developing CC, particularly cervical adenocarcinoma which has association with the hormonal factors [64,65]. In addition to its hormonal effects, obesity correlates with lower rates of CC screening in subjects [66].

Nutritional & Dietary Factors-Nutritional and dietary factors have garnered significant attention in recent years regarding their effect on cancer etiology and its prevention but many studies also found no significant correlation regarding the same [67,68,69].

According to a study 50 % less chances of developing CIN grade 3 was found in people with higher levels of α and γ tocopherol, higher intake vegetables and fruits (yellow in particular) [70]. Additionally, in a study done by Ghosh et al., in 2008 it was found that intake of healthy diet like Vit C, folate, Vit E, beta carotene, Vit A with decreased incidence of cervical cancer [71]. These nutrients are known for their antioxidant properties and potential protective effects against cancer development.

Host Factors- A case-control study identified certain genetic polymorphisms in hosts that may be linked with cervical cancer, specifically those affecting cellular immune response and antigenic processing [72]. Additionally, a strong correlation is found between host genetics and cervical cancer at critical stages, including persistence of HPV infection and disease progression [73].

DETECTION & DIAGNOSIS-

Cervical cancer is uniquely well-understood among cancers, enabling effective management and prevention [74]. Recognizing symptoms and promptly seeking medical advice are crucial. Following are the warning signs which needs medical advice: vaginal discharge, abnormal bleeding between the periods, bleeding after menopause and sex, loss of appetite and weight, vaginal discomfort, pelvic pain, leg pain and swelling.

Regrettably, 80% of women seek medical advice in developing countries only after developing symptoms [75]. The diagnosis of cervical cancer relies on histological finding of biopsy of cervix.

A thorough examination of pelvis is crucial in women present with the warning signs mentioned above. Upon speculum examination, the findings may be a lesion or cervix may appear normal or the

cervix might appear completely replaced by the tumor. Biopsy should be taken from visible lesion irrespective of prior benign cervical biopsy results.

For staging purposes, a detailed pelvic examination is essential. This includes a rectovaginal examination to assess the size of the tumor and determine if there is involvement of the vagina or parametrium.

Cervical cytology - Cervical cytology, commonly known as Pap smear, is the primary screening tool in USA and many other countries.

Paps smear is conducted for diagnosis of this cancer or as a part of staging the tumor. The biopsy approach depends on the pelvic examination and patients symptoms [(76)].

STAGING-

The staging for cervical cancer is given by FIGO in 2018. Other staging systems are AJCC and TNM.

Broadly classified in 4 stages

STAGE 1- is again subtyped as 1A and 1B.

Cancer is in its early stage and is limited to the cervix. It is only microscopic.

1A1- cancer invasion is less than 3mm into cervix

1A2- cancer invasion is 3-5mm into cervix

Then in 1B the cancer invasion is more than 5mm deep. It is again subclassified as

1B1- tumor measures less/equal to 2cms

1B2- tumor measures 2-4cms

1B3- tumor measures more than 4cms.

FIGO stage 1A, B1 and 1B2 is referred to as early stages of the disease. The prognosis for localized cervical cancer is 91% in terms of 5 year survival rate.

STAGE 2- has 2A and 2B subtypes.

In this stage broadly cells have spread to the tissue around the uterus or the upper 2/3rd of the vagina.

2A- spread to upper 2/3rds of vagina. It is again sub staged as

2A1- tumor measures less than 4cms

2A2- tumor measures more than 4cms

2B- in this stage cancer cells have spread to surrounding uterine tissue as well.

STAGE 3- This stage of cancer involves the lower 1/3rd of vagina. It can also involve adjacent pelvic wall and lymph nodes. There may be impairment in kidney function also. It is sub categorized as 3A, 3B and 3C.

3A-tumor extends to lower 1/3rd of vagina sparing the adjacent pelvic wall.

3B- tumor involves adjacent pelvic wall. Tumor size is large enough to cause nonfunctioning of kidney or hydroureteronephrosis.

3C- this stage shows involvement of lymph nodes as well. Based on nodes involved sub classified as

3C1- pelvic lymph node involvement

3C2- paraaortic lymph node involvement

STAGE 4- In this stage, the cancer might have spread to other organs like bladder, rectal wall and other organs away from the pelvis which is confirmed by biopsy.

4A- cancer involvement of adjacent pelvic organs

4B- spread of cancer to other organs away from pelvis

The survival rate for stage 4 for obvious reasons is very poor and stands as 19%

Locally advanced stage cervical cancer by definition includes FIGO stages 1B3 to 4A

In our study the sample size inclusion was for stages 2b to 4a.

The treatment options for stages 2b to 4a include concurrent chemo-radiational therapy and removal of pelvic lymph nodes.

Effective management pathways for invasive cancer are critical in ensuring timely referral and comprehensive support. Key elements of quality care encompass a multidisciplinary team that prioritizes diagnostic procedures such as histological testing, pathology, and imaging before

determining treatment strategies. Treatment decisions are guided by national guidelines and complemented by holistic care that addresses psychological, physical, and palliative needs.

CARCINOMA CERVIX- PICTURE ACROSS THE GLOBE

Among women worldwide, cervical cancer is the fourth most common cancer to be diagnosed. In women, it ranks as the fourth most common cause of cancer related mortality. 604,000 CC cases were estimated to be diagnosed in 2020 and 342,000 CC related death were seen globally. It is 7th most commonly diagnosed cancer in general. Countries like South America, SE Asia, Melanesia, sub Saharan are in the top of this list. Whereas in countries like West Asia, New Zealand, Australia, Northern America the incidence is lower by 7 to 10 times.

The incidence rates are 18.8 vs 11.3 per 100,000 population and mortality rates are 12.4 vs 5.2 per 100,000 population in transitioning versus transitioned countries, which is very disproportionate [(10)].

HDI and poverty rates together explain more than 52% of the variability in mortality rates worldwide [(77)]. Approximately 94% of the 350,000 deaths are attributed to cancer cervix in lower and middle socioeconomic countries [(78)].

In countries with low and middle HDI, CC is the leading cause of death due to cancer [(79)].

Age standardized incidence rate, mortality rate and DALYs is highest in Sub Saharan Africa especially the southern and central parts reported by GBD [(80)]. Cancer cervix is one of the highest cause of DALYs [(81)]. It results in loss of 9 million DALYs, contributing significantly to the public health burden [(82)].

In low-income regions, the age-standardized incidence is reported to be 23.8/100,000 women population compared to 8.3/100,000 in countries with high income. Mortality rates also follow the same trend [(83)]. Geographically, Asia reported the highest number of new cases in 2018, with 315,346 newly detected cases which amounts to 55.3% of global burden [(84)].

Globally in last three decades, the annual deaths have increased and are estimated to be 184,527 and 280,479 in 1990 and 2019 respectively. Overall cervical cancer has high incidence in Asia and Africa in comparison to North America and Europe [85].

CARCINOMA CERVIX- THE INDIAN SETTING

Asia contributes to greater than 58% to global burden, followed by 22 % by Africa, 9% Latin America and 10% by Europe. Specifically, India contributing to 23% and China 17% of cancer related death.

The total female population is estimated at 662.903 million. Cervical cancer cases numbered 123,907, representing 20.5% of the global burden. The age standardized incidence is 18.0/100,000 women years worldwide (95% CI: 17.9–18.1). Deaths due to cervical cancer amounts to total of 77,348,which amounts for 22.6% of global mortality. The age standardized mortality rate worldwide is 11.3/100,000 women years (95% CI: 11.3–11.4) [41].

The NCRP started in 1982 is managed by National centre for disease information

The NCRP has been operational since 1982, and it is managed by NCDIR, an institute if ICMR. This institute serves as the primary repository for data collected from 29 hospitals based and 29 registries that are population based, which are located across the country in hospitals, medical colleges and few medical institutes. According to this data CC contributes to about 6-29% of registered cases. Mizoram State reported the highest incidence at 23.07 per 100,000 population, followed closely by Pasighat at 22.54 per 100,000. In contrast, Dibrugarh district had the lowest rate at 4.91 per 100,000.

Among the older Population-Based Cancer Registries (PBCRs) such as Bengaluru, Bhopal, Chennai and Delhi, the age adjusted incidence is 13-16/100,000 population for CC [86]. More than 85% of cervical carcinoma patients were aged 40 years and older. A peak of 27.3% cases were recorded among the subjects in the age between 50-59 years. [86]. Cancer registries in India reported age

adjusted incidence rates more than global data of 7.9/100,000 but less than data reported by South east Asian countries of 19.2/100,000 population [87].

Further India reported a 5 year survival rate of around 46% that is probably lower when compared to the South east Asian countries like Thailand, Singapore, China and South Korea [88].

From 1990 to 2019, Tamil Nadu consistently recorded the high rate of mortality in India. The mortality rates per 100,000 women were 20.73 in 1990, 18.62 in 2000, 13.53 in 2010, and 11.56 in 2019 [89].

According to the same study, the mortality due to this cancer is reducing in India over last 30 years, which probably wide coverage of vaccine and early screening programs. However, cervical cancer is still a significant burden to public in the country, necessitating comprehensive intervention and addressal strategies.

ANXIETY

Definition:

Anxiety, ubiquitous yet often misunderstood, stands as one of the most prevalent mental health disorders globally, profoundly impacting individuals across all demographics. It is defined as "apprehension, tension, or uneasiness that stems from the anticipation of danger, which may be internal or external" [90].

Clinical Manifestations:

Anxiety disorders manifest through a variety of symptoms, both psychological and physical. GAD patients also have symptoms of tension and worrying excessively, often without any specific trigger, which can interfere significantly with daily life. Generalized Anxiety Disorder (GAD) typically

involves persistent worry across various aspects of life for a minimum of 6 months, often co-occurring with other psychiatric conditions [(91)].

Panic disorder presents as abrupt and intense fear episodes frequently associated with symptoms such as palpitations, breathlessness and sweating. Phobia involves irrational fear of certain situations and objects which leads to behavior of avoidance that impairs social and occupational functioning.

Social phobia or social anxiety disorder is defined as fear of social situations, which leads to avoidance of social interactions [(92)].

Etiology:

Genetics and environmental factors along with neurobiological factors influence the development of anxiety disorder. Research suggests a strong correlation between family history of anxiety disorder and actually developing it with patients having such genetic predisposition. Certain anxiety disorders, such as panic disorder, seem to have a more pronounced genetic influence compared to others[(93)]. The reasons for higher prevalence rates among females compared to males in most anxiety disorders are not fully understood, although theories have proposed a potential role for gonadal steroids[(94)]. Neurobiologically, anxiety disorders involve imbalances in neurotransmitters like serotonin and norepinephrine, which play critical roles in regulating mood and stress responses. Additionally, environmental stressors such as trauma and chronic stress are contributing factors for developing and worsening the anxiety disorder.

Treatment Modalities:

The effective management of anxiety disorders often requires a comprehensive approach customized to each individual's specific needs. Psychotherapy, especially cognitive-behavioral therapy (CBT), is widely acknowledged as a fundamental component of treatment. This treatment modality aids in identifying and modifying maladaptive thought patterns and behaviors which leads to anxiety. Pharmacotherapy is another important aspect of treatment. Benzodiazepines and SSRIs are helpful in

relieving symptoms of anxiety and prevent its recurrence [95]. Regular exercise, stress management techniques, adequate sleep, and other self-care practices contribute significantly to managing anxiety symptoms effectively.

Challenges and Future Directions:

Despite advances in understanding and treatment, challenges persist in the management of anxiety disorders. Stigma surrounding mental health, limited access to specialized care, and variability in treatment response underscore the need for continued research and advocacy. Future directions in anxiety research aim to elucidate novel therapeutic targets, refine diagnostic criteria, and enhance personalized treatment approaches through the integration of genetic profiling and neuroimaging technologies.

Assessing anxiety involves the use of various scales and tools. These scales are essential in clinical practice for accurate diagnosis, treatment planning, and monitoring progress. Most commonly used scale to assess anxiety is:

Hamilton Anxiety Scale (HAM-A)-

- This is most commonly used scale for anxiety.
- This scale comprises of 14 items evaluating psychological and somatic anxiety symptoms such as tension, fears, insomnia, and cardiovascular.
- Every item of this scale has 0 to 4 rating scale in which 0 indicates symptom free whereas 4 indicate very severe symptom.

Other scales commonly used are

Anxiety is a significant concern for individuals diagnosed with cervical cancer, impacting both patients and their caregivers throughout the treatment journey. Cervical cancer poses unique challenges that contribute to anxiety among affected individuals.

Diagnosis and Initial Impact:

Receiving a diagnosis of cervical cancer often induces profound emotional distress. Anxiety can arise from the uncertainty surrounding the disease's prognosis, concerns about treatment options and their potential side effects, as well as fear of mortality. The emotional burden is exacerbated by the sudden disruption of life plans, including work, family, and personal goals, leading to a sense of loss of control and future uncertainty.

Treatment Phase:

Various treatment modalities of CC may include surgery, chemotherapy, radiotherapy or the combination of 2 or more of these treatment modalities which is very stressful and further adds to the present anxiety of the patients which was already present due to the news of diagnosis.

Patients may experience anticipatory anxiety related to upcoming procedures, fear of pain or discomfort, worries about treatment efficacy, and concerns about potential changes in bodily function, such as infertility or sexual dysfunction. The side effects of treatment, like fatigue, nausea, and hair loss, can also impact emotional well-being and exacerbate anxiety symptoms[(96)].

Psychosocial Impact:

Psychosocial factors significantly influence anxiety in cervical cancer patients. Social support from family, friends, and healthcare providers plays a crucial role in managing anxiety levels. However, feelings of isolation, stigma related to HPV infection, and cultural beliefs about cancer can contribute to heightened anxiety. Financial concerns, including the cost of treatment and potential loss of income, add additional stressors that impact emotional health[(97)].

Management and Support:

Effective management of anxiety in cervical cancer patients requires a multidisciplinary approach. Psychosocial interventions, like CBT, mindfulness-based stress reduction (MBSR), and support groups, can help patients cope with anxiety symptoms. Pharmacological interventions, such as anxiolytic medications prescribed by healthcare providers, may also be beneficial for managing acute anxiety episodes.

DEPRESSION:

"Depression can refer to a mood state, which may be normal or part of a psychopathological syndrome; it can also describe a syndrome consisting of symptoms and signs (e.g., major depression or minor depression), or denote a distinct clinical condition such as unipolar major depression" [(98)].

Pathophysiology-

According to the monoamine-deficiency theory, depression's core pathophysiology involves a deficiency in neurotransmitters such as norepinephrine, dopamine or serotonin in the brain. Serotonin has been particularly highlighted in depression research. Additionally, variation of excitatory neurotransmitter like glycine and glutamate together with inhibitory neurotransmitters such as GABA are associated in the etiology of depression. GABA inhibits the monoamine pathway such as mesolimbic and mesocortical system which in turn has antidepressant effect [(99)].

The exact cause of depressive syndromes in cancer patients remains unclear. Possible contributing factors include:

●Patient factors –

- Cancer diagnosis leading to stress and emotional disturbance
- Genetic predisposition like family or self history of depression
- Missing family support
- Anxiety of loosing loved ones and feeling insecure, which leads to attachment anxiety
- Lack of proper medical care and counseling.
- Coping behaviors, like substance abuse which can lead to intoxication, further leading to withdrawal which have impact on the disease [(100, 101, 102)]
- Other stressors like job loss, and interpersonal discord

● Disease factors:

- Advanced disease such as distant metastasis e.g. to brain
- More severe symptoms of cancer which are debilitating like pain and more number of symptoms

- Symptoms of cancer and its treatment that disables to carry on routine and functional activities

- Release of proinflammatory markers like cytokines

- Deregulation of hormones of neuroendocrine process like nocturnal elevation of cortisol [100, 101, 103]

For instance, a meta-analysis involving over 5,000 cancer patients across 54 studies showed that levels of TNF, CRP, IL-6 in blood were predominant in depression, with a clinically significant effect size ranging from moderate to strong[104].

● Treatment factors -

- Neurotoxic effects of certain cancer treatment drugs, like vincristine, vinblastine, androgen deprivation therapy, buparlisib, steroids like glucocorticoids [100, 101].

- Release of cytokines which are associated with depression caused while tissue destruction because of certain treatment modalities and medications.

Depression can be described as disturbances in:

- Emotion –Individuals with depression experience a depressed mood characterized by sadness or emotional numbness. Some may exhibit intense emotional distress, while others may appear emotionally flattened or indifferent ("blahs"). Anxiety and irritability can also be prominent features alongside depression symptoms.
- Ideation or cognition – Cognitive symptoms include impaired concentration, memory issues, feeling of inadequacy or self blame and contemplation of death or thought of suicide (DSM-5-TR). Other cognitive features may involve feelings of hopelessness, helplessness, and persistent negative rumination.
- Somatic function- In depression the somatic symptoms are disturbance in sleep, alteration of appetite and weight, change of energy levels, libido and other psychomotor activities. Changes such as sleep pattern (insomnia or hypersomnia), appetite or weight (loss or gain), and psychomotor activity can vary bidirectionally, though typical features include insomnia and decreased appetite.

SYMPTOMS:

● Mood- Depressed mood or dysphoria can manifest in various ways, including feelings of sadness, hopelessness, discouragement, feeling "blue," or being "down in the dumps."

Patients experiencing dysphoria may initially deny feeling sad and instead describe feelings of anxiety, emptiness, or emotional numbness ("blah"). Some individuals may display sadness through tearfulness or appear visibly sad despite not acknowledging it verbally.

In addition to sadness, irritability, annoyance, frustration, anger, or hostility can be heightened and persist in approximately 50% of individuals diagnosed with major depression. These emotional states contribute to the complex spectrum of depressive symptoms and should be recognized as significant components of the disorder [106].

● Loss of interest or pleasure – known as anhedonia, is another key symptom of unipolar major depression. Individuals experiencing anhedonia find activities and hobbies that were once enjoyable or fulfilling to be less appealing or entirely uninteresting. They may express feelings of indifference or apathy, stating that they "don't care anymore" about things they used to enjoy.

Anhedonia can lead to social withdrawal as individuals may lose interest in spending time with friends or engaging in social activities. Additionally, there may be a decrease in libido or interest in sexual activities, further contributing to the overall loss of pleasure and satisfaction in life.

● Alteration of appetite and weight- This is key feature of unipolar major depression, persistent depressive disorder and various others. These changes can manifest in different ways:

- Decreased appetite: Some individuals with depression may find themselves having to force themselves to eat. They may experience a lack of interest in food or a diminished desire to eat.

- Increased appetite: Conversely, others may experience an increase in appetite. This increase may lead to overeating, often with cravings for specific types of food such as junk food or carbohydrates.

● Sleep disturbance –

Sleep disturbances are common in these disorders, presenting as different forms of sleep variations like insomnia or hypersomnia:

●Fatigue- Fatigue which is also called anergia, is a common symptom of depressive disorders. It is characterized by feelings of tiredness, exhaustion, and listlessness. Individuals experiencing anergia may:

- Experience the need to rest frequently.
- Feels heaviness in their legs and body in general.
- Feels difficult in doing routine activities of the day [105].

● Neurocognitive dysfunction – Neurocognitive dysfunction is also a recognized feature of these disorders. They can present as:

- Difficulty in concentration and decision making [105, 107].
- Complaints of memory difficulties or forgetfulness.
- Easily becoming distracted or having trouble maintaining focus on tasks.

● Psychomotor Agitation – Psychomotor disturbances are less frequently observed in depressive disorders but are significant indicators of severity. They include:

-Psychomotor agitation: Characterized by excessive, nonproductive motor activity with a feeling of tension. This can manifest as pacing, fidgeting.

-Psychomotor retardation: This presents as delay in thinking, speech and movements. Individuals may exhibit decreased speech volume, reduced quantity of speech, flattened inflection, and increased response latency when answering questions[105, 108].

●Feelings of worthlessness or excessive guilt are common in individuals with these disorders. These feelings can be characterized as:

-Feelings of inadequacy, inferiority, and failure: Depressed individuals may perceive themselves as not measuring up to their own or others' expectations, leading to a sense of inadequacy and inferiority.

-Feelings of worthlessness: They may believe that they have little or no value or that their actions are without purpose or significance.

-Excessive guilt: Individuals may experience intense guilt over minor mistakes or perceive neutral events as evidence of personal failings. This disproportionate guilt can lead to self-blame and exacerbate feelings of worthlessness.

●Suicidal ideation and behavior are serious manifestations of major depressive and persistent depressive disorder:

-Suicidal ideation: Depressed individuals may experience recurrent thoughts to end life or death. This can be passive, where they feel lack of self worth or burden on others, where they are better off without them.

-Suicide plans and attempts: Some individuals may progress to developing specific plans for suicide, preparing for it by acquiring means (such as medications or firearms) or writing notes. In severe cases, suicidal ideation may escalate to suicide attempts.

-Factors contributing to suicidal tendency: Hopelessness, characterized by uncertain fear of future, often reinforces suicidal thoughts. Individuals may perceive suicide as the only escape from intense emotional pain.

The prevalence of major depressive disorder is 12% in a lifetime. It disproportionately affects women, with proposed contributing factors including hormonal fluctuations, the impact of childbirth, differing societal expectations, and the psychological concept of learned helplessness[(99)].

Both major and persistent depressive disorders are complex syndromes characterized by varying presentations and symptoms[(105)].

COMORBIDITY – Depression usually is accompanied with other medical illnesses. At least 70% of patients with depression have one other medical condition [(109, 110)].

Most medical disorders, chronic or acute have higher risk of developing depression [(111)]. Treating depression in such patients is crucial as it can enhance overall health and functional status. Major

depressive disorder and minor depressive disorder are commonly found in cancer patients in comparison to general public [5]. Unipolar disorder is also commonly witnessed in cancer[98]. Depression is a frequent psychiatric concern among individuals diagnosed with cancer. Assuming that all cancer patients should experience depression can downplay their unique challenges, leading to potential under diagnosis and undertreatment of depressive symptoms[112]. The prevalence of depression in cancer patients varies significantly. It is mainly influenced by various factors such as time since cancer diagnosis, assessment methods, diagnostic criteria, patient demographics (including socio-demographic factors and cancer stage), treatment settings (inpatient versus outpatient), and interviewer expertise [113]. Diagnosing depression among cancer patients is challenging due to overlapping symptoms such as fatigue, appetite changes, and sleep disturbances. These symptoms can stem from depression, the cancer itself, or the treatments for cancer. According to various studies the point prevalence of depressive syndromes is between 5-20% [114].

According to a registry study, highest incidence of depression was noted within the 1st week of cancer diagnosis [115]. Despite this initial peak, the elevated risk of depression persists for several years before gradually declining. Cervical cancer patients have higher chances of developing depression[116, 117]. Additionally, discrimination and social isolation can heighten the chances of developing depression among women impacted by cancer(WHO, 2013) [118].

Diagnosing depression is difficult among cervical cancer patients due to overlapping symptoms [119]. Moreover, the stage of the disease has been observed to show negative effect on psychological well being [120].

Course of illness – This can be prolonged and persistent. Episodes of depressive and anxiety disorders, maybe syndromal or us syndromal lasted for 3 months in nearly 66% of women over follow up for 5 years with 122 cases according to a prospective study [6]. In addition, a three year follow up research including 4,800 cancer patients revealed that 3% of them had depressive symptoms [121].

Psychiatric screening is necessary in cancer patients is crucial and should be initiated at the time of cancer diagnosis, with regular assessments thereafter based on clinical indications [122].

Suspicion of major depression in cancer patients may arise based on several indicators:

- Non-adherence to cancer treatment

-Reduced activity including occupational as well as social functioning

- Significant impairment in physical activity

- Negative outlook on life

- Irritability

- Feelings of hopelessness, helplessness, or worthlessness

- Demoralization, characterized by loss of confidence or hope

During the initial clinical evaluation of patients, it is crucial to conduct a comprehensive assessment that includes:

- The assessment must contain history specifically psychiatric, physical examination, examination of mental status, blood workup with basic tests, thyroid function tests and urine drug test to find for drug abuse.

The assessment must specifically cover current and past suicidal thoughts and behaviors. Such behaviors should be immediately evaluated and treated. [123-125].

Moreover, cancer patients who experience depression tend to have higher mortality rates compared to those who do not have depression [126].

As the severity of symptoms increases in major depression, psychosocial functioning typically declines. Most episodes of major depression are marked by impaired psychosocial and physical functioning, along with lower self-rated health [127].

Most of the patients have mental distress when diagnosed with cancer [128]. The fear majorly includes death, morbidity and treatment aspects [129].A systematic review highlighted a scarcity of studies investigating the prevalence of depression in CC [130].

QUALITY OF LIFE:

QoL contains multiple dimensions including mental, physical, emotional and social functioning, providing an assessment of how overall well being of a individual is affected by the change in one's health status. Cancer can significantly impact QoL negatively [131].

Quality of life (QOL) encompasses more than just survival duration; it emphasizes social function and mental status, highlighting subjective feelings and functional abilities, and reflects the health condition of individuals or populations across various dimensions [132]. Considering QOL is crucial for guiding appropriate precautions and evaluating the quality of healthcare services. It aligns with the WHO's goals of disease prevention and treatment, prolonging survival, enhancing QOL, reducing mortality rates, and promoting mental and physical health.

QoL is multi factorial which comprises of various effects disease factors, treatment aspects and chronic consequences of the disease on patients life [133]. QOL data serve as important indicators of overall well-being and functional status for patients [134].

Unlike many other gynecological cancers, CC is usually diagnosed in younger population with an average of 50 years of age. Survivors of cervical cancer often have a significantly extended life expectancy following treatment. QoL (health related) concentrates on medical condition, the effects of treatment on patient's emotional, physical and social well being [135].

QoL is majorly affected in women with cervical cancer and other gynecological cancers due to concern about sexual and reproductive functioning along with bodily disfigurement [136, 137].

The EORTC QLQ-C30 is a scale which is specific for cancer related questionnaire with 30 items. It assesses 5 functioning parameters which include physical, emotional, role, cognitive and social functions, 3 symptom parameters which include fatigue, pain, nausea and vomiting, a global health parameter scale and overall QoL, and a 6 parameter scale which include insomnia, dyspnea, loss of appetite, bowel disorders and financial troubles [138]. The scale scored from 0 to 100. Health related

QoL is better when the global and functional QoL scores are higher, while more severe symptoms is predicted when higher scores are noted on symptom scale and single items.

The EORTC QLQ-C30 thus encompasses both physical and psychosocial domains. Research by Bjelic-Radisic et al. highlights that cancer therapy and age can significantly impair body image [(140)]. Additionally, studies such as those by Hawighorst Knapstein et al. have shown that CCSs who undergo more invasive procedures, like pelvic exenteration with ostomies, tend to have significantly poorer body image compared to those who undergo less invasive pelvic surgery alone [(141)]. This affects the QoL in CC patients which shows the importance of body image in these patients.

Furthermore, the consensus among studies underscores that patients undergoing radiotherapy are at greater risk of experiencing adverse physical effects such as lymphedema [(142)]. Radiation therapy can also affect bodily functions, potentially causing diarrhea, which can limit daily activities and lead to social withdrawal [(143)]. These physical consequences can further impact body image and overall quality of life for CCSs.

Urinary symptoms are prevalent in both surgical and radiotherapeutic treatments for cervical cancer, but they tend to be more pronounced with radiotherapy, often accompanied by menopausal symptoms [(144)]. Studies generally show the impairment of sexual function in CC patients treated with radiotherapy compared to surgery. Chemotherapy induced alopecia is also a bad experience among these patients [(142)].

Regarding psychosocial impacts, radiotherapy patients commonly report higher levels of anxiety compared to those undergoing surgery [(144, 145)]. According to research conducted by Lan Zhang et al., there is a negative correlation between symptom clusters and illness perception with QoL. Commonly reported symptoms include sleep irregularity, pain, fatigue, depressed mood and nausea which varies between 75-80% among these patients [(146)].

Wenzel et al., studied the QoL among patients with CC of childbearing age, finding that despite survivorship and reproductive concerns, these women generally reported good QoL. The study included patients with 37 years of mean age at diagnosis, 45 years at time of follow up interview. These patients reported better QoL scores among physical, social and emotional functioning, however with some issues related to sexual and reproductive health.

Interestingly, 95% of the participants expressed a desire to engage in private counseling sessions and talk about the issues whereas 69% preferred support groups with the same experience of cancer [147].

In another study Yao Xie et al., studied the comparison of QoL among patients with CC at different stages revealed significant differences. Patients in early stages tended to have better QoL compared to those in advanced stages. The study highlighted that physical symptom recovery was slower in advanced stages, while mental status remained relatively stable across stages. Factors such as well-differentiated tumor and its size less than 4 cm were associated with better QoL, which was statistically significant [148].

The association of age and QOL in women with CC has shown considerable variation across previous studies. Few studies have discovered no significant link between age of individual and QOL [149].

In another study by D. Endarti et al., which focused on cervical cancer patients, the average age in years of participants was 51. This study highlighted several demographic and health-related factors among patients: majority were married women with low literacy, and few had formal employments. The average duration of illness since initial diagnosis was 6.7 months. The most commonly reported issues affecting QOL included pain or distress (67.8%), anxiety or depression(57.5%), limitations in daily activities(33.3%), movability issues (23%), also difficulties with personal upkeep(16.1%) [150].

Cervical cancer patients typically report poorer life quality and increased incidences of depression and anxiety in comparison to standard population(26% and 28% respectively). Factors such as

persistent gynecologic issues, limited social support, depression, somatization, maladaptive coping strategies, coexisting health conditions, sleep disturbances, and lower educational attainment are all independently linked to reduced QOL in these patients. Despite the inherent challenges faced by cervical cancer survivors, supportive interventions have shown potential to significantly enhance QOL and may also lead to improvements in stress-related biomarkers [(151)]. Such interventions hold promise for improving overall disease outcomes [(152)].

QoL also received recognition as predictor of survival [(153)]. Providing blanket care for women with cancer cervix involves focus not only on corrective treatments but addressing the psychological requirement of patients and their families.

Studies examining the unfulfilled needs of carcinoma cervix subjects have identified several insufficiencies, including dearth of emotional support, inadequate direction from physicians regarding prognostics, menu of treatment, and adverse effects, challenges faced in communicating to family members about end-of-life issues, and inadequate discussion about potential sexual side effects. Addressing these critical areas is essential for enhancing the life quality among carcinoma cervix patients, which in turn can positively impact prognosis and survival rates[(154)].

REVIEW OF STUDIES:

1. **L. Shyu et al,** conducted a research to investigate incidence of depression and factors augmenting its risk of development among carcinoma cervix patients in Taiwan. This research project enrolled individuals with cancer cervix who received recent diagnosis. Population comprising 21,400,826 inhabitants, every cervical cancer afflicted individual was complemented with an individual lacking the disease but in accordance with same age, gender, and co morbidities of same diagnostic index. A total enrollment of 19,316 newly diagnosed cc patients was attained. 5.23 years was the median period of follow up. The prevalence was 4.21% in the cancer cervix cohort, whereas in control group it was 3.85% for

depressive disorder. Depressive disorders occurring in women with cervical cancer showed incidence risk ratio to be 1.35. Cervical cancer was implicated as independent risk factor for development of subsequent depressive disorder. Furthermore, in patients who were aged 65 years and beyond the co morbidities like Diabetes Mellitus, IHD, and CVAs were also implicated for developing depressive disorder in cervical cancer. Nevertheless, significant differences based on treatment modalities of cervical cancer patients was not observed. To summarize, these patients need and can benefit from early psychological support and intervention[155].

2. **Dr. Ravi Paul et al.,** conducted research project seeking depression prevalence in patients with cervical cancer and recognized risk factors for depression and its consequent impact on quality of life. It was descriptive in design conducted in the Cancer Disease Hospital at Lusaka. The study population were cervical cancer patients. Sample size was 102 patients and sampling were done by Systemized random sampling method. The data was segregated into two groups: patients with and without depression. An international standard questionnaire called the becks depression inventory (BDI) was used. Out of the collected 102 patients, 83 met the minimum criteria. 18% of these patients had mild depression, 78% had moderate depression and 4% had severe depression. The age distribution in these patients showed that depression was more common between 40 and 60 years (50%) and lowest >60 years (12.5%). In this study, 63% of the patients who were depressed were unemployed whereas 37% were employed. Analysis of the education levels shows that 37.5% and 37.5% of the patients who were depressed at least had primary and secondary school educated respectively. 7.5 % of the patients who were depressed had tertiary education whereas 17.5% had no formal education. 98 % of the patients had reduced libido whereas 64% had lost interest in sex. This can be due to physical causes like bleeding or sign of depression. Patients also experienced reduced energy (81%), changes in sleep pattern (81%), loss in

appetite(87%) and fatigue (83%). Most of the patients experienced symptoms more prominently in the first few weeks of diagnosis, but patients were educated and got to interact with other patients with cervical cancer at the various hospitals, they were given hope[25].

3. **A Shankar et al.,** conducted this study on patients with various malignancies with aim to unmask presence of depressive disorders and anxiety disorder. Five hundred and thirty-four (*n* = 534) patients attending the radiotherapy outpatient services who were above 18 years were included in the study. These patients completed the Patient Health Questionnaire-9 and Generalized Anxiety Disorder-7 (GAD-7) Questionnaire.

The study included a patient population where the majority were over 50 years old (n = 293; 54.9%), with a predominance of males (n = 293; 54.9%) compared to females (n = 241; 45.1%). Most patients lived in nuclear families (n = 287; 53.7%) rather than joint families (n = 247; 46.3%), and a significant proportion belonged to lower socioeconomic status (n = 362; 67.8%). Substance use, primarily tobacco and alcohol (n = 210; 39%), was prevalent among patients. Early-stage malignancy was observed in 13.5% (n = 72) of cases, while locally advanced disease affected the majority (n = 368; 68.9%), and metastatic disease was present in 17.6% (n = 94) of patients.

A 46.4 percent of total participants exhibited psychiatric co-morbidity, in the form of either depression or GAD. Depression was more prevalent, affecting 37.5% (n = 200) of patients, compared to GAD, which affected 35.8% (n = 191). Among those with psychiatric morbidity, a majority experienced moderate depression severity (34.1%, n = 182). Additionally, greater than 50% of patients had both depressive disorders and GAD. Notably, depression was most frequently diagnosed among patients with endocrine malignancies (100%), compared to other types of malignancies.

Compared to patients inhabiting in nuclear setups, those from joint families showed a higher prevalence of GAD (40.5% vs. 31.7%; $\chi 2 = 4.45$; P = 0.04*) or the presence of both depression and GAD (30.4% vs. 23.7%; $\chi 2 = 9.1$; P = 0.03*). Anxiety was also more prevalent among patients from lower socioeconomic status families (40.1% vs. 26.7%; $\chi 2 = 12.28$; P = 0.02*). The prevalence of all psychiatric morbidity significantly increased with more advanced stages of malignancy and in patients with metastasis of the disease. [13].

4. **Yi-Long Yang et al.,** conducted a study which was multicentre and cross-sectional comprising consecutive inpatients at the Liaoning Cancer Hospital & Institute and the Shengjing Hospital of China Medical University in Liaoning Province. A total of 224 cervical cancer patients eligible for this study were enrolled in the study. The questionnaires on demographic and clinic variables, Hospital Anxiety and Depression Scale, Herth Hope Index, Life Orientation Scale-Revised, and General Self-Efficacy Scale were included.

The partakers (N = 224) had a mean age of 49.16 years (Mean±SD: 49.16±10.11). About 90%women were married or had a partner to reside with, whereas 36.6 percent had studied up to middle school. A small proportion of women (29.5%) had a diagnosis of cancer stage 3 or 4, and 65.2 percent underwent combination modality treatment. Majority of the participants did not have metastases (88.4%).

In carcinoma cervix patients, depression was noticeably prevalent at 52.2% and anxiety at 65.6%. The mean scores were 9.17±3.95 for anxiety (HADS-Anxiety) and 7.17±3.74 for depression (HADS-Depression). Additionally, the different values of mean were as follows 34.62±6.57 depicting hope, 19.86±3.03 depicting optimism, and 24.70±6.51 denoting general self-adequacy.

Patients diagnosed with cervical cancer between 4-6 months ago exhibited anxiety at greater levels (Mean±SD: 10.63±3.68) compared to those diagnosed within past3 months time span (Mean±SD: 8.59±3.97). Additionally, patients diagnosed with stage 2 carcinoma had elevated

anxiety values (Mean±SD: 9.85±3.79) than those diagnosed with stage 1 cancer (Mean±SD: 8.08±4.32).

When examining correlations, an inverse correlation of depression was seen with 3 positive psychological variables which were hope (P<0.01), optimism (P<0.01) and general self-adequacy (P<0.01). Similarly, anxiety exhibited comparable trend with the 3 variables: hope (P<0.01), optimism (P<0.01), and general self-adequacy (P<0.01)[156].

5. **Bae H et al.,**performed a descriptive, cross-sectional research at E Hospital located in Seoul. 137 patients in total who had confirmed diagnosis of carcinoma cervix were signed up for the study.

Sexual functionality was assessed using Female Sexual Function Index (FSFI), level of depression were assessed by deploying Hospital Anxiety and Depression Scale (HADS), and quality of life was evaluated with Functional Assessment of Cancer Therapy–General version 4 (FACT-G).

Data analysis was done using ANOVA, Schaffer's tests and computation of Pearson correlation was done with SPSS Win 21.0.

In this study, patients who faced sexual dysfunction had a mean score of (4.83 ± 4.16) whereas those with moderate-severe depression had a mean score of (11.08 ±5.06). Mean value for life quality was 57.33 ±8.47. Sexual functionality showed inverse correlation with depression($p < .001$) and positive correlation with life quality ($p < .001$), which was statistically significant. When examining subdivisions of life quality, sexual functioning observably had positive association with physical, social and functional wellbeing($p = .001$), but this was not the case with psychological wellbeing($p = .223$).

Thereby study concluded, patients with cc often experience impaired sexual functioning, which in succession is correlated with poorer life quality and greater degrees of depression.[157].

6. **Dewi Shinta et al.,**orchestrateda study for investigating the correlation of sexuality with depression of CC. 200 cervical cancer patients was selected and randomized using simple random sampling. Depression was measured by the Beck Depression Inventory-II (BDI-II) questionnaire. The result of the study revealed that 126 patients among the study group experienced mild depression (63%) and 74 patients experienced severe depression (37%).

The majority of participants had married (79.5%), had poor literacy background(below senior high school)(66.5%), were not employed (60%), had low familial earnings (67.5%), reported strong family support (62%), and utilized high coping strategies (66%). Additionally, 72% of these women presented in advanced stage of the illness. 54.5% received diagnosis less than 11 months ago, 105 patients underwent chemotherapy fewer than 3 times(52.5%).

More severe depression was seen in patients of cancer cervix who underwent chemotherapy ≥3 times (p= 0.037), with advance cancer stage of cancer(p=0.035), and length of disease from time of diagnosis≥11 months(p=0.009). Depression in cervical cancer patients had correlation with coping strategy ($p<0.001$).

The study uncovered that sexual dysfunction and depression persist among cervical cancer patients for many years following treatment. Women younger in age, those who received radiotherapy, and women experiencing long-term persistent fatigue had greater propensity to develop depression. Surgical procedures and adjuvant therapies correlated with the maximal rates of depressive symptoms in carcinoma cervix patients. Additionally, the study noted a positive association of sexuality with depression in these patients [(158)].

7. **Louis Jacob et al.,** conducted the study to inspect incidence of anxiety and depression among women newly diagnosed with breast or genital organ cancer in Germany. A total of 29 366 women diagnosed with breast cancer or genital organ cancer between 2005 and 2014 were enrolled in the study. The aim was to study incidence of depression and anxiety among

women newly diagnosed with breast cancer or genital organ cancer. Patients of breast cancer and genital organ cancer diagnosed within 5 years after the first cancer diagnosis in German gynecologist practices were selected in the study group. Demographic and clinical data included age, type of cancer, and presence of metastases at diagnosis were collected. The incidence rate of depression and anxiety per 100 person-years was analyzed. A multivariate retrogression model to investigate association of depression with other variables of interest was applied to analyze the data collected.

In totality, 7994 participants were found to have depression or anxiety, with 81.3% having carcinoma breast while18.7% had genital organ carcinoma. Anxiety and depression incidence was 8.8/100 person years among ladies afflicted with breast malignancy and 5.9 per 100 person-years among those with genital organ cancer. Breast carcinoma was associated with a 1.41 times greater propensity of developing depression or anxiety symptoms compared to genital organ malignancy. Patients having metastases had 1.40 times heightened risk of experiencing depression and anxiety than those who lacked metastases. In conclusion, women aged 41-50years, 51-60 and 61-70 years had a increased anxiety or depression risk compared to those aged 71-80, with odds ratios of 1.50, 1.38 and 1.22respectively [(159)].

8. **Adya Shanker Srivastava et al.,**conducted the study with aim to discover psychiatric morbidities in patients of carcinoma cervix so that a proper evaluation of their mental health and comprehensive management and improving their quality of life can be planned. This study was conducted in Department of Psychiatry, Sir Sunder Lal Hospital Institute of Medical Sciences, Banaras Hindu University, Varanasi, Uttar Pradesh, India.

Affected women with age ranging from 31-65 were screened randomly and study included 100 recently diagnosed cervical cancer cases who hadn't yet undergone treatment. Diagnosis and staging of cervical carcinoma were performed using the revised FIGO classification .

Psychiatric diagnoses were based on DSM-IV-TR criteria, with illness severity assessed using the HAM-A,HDRS, BPRS, and Y-BOCS. Majority patients belonged to 51-60 age group. 80% of patients revealed to be illiterate, 69% belonged to rural backgrounds, and 79% hailed from lower socioeconomic statuses. All study participants were married homemakers.63% patients, revealed duration of disease due to cancer at time of presentation to be< 6months. 60%patients were found to have early cancer stage(stage 1+2), while 40% showed advanced cancer stage(stage 3+4). Psychiatric morbidities were observed in 55% of cancer cervix patients. Large number (26%) of these patients had a diagnosis of major depressive disorder, followed by 17% with anxiety disorder, 8% having adjustment disorder alongside depressed mood and 4% suffering from insomnia. Suicidal ideas were seen in 4% of patients. Patients at late stage of cancer (stage 3 and 4) had higher score of depression and the results were significant. The study found a positive association of duration of disease and depression severity, and likewise between carcinoma staging and depression severity. Additionally, there was a positive association with disease duration and the anxiety severity. Patients in the advanced stages of cancer experienced higher anxiety levels; this relationship was significant statistically. Similarly, a positive correlation also was manifested with the cancer stage and anxiety severity[(160)].

9. **Tolcha Kebebew et al.,** conducted a research project to assess symptom burden and problems faced by patients with advanced cervical cancer. Patients diagnosed with cervical cancer, stages IIB-IVB, receiving the treatment at Radiotherapy Centre of the Tikur Anbessa Specialized Hospital in Addis Ababa, Ethiopia, from January to June 2019 were selected as participants. Participants included in this study were selected by the following criteria: histologically confirmed diagnosis of cervical cancer, stage 2B-4B according to the International Federation for Gynecology and Obstetrics (FIGO) classification [16], age above 18 years, conscious, stable and able to communicate , and patients who gave consent to participate in the study. The principal researcher, assisted by trained nurses, collected the data

using a structured and pre-tested questionnaire that included the seven-day recall IPOS version III. Data entry and cleaning were done using CS Pro 7.1 software. Stata 12® was used for analysis. There were 385 patients with cervical cancer, stage 2B-4B, successfully interviewed. The median age was 50 years, the majority were illiterate (63.1%) and married (62.3%). Over 50% of the patients experienced pain, weakness, poor appetite, constipation, dry mouth and limited mobility. The burdens of emotional symptoms such as patient with anxiety, family anxiety, and patient with depression were also prevalent at 79.7%, 82.3%, and 47.0%, respectively. Patients who are illiterate, at a higher stage of the disease, not currently married, and who underwent palliative radiotherapy bear a higher symptom burden[161].

10. **Irena Conic et al.,** conducted study to inspect the influence of treatment on individuals having anxiety with cervical cancer. This was clinical prospective study which included 60 patients with cervical cancer, aged 30 to 60 years, who were treated from October 2007 to September 2008 at the Obstetrics and Gynecology Clinic and Clinic of Oncology, Clinical Center of Nis. Patients were recruited from consecutive admissions and distributed into two groups with different combined treatments. The 1st group consisted of 30 patients who underwent surgery and postoperative radiotherapy with cytostatic mono-chemotherapy using Cisplatin at a dose of 40 mg/m2 (FIGO stage Ib and IIa). The 2nd group consisted of 30 patients who did not undergo surgery, but underwent radiotherapy combined with cytostatic mono-chemotherapy with Cisplatin, at a dose of 40 mg/m2 (FIGO stage IIb and IIIb). The control group consisted of 30 healthy participants. The study was done before treatment, and then 3 and 6 months after initial testing. Assessment of anxiety was done using Hamilton Anxiety Scale (HAM-A). At baseline, the HAM-A scale values in patients treated surgically were significantly higher than the patients treated by radiotherapy ($p=0.023$) and then those patients in the control group (ANOVA and Dunnet test: $p<0.001$). Patients who were treated by radiotherapy had significantly higher average HAM-A values than the correspondents

control group (ANOVA and Dunnet test: $p<0.001$). In retesting the patients after three and six months, the value of surgically treated patients remained significantly higher compared with the patients who were treated by radiotherapy (Mann-Whitney U test: $p=0.006$ and $p=0.003$, respectively). During the monitoring time, anxiety was more pronounced in the group of patients that underwent surgery than in the group of patients that underwent radiotherapy, but the intensity of anxiety gradually decreased in both groups. In this study, pain and irregular menstrual bleeding were the most important risk factors for developing anxiety in patients with cervical cancer. Routine assessment should be introduced for detecting and treating anxiety all cervical cancer patients, and a psychiatrist should be integrated in interdisciplinary team of treating doctors [(162)].

11. **Jyani G et al.,** conducted a study which was cross-sectional in nature to access health-related life quality among cervical cancer patients. A total of 159 patients of cervical cancer were recruited. The patients whose radiotherapy treatment had been completed between 4 months and 2 years were enrolled in the study. EQ-5D(Europol 5-dimensions) instrument and the EuroQol Visual Analog Scale (EQ-VAS) scales were used in the study.

In the study, participants aged 41-50 comprised 35.8% of study population, whereas illiteracy in patients was at 44%. Majority 63.5% were diagnosed with stage 2 carcinoma cervix, resided in rural regions 64.8%, and married 74.8%. Among participants, majority 67.9%received a combination of radio, chemo and brachy therapies. This was followed up with RT and brachytherapy13.2%, RT and chemotherapy11.3%, RT alone5%, surgery, RT, and brachytherapy1.26%, surgery, RT, and chemotherapy0.63%, and surgery, RT, chemotherapy, and brachytherapy0.63% accordingly.

The most commonly reported problem in India among carcinoma cervix patients is pain and discomfort reported by 61.9% patients. This is accompanied with difficulties in carrying out routine activities reported by 53.8% patients. Anxiety or depression affected 41.3% of the

patients, while 39.9% patients reported problems with mobility. Mean EuroQol-5D-5L score among patients with carcinoma cervix at 3rd and 4th stage was 0.635 [95% CI=0.56–0.71].

In this research, health-relatedQol among carcinoma cervix individuals varied significantly based on several factors: income (P = 0.019), with life quality decreasing with increasing annual income; residence, with rural patients reporting a higher mean EuroQol-5D-5L score(0.6466) on comparison patients from non-rural setting (0.6302); education, with educated participants showing greater life quality (0.6506) than illiterate patients (0.6284); and age, with highest mean EuroQol-5D-5L score observed in patients aged 51–60 years (0.6715), followed by those aged 41–50 years (0.6597), less than 40 of age(0.6230), 61–70 years(0.6087), and more than 70 years(0.5198)[163].

12. **Khullar N et al.,** conducted study of cross-sectional design at Government Medical College in Amritsar, Punjab. It was conducted between January 1 to December 31, 2016. 127 patients totally were enrolled for study. Patients then were interviewed using pre-tested and designed questionnaire. All patients diagnosed with breast or cervical cancer were part of study.

Among127 patients involved in study, 88 had breast cancer and 39 had cervical cancer. Of these patients, 79 inhabited urban regions and 48 came from rural background. Mean age for carcinoma breast patients was 55.6years, and 54.6years for cervical cancer patients. The age of patients ranged from 26-75 years.

Following their cancer diagnosis, a significant proportion of patients experienced lifestyle changes: 72.4% stopped working, 92.9% ceased pursuing hobbies, 95.2% discontinued exercising, 61.4% reduced social activities, and 70.1% could not continue religious practices. A statistically significant number (60.6%) reported a shift in attitude from positive to negative. Main reasons cited for these changes included weakness due to cancer and its treatment (42.1%), feelings of shame related to bodily changes (36.1%), and sadness (32.5%). Additionally, 55.1%

of patients noted a change in attitude from their relatives since diagnosis, while 38.5% reported no change. There was a documented negative correlation between patients' perceptions of illness consequences and the level of social support they received[(164)].

13. **Glasspool R et al.,**leadone study to examine pretreatment factors linked to quality of life (QOL) both at baseline/pre-treatment and at 12 months post treatment.

    Between September 2016 and March 2019, a total of 1222 women diagnosed with endometrial, ovarian, cervical, or vulvar cancer from 82 UK NHS hospitals participated in the study. The study included women with various FIGO stages: IA to IIIA1 for ovarian cancer, IA to IIIC2 for endometrial cancer, IA2 to IIIB for cervical cancer, and IA to IIIC for vulvar cancer. Participants completed questionnaires at study entry, with follow-up questionnaires sent three and 12 months later. The primary outcome measured was Quality of Life in Adult Cancer Survivors (QLACS), consisting of 47 items grouped into 12 domains, seven of which are generic and five specific to cancer. The response rates for questionnaires were 80% at baseline and 59% at 12 months.

    The majority of participants were from England (82%), with 13% from Wales, 3% from Scotland, and 2% from Northern Ireland.

    The study reported that the majority of patients had good functional status with an ECOG performance status of 0 or 1. Additionally, most patients had a BMI of ≥25, indicating they were overweight or obese. Surgery was the primary treatment for the majority (90%) of patients, with 27% receiving chemotherapy and 21% undergoing radiotherapy. A significant proportion of women were aged over 50 years. Regarding quality of life (QOL) measures, both QLACS-GSS and QLQ-C30 scores indicated that QOL was significantly worse 3 months post-diagnosis compared to baseline. However, by 12 months, QLQ-C30 scores had significantly improved from baseline levels. Although QLACS-GSS scores (indicating QOL) were lower (better) at 12

months compared to 3 months, this difference was not statistically significant ($p = 0.057$), and QLACS-GSS scores had not returned to baseline levels by 12 months.

It appears that certain factors such as limiting co morbidities, anxiety, and depression are linked with worse QOL outcomes across different measures. Additionally, having a cancer stage greater than 1 or residing in socioeconomically deprived areas are associated with lower scores on the QLQ-C30 summary scale.

The study also revealed some interesting associations regarding quality of life in relation to marital status, age, and physical activity. Specifically, being single, separated, or divorced was associated with a higher QLQ-C30 summary score, while being older than 50 years and being physically active were linked with better quality of life according to the QLACS-GSS.

These findings are consistent with prior research, including a longitudinal study that observed lower quality of life reported by younger women with gynecological cancer compared to older women. This suggests that the interplay between demographics, lifestyle factors, and specific cancer types can have significant impacts on quality-of-life outcomes. At 12 months, several baseline factors were identified as associated with worse quality of life (QOL) on both measures studied. These factors included limiting co morbidities, depression, and low socioeconomic status (SES). Additionally, the presence of a grade 3 tumor was specifically linked to poorer QOL as assessed by the QLACS-GSS at the 12-month follow-up. Moreover, obesity was found to be associated with worse QOL in this study. It is also seen in the study that undergoing surgery was linked to better quality of life outcomes at the 12-month mark, as assessed by both QOL measures.

This study's findings support the hypothesis that depression is a significant risk factor for poor quality of life (QOL). Specifically, poor mental health, as measured by the Hospital Anxiety and

Depression Scale (HADS), was identified as a factor that increases the likelihood of experiencing poor quality of life both at baseline and at the 12-month follow-up[165].

14. **Shirali E et al.,** conducted a comprehensive cross-sectional study on patients with gynecological cancers, covering a range of types including uterine, ovarian, cervical, and vulvovaginal cancers. The study was carried out at a teaching hospital affiliated with Tehran University of Medical Sciences over a period spanning from 2014 to 2019. Data collection was facilitated through a web-based platform, utilizing validated self-administered questionnaires. These questionnaires covered various aspects including demographic information, quality of life assessment using the EORTC QLQ-C30, and evaluation of mental health status via the Hospital Anxiety and Depression Scale (HADS). The collected data underwent analysis using appropriate statistical tests, likely to explore relationships and associations between different variables of interest within the study population. From the 376 eligible patients, a total of 251 patients with confirmed diagnoses of gynecological cancer were included in the study. The mean age of the patients in the study was 52.8 years, with a standard deviation of 12.4 years. Approximately 85% of the participants identified as housewives. the majority of patients had been diagnosed within a timeframe ranging from 1 to 5 years prior to the study. This duration since diagnosis provides insight into the stage of the disease trajectory among the study participants and may have implications for their quality of life and mental health outcomes.

In aforementioned study, women with cervical carcinoma revealed substandard life quality in comparison to women with uterine and ovarian malignancies. Significant differences were observed among the groups in several spheres of quality of life, particularly emotional functioning, cognitive functioning and global life quality. Notably, values depicting global quality of life were lowest, indicating a pervasive impact on overall well-being, while physical functioning scores were relatively higher, suggesting better physical health among participants.

Although patients with cervical cancer reported higher symptom burdens on comparison with those having ovarian and uterine malignancies, however these differences weren't significant statistically. Furthermore, after adjusting for age, no significant variations were observed in anxiety and depression results among patients. However, patients having cervical cancer tended to report higher scores for both anxiety and depression, indicating a greater psychological burden in this group[166].

MATERIALS AND METHODS

STUDY CONSTRUCT

This study was cross sectional. It followed a descriptive and observational sketch.

SOURCE OF DATA:

The patients diagnosed with cervical cancer, meeting the specified inclusion criteria and admitted in R.L.JALAPPA HOSPITAL, allegiant to Sri Devaraj Urs Medical College, a teaching constituent college of Sri Devaraj Urs Academy of Higher Education and Research (SDUMC) from the period specified was the source of data for our study.

- **Study Population:**All in-patients presenting to R. L. JALAPPA HOSPITAL allegiant to SRI DEVARAJ URS MEDICAL COLLEGE, KOLAR admitted for and diagnosed with cervical cancer during the period of August 2022 to March 2024 were the source of data for our study.
- **Duration of study:** The study was be conducted over a period of approximately 19 months from August 2022 to March 2024

METHOD OF COLLECTION OF DATA:

- Patients diagnosed with ca cervix were interviewed and a pretested, semi structured proforma applied for clinical socio demographic profile, relevant scales applied after obtaining valid informed consent for the same.
- Data collected post interview will be recorded and stored for further analysis.
- Tools used: **Hamilton Depression Rating Scale (HDRS/ HAM-D)**

Hamilton Anxiety Rating Scale (HAM-A)

European Organization for Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ C30)

- Post statistical analysis, data obtained was fed into an excel sheet and the final master chart was coded, interpreted and results recorded.

INCLUSION CRITERIA

- Age of 30-80 years
- Patients admitted in Sri Devaraj Urs Medical College.
- Patients who gave valid informed consent.
- Patients with histologically diagnosed cervical cancer and undergoing treatment.

EXCLUSION CRITERIA

- Recurrent cases of cervical cancer.
- Patients with terminal disease making them unresponsive/unfit for interview.
- Patients with neurological deficits(delirium, dementia), h/o preexisting or previously diagnosed psychiatric morbidities
- Patients diagnosed with any other concurrent primary malignancy apart from cervical cancer.

METHODOLOGY:

This cross- sectional study will be done at R.L.JALAPPA HOSPITAL, a teaching hospital of Sri Devaraj Urs Medical College, a constituent college of Sri Devaraj Urs Academy of Higher Education and Research after obtaining approval of institutional ethical committee.

All admitted patients diagnosed with cervical cancer meeting the inclusion criteria of age group 30 – 80 years will be recruited into the study.

After obtaining valid informed consent the participants will be included in the study.

A detailed interview with patients and from a reliable informant was conducted. A pretested and semi structured proforma for obtaining clinical sociodemographic specifics was used and history elicited by researcher and all study cases discussed with teaching faculty of the Department of Psychiatry along with guidance from Department of Obstetrics and Gynecology and radiational oncologist.

Diagnosis of depression and anxiety in cervical cancer patients will be made as per ICD-10 and DSM-V guidelines and HAM D and HAM A questionnaire was used. To study Quality of Life, EORTC QLQ30 was applied.

After introduction and establishing rapport with patients and receiving their consent questions were explained to the patients in their local understandable language.

Answers to the tools were recorded as raw data, scoring was done and corroborated with history and conclusion was made about presence of anxiety, depression and quality of life in the cervical cancer patients. This was further entered into excel sheet simultaneously to avoid errors.

STATISTICAL METHODS:

- **Study design:** Cross sectional observational and descriptive study
- **Sample size estimation:** Sample size calculated using formula $\frac{4PQ}{d2}$.

- **P** = prevalence which is 80% according to study titled Prevalence of Depression among Cervical Cancer Patients Seeking Treatment at Cancer Disease Hospital conducted by Dr. Ravi Paul, Dr. Gerald Musa, Mr. Humphrey Chungu with error rate of 10% [d][25].
- Sample size calculated was 64 with 20% non-response rate. The estimated sample size is **76**.
- **Statistical Analysis:** All data was entered into Microsoft Office excel sheet on Windows. It was analyzed using Jamovi version 2.3. Descriptive statistics were employed to describe the different variables. Chi square and fisher's exact tests were put to use to assess association between various sociodemographic factors and depression, anxiety and quality of life. The level of significance was defined as p value less than 0.05. In case it was highly significant it was defined as p value less than 0.01.

STUDY TOOLS

Sociodemographic Questionnaire

A basic sketch of the sociodemographic variables and disease variables was made which was further categorized as study proceeded with constant guidance from faculty. It included information on age, educational status, socioeconomic status, occupation, type of family, number of children to assess parity, age at marriage and disease variables like duration since diagnosis, stage of cervical cancer, treatment modalities including cycles of chemotherapy and radiotherapy and metastasis. The questionnaire was developed in such a way so as to take into account the factors that are relevant and comparable and have an effect on the outcome variables under study that is depression, anxiety and quality of life.

Hamilton Anxiety Rating Scale (HAM-A)

It is extensively employed anxiety scale, by clinicians and research investigators, consisting of 14items, giving measure of somatic and psychic anxiety. There is a lack of standardized questions for enquiring, despite this it has an acceptable level of interpreter reliability. This scale scores are

graded between 0 to 4 for the 14 items, of which total score values of 0-7 denote normalcy,<17 indicates mild severity, mild to moderate scored at 18-24, whereas moderate to severe scored at 25-30[167].

The Hamilton Rating Scale for Depression (HDRS)

The scale is widely available and has 17 articles and is scored between 0-4 points. Scoring is built around the 17-item scale with total scores of 0-7 considered normal, 8–16 suggesting mild depression, 17–23 indicating moderate depression and scores over 24 denoting severe depression. The maximum score is 52 on this scale[168].

EORTC quality of life questionnaire (QLQ)

The EORTC quality of life questionnaire (QLQ) is a tool employed to assess health related quality of life (QoL) in cancer patients who are participants in international clinical trials. This scale consists of 30 items.

It comprises of

- 5 functional scales(physical role, emotional, cognitive and social functions)
- 3 symptom scales(fatigue, pain, nausea and vomiting)
- scale for global health status and quality of life
- 6 single items(dyspnoea, insomnia, loss of appetite, constipation, diarrhoea and financial stressors)

All items are given scores between 0 to 100. Higher scores indicate better function on functioning and global health status. On the contrary greater scores on symptom scales and single items suggest more severe difficulties and symptom experiences.

Data analysis is done by taking the raw score using scoring manual followed by linear transformation to assess severity [169].

RESULTS

FINDINGS

The burden of psychiatric morbidities is notable in gynaecology clinic setting. The following results determine the frequency of depression, anxiety & its influence on QoL among women affected by CC. The study of 76 patients admitted in the institution R.L.JALAPPA HOSPITAL, diagnosed with cervical cancer, meeting the specified inclusion criteria revealed the following.

DEMOGRAPHIC PROFILES

Age, educational status, occupation, socioeconomic factors, type of family, number of children, age of marriage, duration since diagnosis, stage of carcinoma, and presence of metastasis were demographic profiles studied in this study.

As all the patients had undergone the same mode of treatment, there was no statistical comparison hence not compared with any of the other study variables.

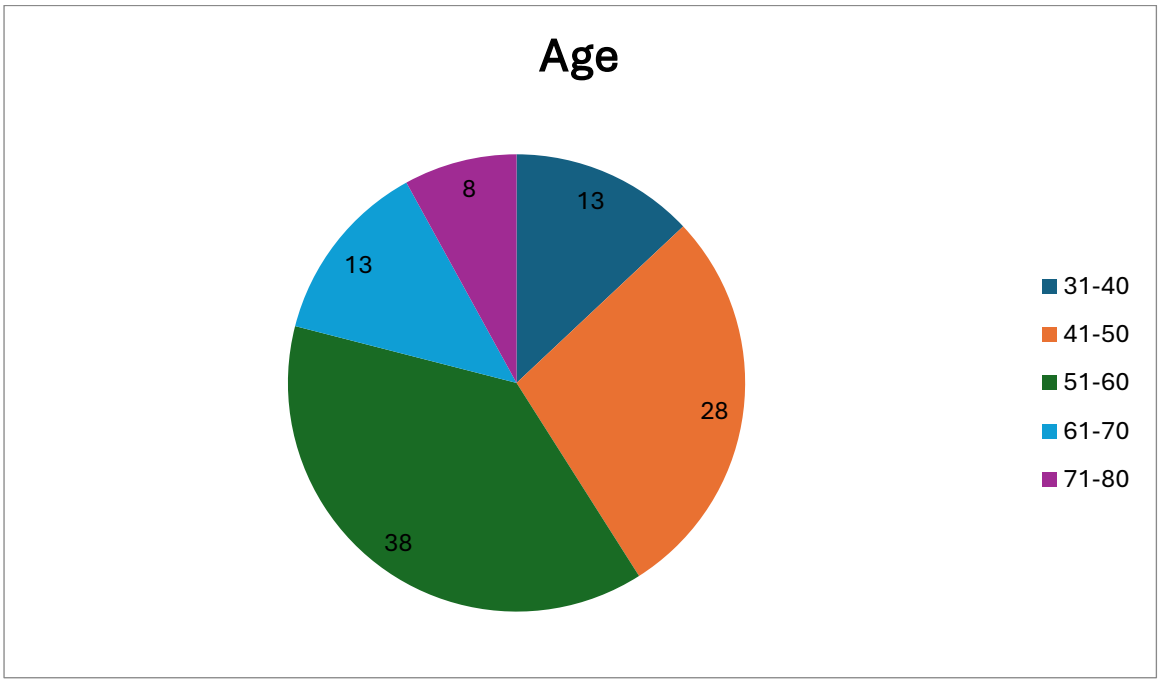
AGE DISTRIBUTION

In the study, 76 participants, aged between 32 and 76 years were enrolled. The average age of the participants was 53.8 years (SD ±10.2 years). Among them, 53 participants (69.7%) were aged less than 60 years and 23 (30.3%) were above 60 years of age. Specific age group distribution is as mentioned below.

Table 1 Age wise distribution (n=76)

Age	Number	Percentage
31-40	10	13%
41-50	21	28%
51-60	29	38%
61-70	10	13%
71-80	6	8%

Graph 1 Age wise distribution



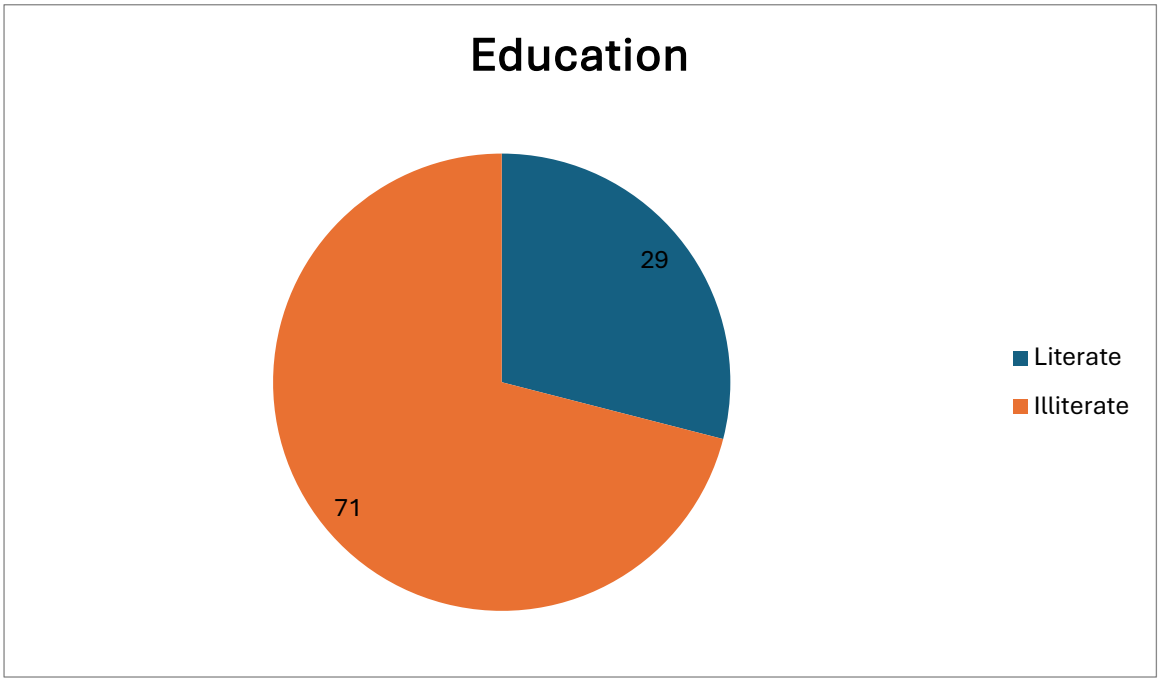
EDUCATION STATUS

Most of the participants in the study group were illiterate (71%), followed by patients who did schooling and college.

Table 2 Education distribution (n=76)

	Number	Percentage
Literate	22	29%
Illiterate	54	71%

Graph 2 Education distribution



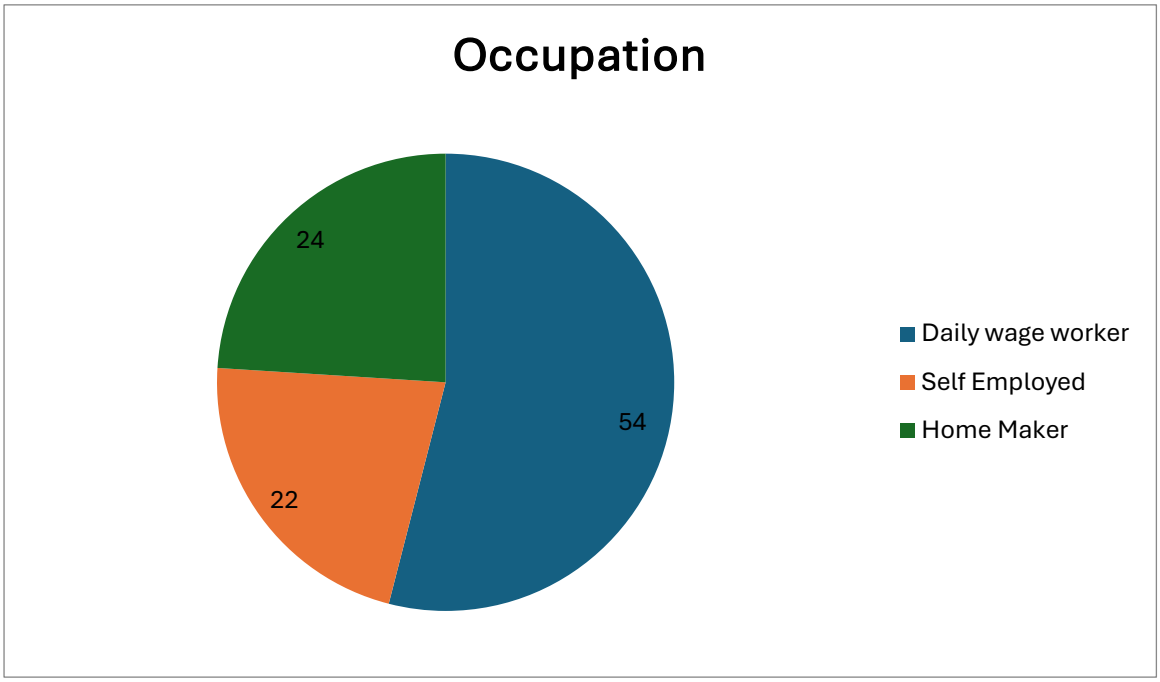
OCCUPATION

Most of the participants in the study group were daily wage workers (54%), followed by home maker and then self-employed.

Table 3 Occupation distribution (n=76)

Occupation	Number	Percentage
Daily wage worker	41	54%
Self employed	17	22%
Home maker	18	24%

Graph 3 Occupation distribution



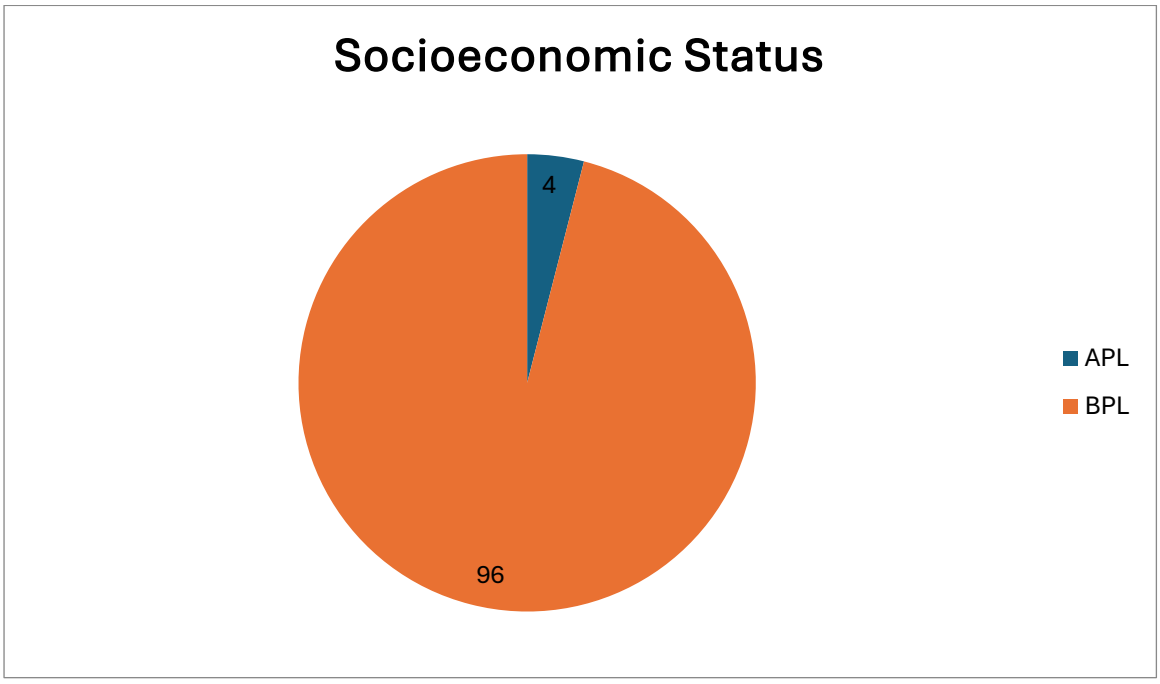
SOCIOECONOMIC STATUS

As ours is a charitable hospital most of the patients belong to BPL category.

Table 4 Socioeconomic distribution (n=76)

SES	Number	Percentage
APL	3	4%
BPL	73	96%

Graph 4 Socioeconomic distribution



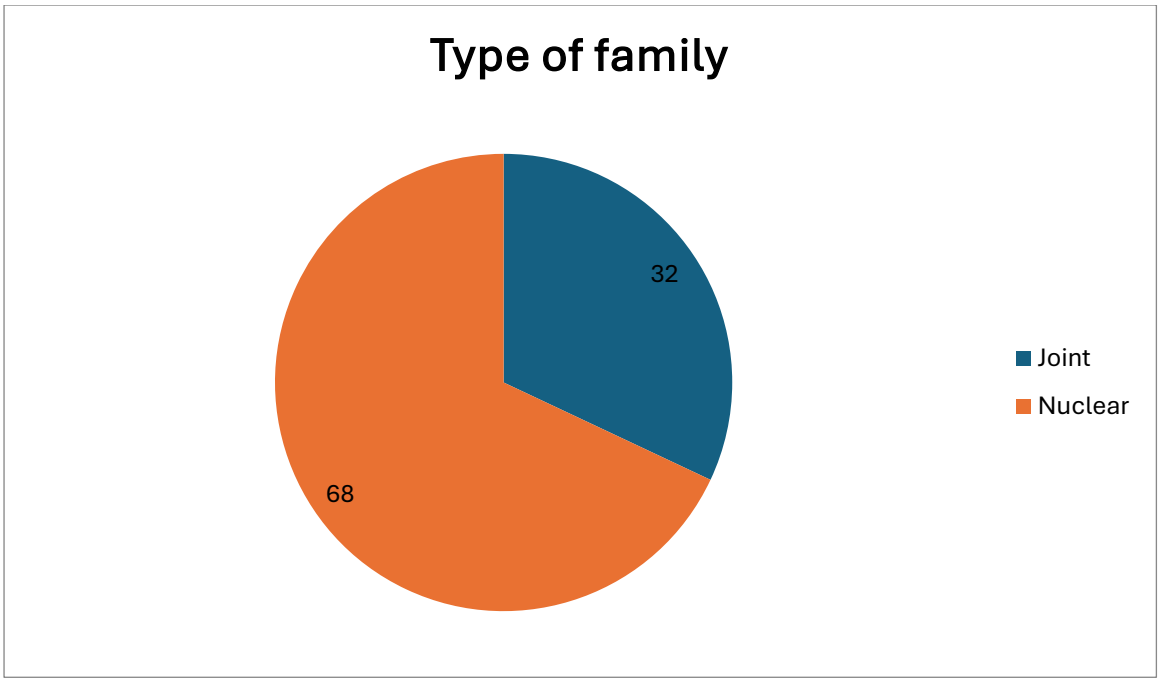
TYPE OF FAMILY

Most participants belonged to nuclear families (68%), followed by patients who were living in joint family.

Table 5 Family type distribution (n=76)

Type of family	Number	Percentage
Joint	24	32%
Nuclear	52	68%

Graph 5 Family type distribution



NUMBER OF CHILDREN

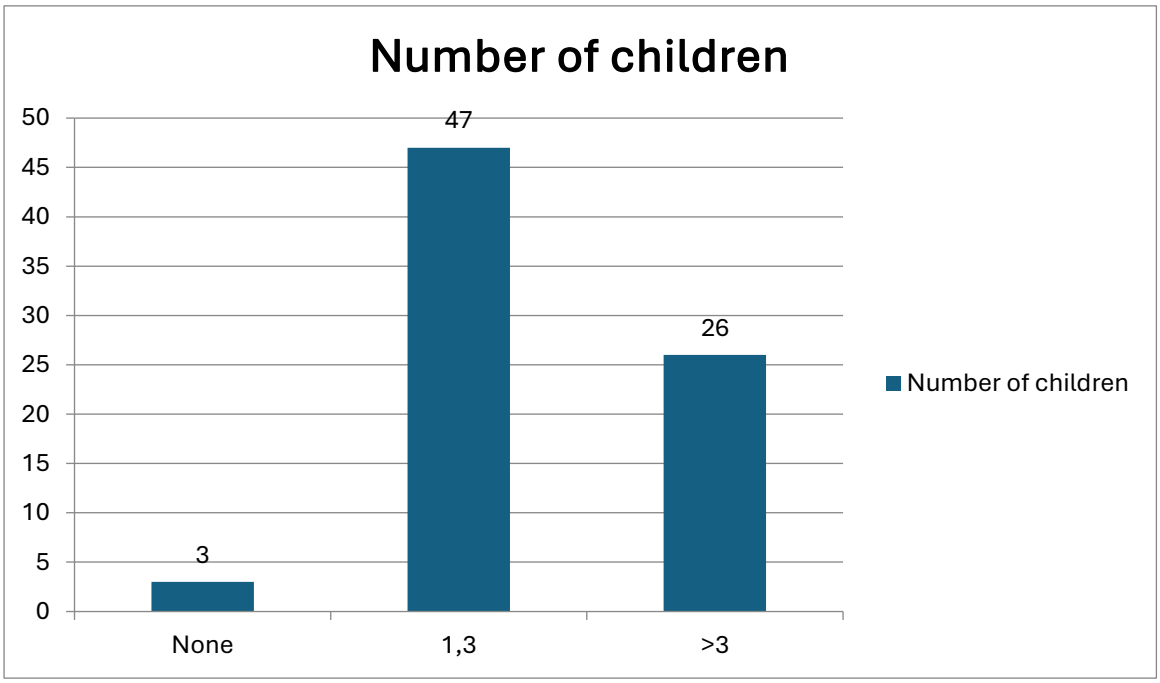
Majority of the subjects had 1-3 children (62%), followed by patients who had more than 3 children.

Only 4% of the study group did not have any children.

Table 6 Number of children distribution (n=76)

Number of children	Number	Percentage
None	3	4%
1-3	47	62%
>3	26	34%

Graph 6 Number of children distribution



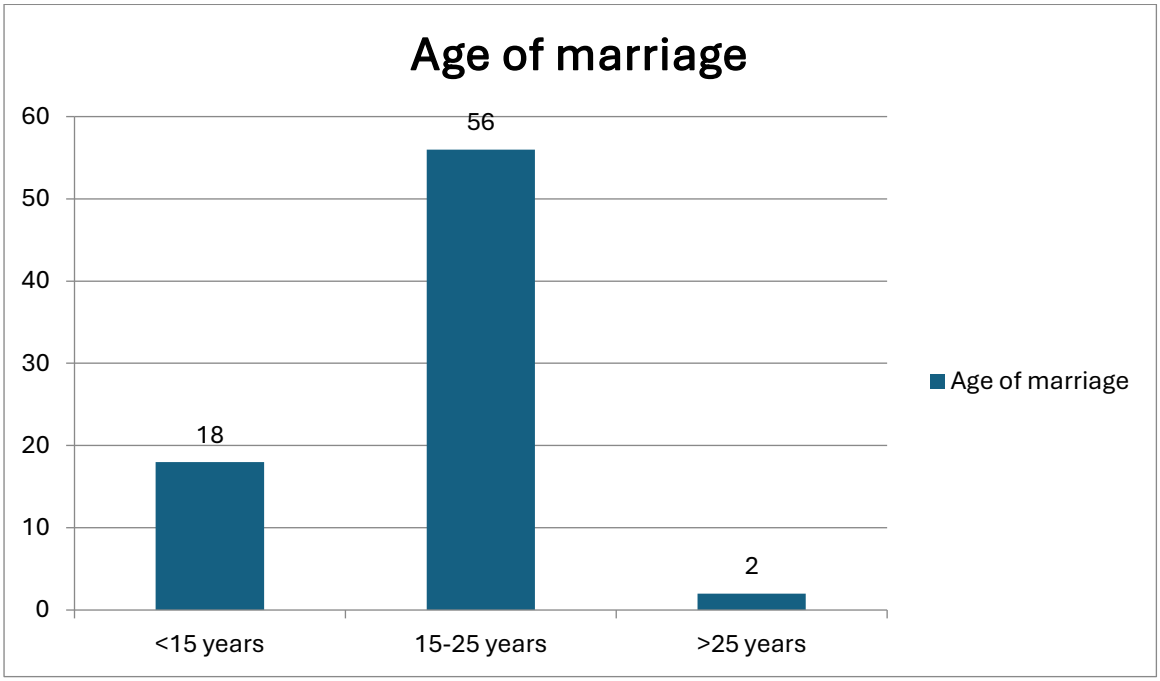
AGE OF MARRIAGE

Majority of the women were married between 15-25 years (74%), followed by women who were married less than 15 years (23%) of marriage and only 3% were married for more than 25 years.

Table 7 Age of marriage distribution (n=76)

Age of marriage	Number	Percentage
< 15 years	18	23%
15-25 years	56	74%
>25 years	2	3%

Graph 7 Age of marriage distribution



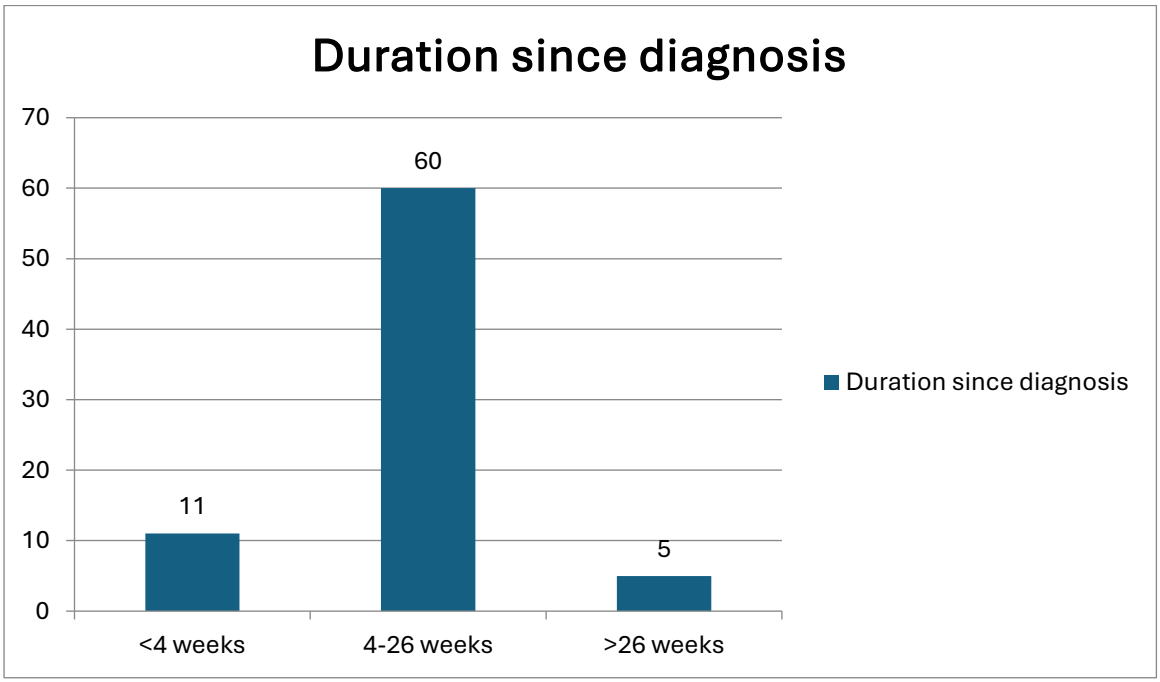
DURATION SINCE DIAGNOSIS

Most of the partakers included in this research were diagnosed 4-26 weeks (79%) before the start of the study, followed by 14% of patients who were diagnosed less than 4 weeks and 7% of the patients were diagnosed more than 26 weeks.

Table 8 Distribution according to duration since diagnosis (n=76)

Duration since diagnosis	Number	Percentage
Less than 4 weeks	11	14%
4-26 weeks	60	79%
More than 26 weeks	5	7%

Graph 8 Distribution according to duration since diagnosis



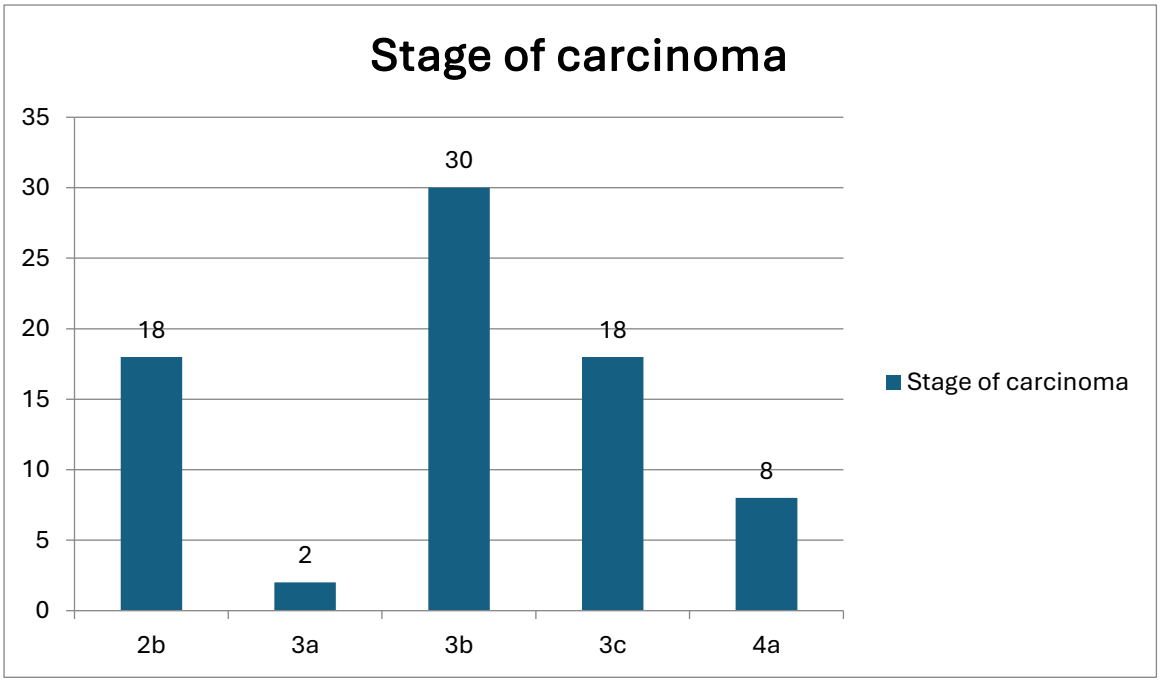
STAGE OF CARCINOMA

Majority of the women in this group had diagnosis of 3b carcinoma (39%), followed by 2b, 3c,4a and 3a.

Table 9 Stage of carcinoma distribution (n=76)

Stage of carcinoma	Number	Percentage
2b	18	24%
3a	2	3%
3b	30	39%
3c	18	23%
4a	8	11%

Graph 9 Stage of carcinoma distribution



CHEMOTHERAPY AND RADIOTHERAPY RECEIVED

All the patients in the study population have received chemotherapy and radiotherapy.

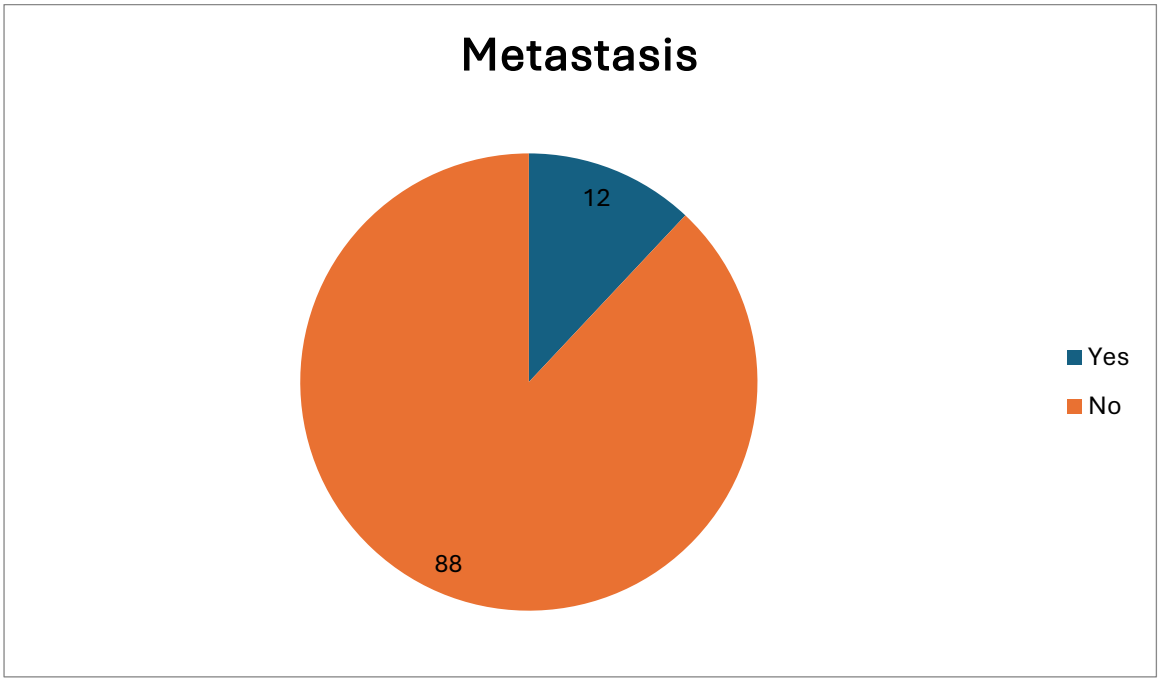
METASTASIS

Large number of the patients did not have metastasis (88%) followed by patients who had metastasis of the carcinoma.

Table 10 Metastasis distribution (n=76)

Metastasis	Number	Percentage
Yes	9	12%
No	67	88%

Graph 10 Metastasis distribution



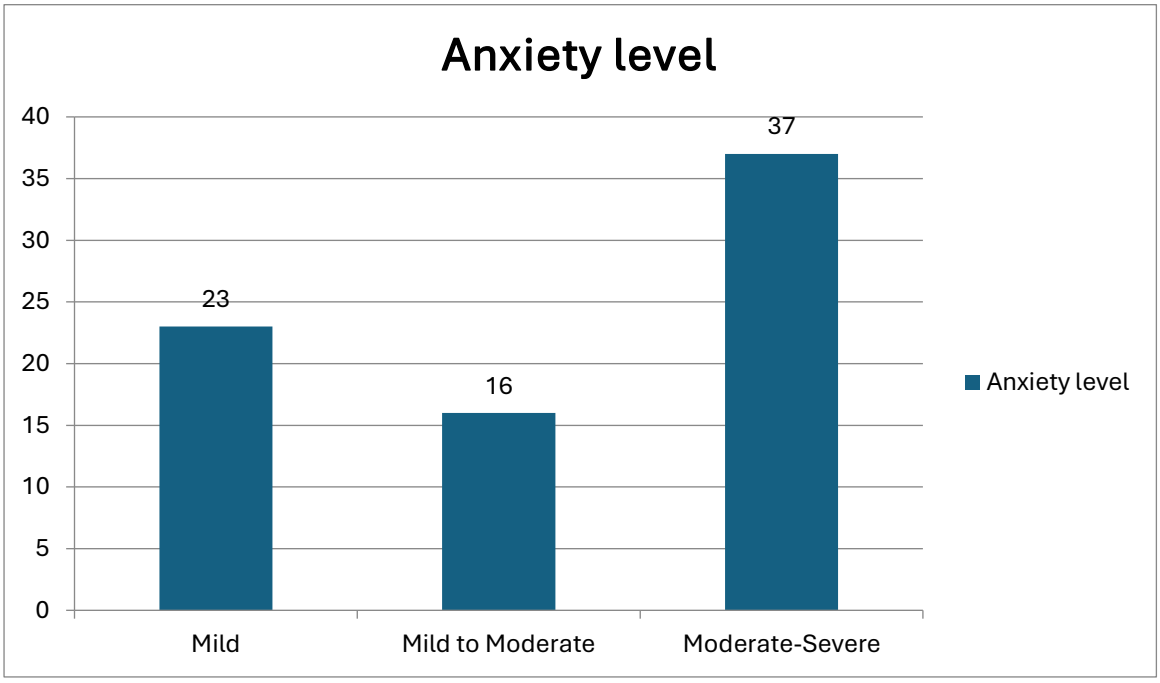
ANXIETY

Overall, the anxiety score of the participants ranged between 5 and 43, with a mean of 23.3 (SD ±8.3). Most of the partakers of study suffered from moderate to severe anxiety (48.7%)

Table 11 Level of anxiety distribution (n=76)

Level of anxiety	Counts	% of Total
Mild	23	30.3 %
Mild to moderate	16	21.1 %
Moderate to severe	37	48.7 %

Graph 11 Level of anxiety distribution



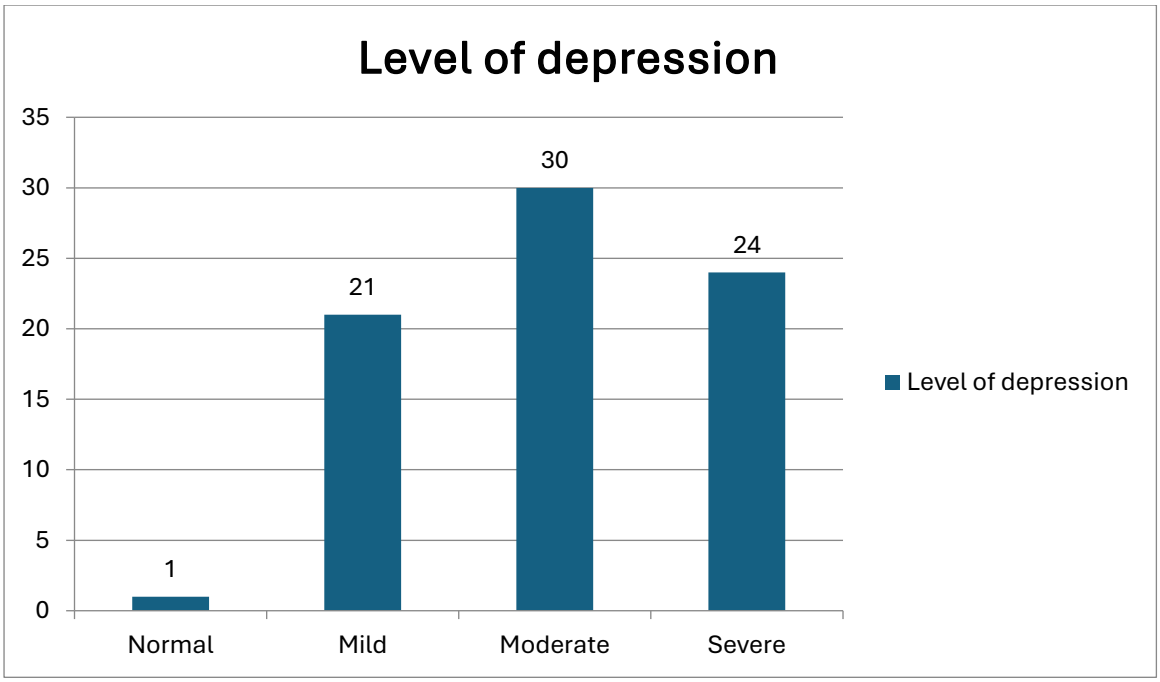
DEPRESSION

Among the 76 participants, only one had a normal level of mood. The participant who had no depression was a 65year old lady, who was a daily wage worker. She was diagnosed 12 weeks back, during course of the study, with Stage 3b cancer. Overall, the depression score of the participants ranged 6 between and 33, with mean score of 20.9 (SD ±6.2). The major chunk of the participants had Moderate depression (39.5%).

Table 12 Level of depression distribution (n=76)

Level of Depression	Counts	% of Total
Normal	1	1.3 %
Mild	21	27.6 %
Moderate	30	39.5 %
Severe	24	31.6 %

Graph 12 Level of depression distribution



QUALITY OF LIFE

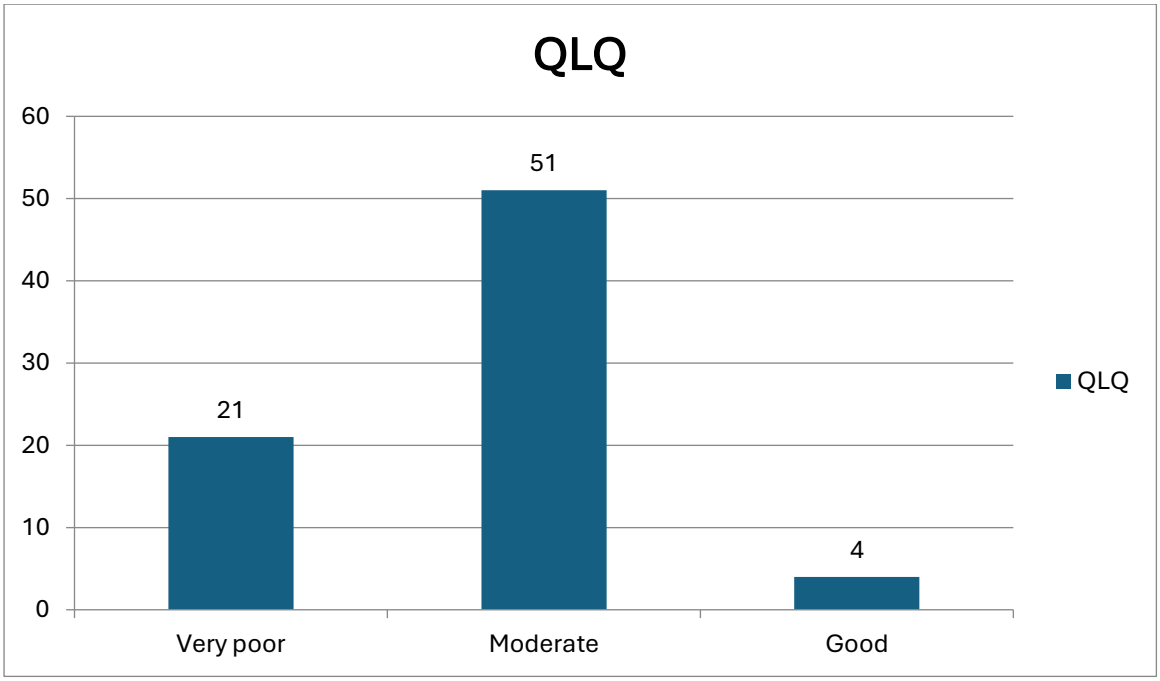
EORTC- QLQ C 30

The life quality was ‘Good’ in 4 patients. These 4 patients with age range of 45-60 years, had 3a/3b Ca Cervix. While one of them had normal levels of depression, the others had moderate depression and moderate to severe anxiety. Most of the other participants had moderate QoL (67.1%)

Table 13 Quality of life distribution (n=76)

Quality of life	Counts	% of Total
Very poor	21	27.6 %
Moderate	51	67.1 %
Good	4	5.3 %

Graph 13 Quality of life distribution



CORRELATION OF ANXIETY AND DEMOGRAPHIC FACTORS

Association between anxiety and age groups of the patients

The HAM A scores were studied for patients with age less than 60 and more than 60 and were detected to be normally distributed. There wasn't any statistically significant (P=0.1187) dissimilarity in average scores of patients. This implied no correlation of anxiety with age.

Table 14 Association between anxiety and age groups of the patients (n=76)

	Level of anxiety							X^2 Test/Fischer's exact test			
Age group	Mild		Mild to Moderate		Moderate to Severe		Total		Value	df	p
Less than 60 years	16	30.2%	8	15.1%	29	54.7%	53	X^2	4.263	2	0.1187
60 years and above	7	30.4%	8	34.8%	8	34.8%	23				
Total	23	30.3%	16	21.1%	37	48.7%	76				

Association between anxiety and educational status of the patients

The HAM A scores were checked for patients who were illiterate and literate which included school and college going which were revealed to be normally distributed. No statistically significant (P=0.1889) difference in average scores of patients was discovered.

Table 15 Association between anxiety and educational status of the patients (n=76)

	Level of Anxiety							X^2 Test/Fischer's exact test		
Educational status	**Mild**		**Mild to moderate**		**Moderate to severe**		**Total**	Value	df	p
Illiterate	20	37.0%	12	22.2%	22	40.7%	54	Fisher's exact test		0.1889
School	3	15.0%	4	20.0%	13	65.0%	20			
PUC/Degree	0	0.0%	0	0.0%	2	100.0%	2			
Total	23	30.3%	16	21.1%	37	48.7%	76			

Association between anxiety and occupation of the patients

The HAM A scores were assessed for patients who were homemakers, self-employed, daily wage workers and salaried employees and were noted to have normal distribution. There was no statistical significance (P=0.1751) in average scores of patients. Hence implying no interplay of occupation and anxiety.

Table 16 Association between anxiety and occupation of the patients (n=76)

	Level of Anxiety							X^2 Test/Fischer's exact test		
Occupation	**Mild**		**Mild to moderate**		**Moderate to severe**		**Total**	Value	df	p
Homemaker	2	11.1%	4	22.2%	12	66.7%	18	Fisher's exact test		0.1751
Self employed	6	42.9%	4	28.6%	4	28.6%	14			
Daily wage worker	15	36.6%	7	17.1%	19	46.3%	41			
Salaried	0	0.0%	1	33.3%	2	66.7%	3			
Total	23	30.3%	16	21.1%	37	48.7%	76			

Association between anxiety and type of family of the patients

The HAM A scores assessed for patients who were living in joint and nuclear family setups were noted to be normally distributed. Analysis did not depict any variation of statistical value (P=0.3219) in average values of patients implying lack of correlation of family type with anxiety as per our study.

Table 17 Association between anxiety and type of family of the patients (n=76)

	Level of Anxiety							X^2 Test/Fischer's exact test		
Type of family	**Mild**		**Mild to moderate**		**Moderate to severe**		**Total**	Value	df	p
Joint family	8	33.3%	7	29.2%	9	37.5%	24	Fisher's exact test		0.3219
Nuclear family	15	28.8%	9	17.3%	28	53.8%	52			
Total	23	30.3%	16	21.1%	37	48.7%	76			

Association between anxiety and socioeconomic status

As only 3 patients were in APL group, the association could not be analyzed between anxiety and socioeconomic status. It is not clinically significant for the variables of interest.

Association between anxiety and number of children

As most of the patients had 1-3 children, the association could not be studied between anxiety and number of children and was not clinically significant for the variables of interest.

Association between anxiety and age of marriage

Majority of the participants were married for 15-25 years; hence association couldn't be explored between anxiety and number of children and neither was it clinically significant for the variables of interest.

CORRELATION OF ANXIETY AND DISEASE FACTORS

Association between anxiety and duration since diagnosis of the disease

The HAM A scores were analyzed for patients who were diagnosed less than 4 weeks, 4-26 weeks and more than 26 weeks and were discovered to show normal distribution. There was no depiction of any statistically significant (P=0.207) dissimilarity in average scores of patients. This implied lack of correlation of anxiety with duration since diagnosis.

Table 18 Association between anxiety and duration since diagnosis of the disease (n=76)

	Level of Anxiety							X^2 Test/Fischer's exact test		
Duration since diagnosis of Ca Cervix	**Mild**		**Mild to moderate**		**Moderate to severe**		**Total**	Value	df	p
Less than 4 weeks	3	27.3%	1	9.1%	7	63.6%	11	Fisher's exact test		0.207
4-26 weeks	20	33.3%	12	20.0%	28	46.7%	60			
More than 26 weeks	0	0.0%	3	60.0%	2	40.0%	5			
Total	23	30.3%	16	21.1%	37	48.7%	76			

The HAM A scores were checked for normality in patients who were diagnosed recently (less than 4 weeks), four to 26 weeks and more than 26 weeks ago and was noted to have normal distribution. No statistically notable variation in average scores of patients who had been diagnosed for different durations was found (F=0.389, p=0.688).

Table 19 Comparison of Levels of anxiety among patients diagnosed with Ca Cervix, by time since diagnosis (n=76)

Duration since diagnosis of Ca Cervix	**HAMA Total score (Mean, SD)**	
Less than 4 weeks	24.182	7.068
4-26 weeks	22.85	8.635
More than 26 weeks	26	8.544

Association between anxiety and stage of carcinoma

The HAMA scores were checked for patients with carcinoma stage 2b, 3a, 3b, 3c and 4a and it was observed tube normally distributed. It showed no statistically significant (P=0.1248) difference in the average scores of patients.

Table 20 Association between anxiety and stage of carcinoma (n=76)

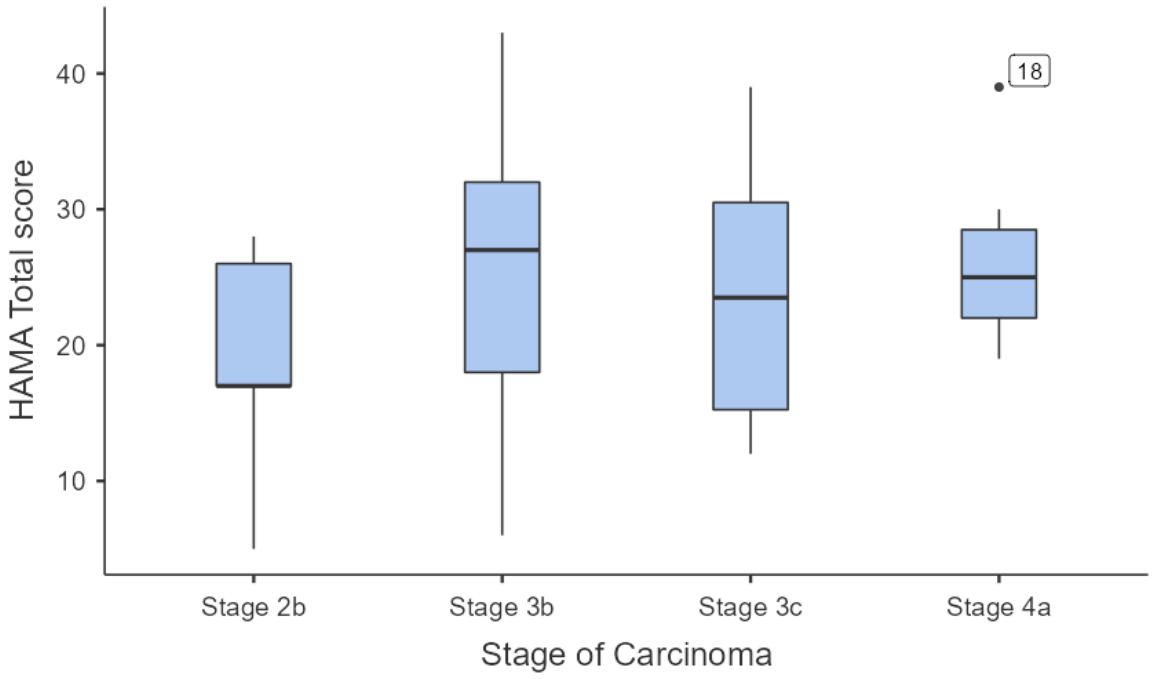
	Level of Anxiety							X^2 Test/Fischer's exact test		
Stage of Carcinoma	**Mild**		**Mild to moderate**		**Moderate to severe**		**Total**	Value	df	p
Stage 2b	10	55.6%	3	16.7%	5	27.8%	18	Fisher's exact test		0.1248
Stage 3a	0	0.0%	0	0.0%	2	100.0%	2			
Stage 3b	7	23.3%	6	20.0%	17	56.7%	30			
Stage 3c	6	33.3%	4	22.2%	8	44.4%	18			
Stage 4a	0	0.0%	3	37.5%	5	62.5%	8			
Total	23	30.3%	16	21.1%	37	48.7%	76			

Table 21 Levels of anxiety among patients with different stages of Carcinoma (n=76)

	Stage of Carcinoma	**N**	**Mean**	**SD**
HAMA Total score	Stage 2b	18	19.111	6.623
	Stage 3a	2	30.000	2.828
	Stage 3b	30	24.500	9.299
	Stage 3c	18	23.333	8.338
	Stage 4a	8	26.000	6.525

Excluding Stage 3a, the levels of anxiety amongst the patients diagnosed with distinct stages of carcinoma were compared using ANOVA. No significant difference in the average HAM A scores in the participants at different stages of Ca Cervix (F=2.721, p =0.063)

Graph 14 Levels of anxiety among patients with different stages of Carcinoma



CORRELATION OF DEPRESSION AND DEMOGRAPHIC FACTORS

The participant who had no depression was a 65-year-old lady, who was a daily wage worker. She was diagnosed 12 weeks back, in the course of study, with Stage 3b cancer. Excluding this patient who did not have depression, the factors associated with depression were examined.

Association between depression and age groups of the patients

The HDRS scores were studied for patients with age less than 60 and more than 60 and were discovered to have normal distribution. No notable (P=0.4751) statistical variation in average scores for the patients was seen.

Table 22 Association between depression and age groups of the patients (n=75)

	Level of depression							X^2 Test/Fischer's exact test			
Age group	Mild		Moderate		Severe		Total		Value	df	p
Less than 60 years	17	32.1%	20	37.7%	16	30.2%	53	χ^2	1.489	2	0.4751
60 years and above	4	18.2%	10	45.5%	8	36.4%	22				
Total	21	28.0%	30	40.0%	24	32.0%	75				

Association between depression and educational status of the patients

The HDRS scores were checked for patients who were illiterate, school going and college and happened to be normally distributed. There wasn't any statistical significance (P=0.0542) observed in average scores of patients.

Table 23 Association between depression and educational status of the patients (n=75)

	Level of Depression							X^2 Test/Fischer's exact test		
Educational status	Mild		Moderate		Severe		Total	Value	df	p
Illiterate	17	32.1%	24	45.3%	12	22.6%	53	Fisher's exact test		0.0542
School	4	20.0%	6	30.0%	10	50.0%	20			
PUC/Degree	0	0.0%	0	0.0%	2	100.0%	2			
Total	21	28.0%	30	40.0%	24	32.0%	75			

Association between depression and occupation of the patients

The HDRS scores were checked for patients who were homemakers, self-employed, daily wage workers and salaried employees. Statistically significant (P=0.0042) difference was noted in average scores of patients.

Table 24 Association between depression and occupation of the patients (n=75)

	Level of Depression (Row%)							X^2 Test/Fischer's exact test		
Occupation	Mild		Moderate		Severe		Total	Value	df	p
Homemaker	2	11.1%	5	27.8%	11	61.1%	18	Fisher's exact test		0.0042*
Self employed	3	21.4%	10	71.4%	1	7.1%	14			
Daily wage worker	16	40.0%	14	35.0%	10	25.0%	40			
Salaried	0	0.0%	1	33.3%	2	66.7%	3			
Total	21	28.0%	30	40.0%	24	32.0%	75			

Association between depression and type of family of the patients

The HDRS scores studied for patients who were living in joint family and nuclear family revealed normal distribution. No statistically notable(P=0.7779) variation in average scores of patients was observed.

Table 25 Association between anxiety and type of family of the patients (n=75)

	Level of Depression (Row %)							X^2 Test/Fischer's exact test			
Type of family	Mild		Moderate		Severe		Total		Value	df	p
Joint family	6	25.0%	11	45.8%	7	29.2%	24	X^2	0.502	2	0.7779
Nuclear family	15	29.4%	19	37.3%	17	33.3%	51	N	75		
Total	21	28.0%	30	40.0%	24	32.0%	75				

Association between depression and socioeconomic status

As only 3 patients were in APL group, the association could not be analyzed between depression and socioeconomic status. It is not clinically significant for the variables of interest.

Association between depression and number of children

As most of the patients had 1-3 children, the association could not be analyzed between depression and number of children. It is not clinically significant for the variables of interest.

Association between depression and age of marriage

As most of the patients were married for 15-25 years, the association could not be analyzed between depression and number of children. It is not clinically significant for the variables of interest.

CORRELATION OF DEPRESSION AND DISEASE FACTORS

Association between depression and duration since diagnosis of the disease

The HDRS scores were checked for patients who were diagnosed less than 4 weeks, 4-26 weeks and more than 26 weeks and were normally distributed. Statistically significant (P=0.1867) difference was lacking in average scores of patients.

Table 26 Association between depression and duration since diagnosis of the disease (n=75)

	Level of Depression (Row%)							X^2 Test/Fischer's exact test		
Duration since diagnosis	Mild		Moderate		Severe		Total	Value	df	p
Less than 4 weeks	1	9.1%	4	36.4%	6	54.5%	11	Fisher's exact test		0.1867
4-26 weeks	19	32.2%	25	42.4%	15	25.4%	59			
More than 26 weeks	1	20.0%	1	20.0%	3	60.0%	5			
Total	21	28.0%	30	40.0%	24	32.0%	75			

Association between depression and stage of carcinoma

The HDRS scores were checked for patients with carcinoma stage 2b, 3a, 3b, 3c and 4a. a statistically relevant (P=0.0001*) difference in average scores for patients.

Table 27 Association between depression and stage of carcinoma (n=75)

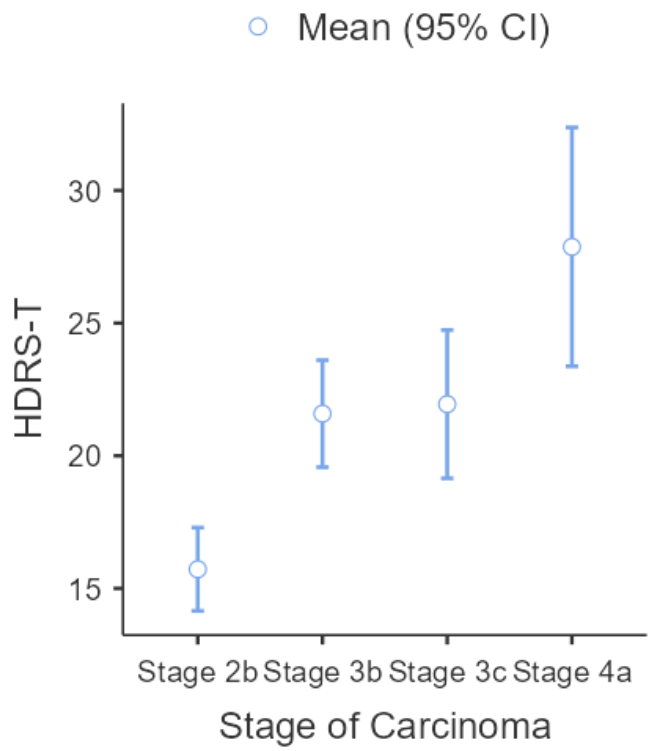
	Level of Depression (Row%)							X^2 Test/Fischer's exact test		
Stage of carcinoma	Mild		Moderate		Severe		Total	Value	df	p
Stage 2b	12	66.7%	6	33.3%	0	0.0%	18	Fisher's exact test		0.0001*
Stage 3a	0	0.0%	0	0.0%	2	100.0%	2			
Stage 3b	6	20.7%	13	44.8%	10	34.5%	29			
Stage 3c	3	16.7%	9	50.0%	6	33.3%	18			
Stage 4a	0	0.0%	2	25.0%	6	75.0%	8			
Total	21	28.0%	30	40.0%	24	32.0%	75			

Table 28 Association between depression and stage of carcinoma (n=75)

	Stage of Carcinoma	N	Mean	Median	SD	IQR
HDRS-T	Stage 2b	18	15.722	15.000	3.159	3.500
	Stage 3a	2	29.500	29.500	0.707	0.500
	Stage 3b	29	21.586	22	5.302	5.000
	Stage 3c	18	21.944	22.500	5.620	4.000
	Stage 4a	8	27.875	30.000	5.384	7.000

Excluding Stage 3a, the HDRS total score was compared among participants with different stages of carcinoma and there was statistical significance ($F=16.703$, $p <0.0001$) in average scores of patients. Upon post hoc analysis (excluding Stage 3 a), the Stages 3b, 3c and 4a had similar scores, which were significantly higher, compared to Stage 2b.

Graph 15 HDRS score in patient of cervical cancer with stages of carcinoma



Association between depression and metastasis

The HDRS scores were studied for patients who had cancer metastasis and did not have metastasis and were normally distributed with no statistically significant (P=0.0966) difference in average scores of patients.

Table 29 Association between depression and cancer metastasis (n=75)

	Level of Depression (Row%)							X^2 Test/Fischer's exact test		
Metastasis	Mild		Moderate		Severe		Total	Value	df	p
Yes	1	11.1%	2	22.2%	6	66.7%	9	Fisher's exact test		0.0966
No	20	30.3%	28	42.4%	18	27.3%	66			
Total	21	28.0%	30	40.0%	24	32.0%	75			

CORRELATION OF QUALITY OF LIFE WITH SOCIODEMOGRAPHIC VARIABLES

Life quality was 'Good' in 4 patients. They were 4 patients aged between 45-60 years, with Stage 3a/3b Ca Cervix. While one of them had normal levels of depression, the others had moderate depression and moderate to severe anxiety.

The sociodemographic profile, anxiety and depression among the remaining 72 participants were examined.

Association between QoL and age groups of the patients

The EORTC-QLQ C30 scores were assessed with age less than 60 and more than 60 and was noted to be normally distributed. No statistically significant (P=0.3728) difference in average scores of patients.

Table 30 Association between QoL and age groups of the patients (n=72)

	Quality of life					X^2 Test/Fischer's exact test			
Age group	Very poor		Moderate		Total		Value	df	p
Less than 60 years	13	26.0%	37	74.0%	50	χ^2	0.794	1	0.3728
60 years and above	8	36.4%	14	63.6%	22				
Total	21	31.2%	51	68.8%	72				

Association between QoL and educational status of patients

The EORTC-QLQ C30 scores were evaluated for women who were illiterate, school going and college. There was statistical significance (P=0.003*) in difference of average scores of patients.

Table 31 Association between QoL and educational status of the patients (n=72).

	Quality of life					X^2 Test/Fischer's exact test			
Educational status	Very poor		Moderate		Total		Value	df	p
Illiterate	9	18.0%	41	82.0%	50	Fisher's exact test	9.898	2	0.003*
School	11	55.0%	9	45.0%	20				
PUC/Degree	1	50.0%	1	50.0%	2				

Association between QoL and occupation of the patients

The EORTC-QLQ C30 scores were tested for women who were homemakers, self-employed, daily wage workers and salaried employees. It revealed statistically relevant (P=0.0079*) difference in average scores of patients.

Table 32 Association between QoL and occupation of the patients (n=72)

	Quality of life					X^2 Test/Fischer's exact test		
Occupation	Very poor		Moderate		Total	Value	df	p
Homemaker	11	61.1%	7	38.9%	18	Fisher's exact test		0.0079*
Self employed	3	21.4%	11	78.6%	14			
Daily wage worker	7	18.9%	30	81.1%	37			
Salaried	0	0.0%	3	100.0%	3			
Total	21	29.2%	51	70.8%	72			

Association between QoL and type of family of the patients

The EORTC-QLQ C30 scores were assessed and patient living in joint and nuclear setups were normally distributed. No difference of statistical significance (P=0.8712)was established in average scores of patients.

Table 33 Association between QoL and type of family of the patients (n=72)

	Quality of life					X^2 Test/Fischer's exact test			
Type of family	Very poor		Moderate		Total		Value	df	p
Joint family	7	30.4%	16	69.6%	23	χ^2	0.026	1	0.8712
Nuclear family	14	28.6%	35	71.4%	49				
Total	21	29.2%	51	70.8%	72				

Association between QoL and socioeconomic status

As only 3 patients were in APL group, the association could not be analyzed between QoL and socioeconomic status. It is not clinically significant for the variables of interest.

Association between QoL and number of children

As most of the patients had 1-3 children, the association could not be analyzed between QoL and number of children. It is not clinically significant for the variables of interest.

Association between QoL and age of marriage

As most of the patients were married for 15-25 years, the association could not be analyzed between QoL and number of children. It is not clinically significant for the variables of interest.

CORRELATION OF QUALITY OF LIFE AND DISEASE FACTORS

Association between QoL and duration since diagnosis of disease

The EORTC-QLQ C30 for patients after assessment who were diagnosed less than 4 weeks, 4-26 weeks and more than 26 weeks and were noted to have normal distribution without any statistically significant (P=0.0527) difference in their average scores.

Table 34 Association between QoL and duration since diagnosis of the disease (n=72)

	Quality of life					X^2 Test/Fischer's exact test		
Duration since diagnosis	Very poor		Moderate		Total	Value	df	p
4-26 weeks	14	25.0%	42	75.0%	56	Fisher's exact test		0.0527
Less than 4 weeks	3	27.3%	8	72.7%	11			
More than 26 weeks	4	80.0%	1	20.0%	5			

Association between QoL and stage of carcinoma

EORTCQLQ-C30 values were studied with carcinoma stage 2b, 3a, 3b, 3c and 4a and discovered to be normally distributed. No statistically significant (P=0.0579) contrast in the average scores of patients was seen.

Table 35 Association between QoL and stage of carcinoma (n=76)

	Quality of life					X^2 Test/Fischer's exact test		
Stage of carcinoma	Very poor		Moderate		Total	Value	df	p
Stage 2b	2	11.1%	16	88.9%	18	Fisher's exact test		0.0579
Stage 3a	1	50.0%	1	50.0%	2			
Stage 3b	7	25.0%	21	75.0%	28			
Stage 3c	6	37.5%	10	62.5%	16			
Stage 4a	5	62.5%	3	37.5%	8			
Total	21	29.2%	51	70.8%	72			

CORRELATION OF ANXIETY AND LEVEL OF DEPRESSION

The HAM A values for patients were examined with different levels of depression. It presented with statistically significant (P=< .0001*) difference in average values of patients

Table 36 Correlation between anxiety and depression

	Level of Anxiety							X^2 Test/Fischer's exact test		
Level of Depression	Mild		Mild to moderate		Moderate to severe		Total	Value	df	p
Normal	1	100.0%	0	0.0%	0	0.0%	1	Fisher's exact test		< .0001*
Mild	12	57.1%	3	14.3%	6	28.6%	21			
Moderate	10	33.3%	10	33.3%	10	33.3%	30			
Severe	0	0.0%	3	12.5%	21	87.5%	24			
Total	23	30.3%	16	21.1%	37	48.7%	76			

CORRELATION OF QUALITY OF LIFEWITH LEVEL OF ANXIETY

The EORTC-QLQ C30 scale results were analyzed for patients suffering different levels of anxiety.

No difference of statistical significance (P=0.0048*) was noted in average scores of patients.

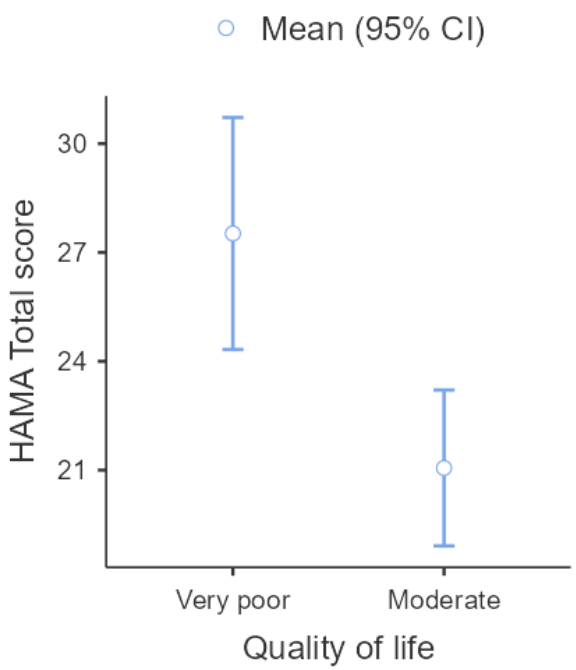
Table 37 Correlation between QoL and anxiety

	Quality of life					X^2 Test/Fischer's exact test		
Level of anxiety	Very poor		Moderate		Total	Value	df	p
Mild	1	4.5%	21	95.5%	22	Fisher's exact test		0.0048*
Mild to moderate	6	37.5%	10	62.5%	16			
Moderate to severe	14	41.2%	20	58.8%	34			
Total	21	29.2%	51	70.8%	72			

The scores of life quality were examined for patients having different degrees of anxiety.

The HAM-A scores of women having very poor life quality (n=21) was 27.52 (SD±7.03), which was significantly higher compared to those who had moderate quality of life (21.06±7.64), (t=3.338, df=70, p=0.0014).

Graph 16 HAM-A scores in patients of Ca Cervix with very poor and moderate quality of life



CORRELATION OF QUALITY OF LIFE AND LEVEL OF DEPRESSION

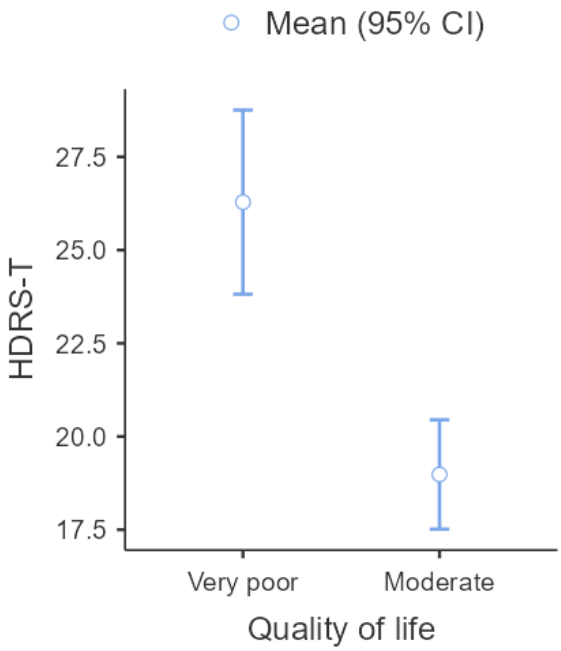
The EORTC-QLQ C30 values were checked for women with different levels of depression. There was statistical significance (P=0.0002*) in average scores of patients.

Table 38 Correlation of QoL with depression

	Quality of life					X^2 Test/Fischer's exact test		
Level of depression	Very poor		Moderate		Total	Value	df	p
Mild	1	4.8%	20	95.2%	21	Fisher's exact test		0.0002*
Moderate	6	22.2%	21	77.8%	27			
Severe	14	58.3%	10	41.7%	24			
Total	21	29.2%	51	70.8%	72			

There was a significantly higher Depression score among patients with very poor quality of life (26.29±5.4), in comparison to those who had moderate life quality(18.98±5.2), (t=5.342, df=70, p<0.000).

Graph 17 Depression rating scale scores in patients of Ca Cervix with very poor and moderate quality of Life



DISCUSSION

Study conducted on a group of 76 patients diagnosed with cervical carcinoma has revealed the following findings.

AGE DISTRIBUTION

In aforementioned study major of patients (69.7%) were aged less than 60 years and 23 (30.3%) were above 60 years of age. The mean age of partakers in this research project was 53.8 years. These findings are similar to study conducted by Cull et al, wherein mean age was 45 years among 83 patients [(170)]. One likewise mean age of 50.6 ± 12.9 years in 2017 was noted in study by Nasr et al., who assessed anxiety, depression and life quality amongst women having gynecological cancers[(171)]. Mean age of 45 to 55 is in accordance to the study conducted, which is frequently seen in CC

EDUCATION STATUS

Most of the participants in the study group were illiterate (71%), followed by patients who did schooling and college (29%). This finding is close to many other studies wherein majority of the participants had lower literacy profile except few depending on the institution where the study was conducted. Cervical cancer has no impact on the education or conversely.

OCCUPATION

Most of the participants in the study group were daily wage workers (54%), followed by home maker (24%) and then self-employed (22%). This distribution is unlike other studies, as this is a charitable institute and majority of patients come here were of lower socio-economic status. Majority of participants were home makers in other studies.

SOCIOECONOMIC STATUS

Most of the patients belong to BPL category (96%). This is because the study was done in the R.L.JALAPPA HOSPITAL, which is a charitable institution.

TYPE OF FAMILY

Most participants belonged to nuclear families (68%), followed by patients who were living in joint family when this project was carried out. But this particular demographic variable isn't comparable due to paucity of research data in the Indian studies. Social and cultural differences also make this incomparable.

NUMBER OF CHILDREN

Majority of the subjects had 1-3 children (62%), followed by patients who had more than 3 children. Only 4% of the study group did not have any children. Many studies suggest that the risk increases with number of parity[172].

AGE OF MARRIAGE

Majority of the women were married between 15-25 years (74%), followed by women who were married less than 15 years (23%) of marriage and only 3% were married for more than 25 years. It is comparable to most of the studies[173].

DURATION SINCE DIAGNOSIS

Most of the participants in the study had been diagnosed 4-26 weeks (79%) before the start of the study.

STAGE OF CARCINOMA

Majority of the women in this study group had a diagnosis of 3b cervical carcinoma, followed by 2b, 3c, 4a and 3a.

CHEMOTHERAPY AND RADIOTHERAPY RECEIVED

All the patients in the study population have received chemotherapy and radiotherapy.

METASTASIS

Majority of the patients did not have metastasis (88%) in the study group.

ANXIETY

Most of the participants in the study group had moderate to severe anxiety (48.7%). Nasr et al in 2017reported 28.5% of participants had anxiety [170]. Yi-Long Yang et al conducted a research in 2014 which conveyed prevalence of anxiety to be 65.6% among carcinoma cervix patients[156].

DEPRESSION

Among 76 participants, only one had a normal level of mood. The participant who had no depression was a 65-year-old lady, who was a daily wage worker. She was diagnosed 12 weeks back, at the time of the study, with Stage 3b disease. The majority of the participants had Moderate depression (39.5%).

This is comparable to study of 2014 by Osann wherein level of depression was 28% > 1 SD than mean of general population[174]. Ravi Paul et al, in 2016 observed that 78% suffered from moderate type of depression, 18% mild and 4% severe type depression. Nasr et al in 2017 reported that 32.5% displayed depression[171]. Yi-Long Yang et al in 2014 concluded the prevalence of depression to be 52.2% in women with CC [173]. A 2013 study carried out by Lau et al revealed a similar statistical trend of depressive disorders (31%) (175).

There are studies that show that 50% of newly diagnosed patients with CC are suffering from moderate to severe anxiety or depression [176,177].

QUALITY OF LIFE

The life quality was 'Good' in 4 patients. These 4 patients had age range of 45-60 years, and Stage 3a/3b Ca Cervix. While one of them had normal levels of depression, the others had moderate depression and moderate to severe anxiety. Most of the other participants had moderate QoL (67.1%). MvuntaDH et al., determined that the comprehensive QOL/global health status of women with CC was 64.4 ± 1.9, which is fairly good[178]. This was consistent with our findings.

CORRELATION OF ANXIETY AND DEMOGRAPHIC FACTORS

Association between anxiety and age groups of the patients

The HAM-A scores were checked for patients with age less than 60 and more than 60 and even though not statistically significant younger patients with cervical cancer had more risk of developing severe anxiety compared to older patients.

Li Q et al., in the exploratory study reported that the influence of age on symptoms of anxiety had statistical value ($p<0.05$)[179].

Kim SH et al., concluded that prevalence of anxiety was noticeable in younger CCSs (≤50 years) in comparison to controls (40% vs 26.4%) respectively < 0.001 [180].

This is in dispute with our study. This may be because of the difference in demographical difference in the studies like education, SES, region and family support.

Association between anxiety and educational status of the patients

The HAM-A scores were checked for patients who were illiterate, school going and college and even though not statistically significant, anxiety was found to be more severe in educated patients. It is contrary to study performed by Tosic Golubovic S et al., which found that advanced cancer stage, financial stressors like poor incomer probable unemployment), young age, lesser levels of education, implicate a higher risk of anxiety in women with CC [181].

Association between anxiety and occupation of the patients

The HAM A scores were checked for patients who were homemakers, self-employed, daily wage workers and salaried employees and were found to be normally distributed. Even though not statistically significant home makers and salaried employees had more severe anxiety compared to others. There were no relevant studies found correlating these variables.

Association between anxiety and type of family of the patients

The HAM A scores were checked for patients who were living in joint family and nuclear family were normally distributed. A statistically significant (P=0.3219) difference in average scores of patients was absent. There were no relevant studies found correlating these variables.

CORRELATION OF ANXIETY AND DISEASE FACTORS

Association between anxiety and duration since diagnosis of the disease

The HAM A scores were checked for patients who were diagnosed less than 4 weeks, 4-26 weeks and more than 26 weeks and were found to be normally distributed. Even though not statistically significant, severe anxiety was more prevalent in patients with lesser duration of diagnosis when compared to the patients who diagnosed more than 26 weeks ago. According to some studies, around 50% of the CC patients suffered from moderate to severe anxiety [176, 177].

Association between anxiety and stage of carcinoma

The HAM A scores were checked for patients with carcinoma stage 2b, 3a, 3b, 3c and 4a and were found to be normally distributed. Even though not statistically significant it was found that stage 3b, 3c, 4a had severe anxiety compared to stage 2b. This is in comparison to study done by Tosic Golubovic S et al., which found significant link between stage of illness with anxiety scores(p = 0.016) in the study population. A noticeably larger number of patients with 3b cancer had mild to moderate anxiety. This finding is consistent with many other studies [181].

Association between anxiety and metastasis

The HAM-A scores were checked for patients who had cancer metastasis and did not have metastasis and were found to be normally distributed. Even though not statistically significant, patient with metastasis had higher scores of anxiety. Li Q et al in their study had similar finding where metastasis had no major impact on anxiety symptoms ($p < 0.05$) [179].

CORRELATION OF DEPRESSION AND DEMOGRAPHIC FACTORS

Association between depression and age groups of the patients

The HDRS scores checked for patients with age less than 60 and more than 60 did not show any major difference in the average scoring of the participants. So, we concluded that age of the patients did not interfere with the severity of depression. This is in accordance with Li Q et al., who found absence of any significant difference in the influence of age, level of education, income, presence of metastasis, new or recent diagnosis, or tumor stage on depression ($p > 0.05$)[178]. Kim SH et al., also concluded no significant role of age on depression [180].

Association of depression with educational status of the patients

The HDRS scores were checked for patients who were illiterate, school going and college and even though not statistically significant, depression was found to be more severe in educated patients. This finding is opposed to study done by Tosic Golubovic S et al., which reported that advanced carcinoma stage, financial stressors in forms of poor income or unemployment, younger age, lower levels of literacy, may indicate a significant risk of developing depression in women with CC [181].

Association between depression and occupation of the patients

The HDRS scores were checked for patients who were homemakers, self-employed, daily wage workers and salaried employees and were found to be normally distributed. Even though statistically significant home makers and salaried employees had more severe depression compared to others. There were no relevant studies found correlating these variables.

Association between depression and type of family of the patients

The HDRS scores were checked for patients who were living in joint family and nuclear family but it was normally distributed. No statistically significant (P=0.7779) variation in average scores of patients was seen. There were no relevant studies found correlating these variables.

CORRELATION OF DEPRESSION AND DISEASE FACTORS

Association between depression and duration since diagnosis of the disease

The HDRS scores were checked for patients who were diagnosed less than 4 weeks, 4-26 weeks and more than 26 weeks were normally distributed. No statistically significant (P=0.1867) difference showed up in average scores of patients. Even though not statistically significant, severe depression was more prevalent in patients with lesser duration of diagnosis when compared to the patients who diagnosed more than 26 weeks ago. Multiple studies have concluded that a newly discovered cervical cancer diagnosis is directly implicated in development of moderate/severe depression in around 50% of the patients [176, 177].

Association between depression and stage of carcinoma

The HDRS scores were checked for patients with carcinoma stage 2b, 3a, 3b, 3c and 4a. Statistically significant (P=0.0001*) difference in average scores of patients was seen. It was found that stage 3b,3c,4a had severe depression compared to stage 2b. This is in comparison with study done by Tosic Golubovic S et al., which found significant correlation between carcinoma stage and depression scores(χ^2 = 16.570; p = 0.002) in the study population. A noticeably greater number of women diagnosed with stage 3b cc had scores which categorized them into "severely depressed" group. This finding is consistent with many other studies [181].

Association between depression and metastasis

The HDRS scores were checked for patients who had cancer metastasis and did not have metastasis and were found to be normally distributed. Even though not statistically significant patients with metastasis had higher scores of depression compared with patients without metastasis. This is accordance with Li Q et al., who found no significant difference in the impact on depressive symptoms in patients with metastasis ($p > 0.05$) [179].

CORRELATION OF QUALITY OF LIFE AND DEMOGRAPHIC FACTORS

Association of QoL with age groups of patients

The QoL was 'Good' in 4 patients. These 4 patients had an age range of 45-60 years.

EORTC-QLQ C30 resultant values for the participants was studied with age less than 60 and more than 60 and were found to be normally distributed. Even though not statistically significant, less than 60 years of age group had higher number of patients with moderate QoL. But because of the higher difference in the number of patients in these categories our study cannot conclude this finding. Singh et al., also found similar results where age did not have any impact on the QOL among cervical cancer patients [182].

Association between QoL and educational status of patients

Patients who were illiterate, school going and college were tested for their EORTC-QLQ C30 outcomes. A statistically significant (P=0.003*) difference in average scores was noted for these patients. We found that patients who were not educated had better QoL when compared to educated. This is against the finding of Osann, K et al., who found that less educated were also associated with low QOL on multivariate analysis[174] .

Association between QoL and occupation of the patients

The QoL tool values were assessed for different employment categories of women like homemakers, self-employed, daily wage workers and salaried employees. There was statistically significant (P=0.0079*) difference in average scores for these patients. The patients who were in current occupation had better QoL when compared to unemployed. Dos Santos LN et al., had similar finding where better QoL scores were found in patients with a current occupation [183].

Association between QoL and type of family of the patients

The EORTC-QLQ C30 patient scores who were living in joint family and nuclear family were normally distributed. No difference of statistical significance (P=0.8712)in the average scores for these patients was noted. There were no relevant studies found correlating these variables because of the cultural differences in different study location.

CORRELATION OF QUALITY OF LIFE AND DISEASE FACTORS

Association between QoL and duration since diagnosis of disease

Women were studied on their EORTC-QLQ C30 values. Those who were diagnosed less than 4 weeks, 4-26 weeks and more than 26 weeks and were all found to be normally distributed. Even though not statistically significant it is observed in my study that QoL deteriorates as the duration since diagnosis increases. We observed in our interview that it is mostly because of the multiple cycles of chemotherapy and radiotherapy.

In their investigation Distefano M et al., discovered that association tests between function scale scores and other variables revealed a negative but significant relationship with duration of diagnosis($p<0.01$), which is consistent with the discovery that women with CC have lower QoL[184]. Further on the study findings of low QoL among CC survivors, Osann K et al., observed correlation tests between symptom scale scores and other variables indicated positive and significant connection with the duration since diagnosis ($p<0.01$) [174].

Association between QoL and stage of carcinoma

The EORTC-QLQ C30 outcomes were studied on patients with carcinoma stages 2b, 3a, 3b, 3c and 4a and were found to be normally distributed. Even though not statistically significant, our study suggests that as the stage of carcinoma advances the QoL deteriorates. Azmawati MN et al., also had similar finding in his study. They concluded that III and IV stage cervical cancers predominantly impact the QOL of women suffering from CC [189]. Huei-Ying Huang et al., in their research found that stage of CC did not cause noticeable difference in global health status($p > 0.05$)[185].Better understanding of

correlation of QoL and stage of carcinoma can be done when we include the factors like treatment modalities (chemotherapy, radiotherapy and surgery) which is not included in our study.

Association between QoL and metastasis

Patients scores for QoL were tested using the EORTC QLQ-C30. The scores were compared for patients with and without metastasis but were found to be normally distributed. Even though not statistically significant, higher percentage of patients had poor QoL with metastasis when compared to patients without metastasis. Huei-Ying Huang et al., in their research found that among the CC patients' metastasis did not have a significant impact to significant differences on the global health status($p > 0.05$)[185].

CORRELATION OF ANXIETY AND LEVEL OF DEPRESSION

Assessment of the HAM A values of patients with different levels of depression was performed. A difference of statistical significance (P=< .0001*) in the average scores was noted for the patients.

Association tests linking depression with other factors also displayed positive relationship with disease variables such as duration since diagnosis, stage of carcinoma and treatment modalities that is surgery and RT. This adds strength and affirms the positive correlation of depression with other psychiatric disorders namely anxiety and QoL in women suffering with carcinoma cervix as studied by Ayuso-Mateos et al., [186].

CORRELATION OF QUALITY OF LIFE AND LEVEL OF ANXIETY

The scores for EORTC-QLQ C30 were checked for patients manifesting different levels of anxiety. It showed statistically significant (P=0.0048*) difference in average scores of patients. Most patients with mild anxiety(95.5%) had moderate QoL, mild to moderate anxiety(62.5%) had moderate QoL and moderate to severe anxiety(58.8%) also had moderate QoL. Women diagnosed with cervical cancer turned up with poorer QoL and substantially heightened level of anxiety (28% > 1 SD than mean of general population) , concludes Osann, K et al [174].

CORRELATION OF QUALITY OF LIFE AND LEVEL OF DEPRESSION

The quality of life tool values were checked for the women with different levels of depression. It revealed statistically significant (P=0.0002*) difference in these average scores. Most patients with mild depression(95.2%) had moderate QoL, moderate depression(77.8%) had moderate QoL and severe depression(58.3%) had very poor QoL. In lowest quartile for QoL, 63% had levels of depression> 1 SD higher than mean, concludes Osann, K et al [174]. Research shows substandard QoL in patients with depression even during normalcy between the episodes[116,117].

CONCLUSION

According to this research conducted it indicates anxiety and depression are prevalent in cervical carcinoma albeit with moderate quality of life. It also throws light on significance of QoL in long term especially with a growing trend of cervical cancer in early age of onset with good prognosis. Cervical cancer is easily treatable if diagnosed early but the burden worsens with concurrent psychiatric morbidities which also has an impact on the compliance to treatment, mortality and prognosis and survival rate of the cancer. This study throws light on the need for comprehensive approach for treatment of CC patients in terms of addressing their mental health and to implement necessary intervention to improve the overall outcome in patients afflicted with CC.

Psycho-oncology is an important but often overlooked aspect where research with bigger sample sizes will yield a lot of beneficial information to identify and address mental health concerns in chronic and debilitating illnesses like cancer.

SUMMARY

To summarize the findings of the study, majority were aged less than 60 years, not educated, who were daily wage workers and belonged to lower socio-economic status. Most of the patients belonged to nuclear family, had 1 to 3 children and were married between 15 to 25 years. Most number of patients were labeled with a diagnosis of cervical carcinoma between 4 to 26 weeks ago, were in stage 3b of carcinoma, who were on chemotherapy and radiotherapy and did not have cancer metastasis.

Most of the patients in the study group suffered from moderate to severe anxiety. Only one patient in the study group had normal levels of mood whereas majority of the patients had Moderate depression. The quality of life was 'Good' in 4 patients, whereas most of the other participants had moderate QoL.

When correlation of anxiety was studied with demographic factors, we found that younger patients had more severe anxiety scores. Higher anxiety scores were observed in educated patients, home makers and salaried employees. Type of family did not have any impact on the severity of anxiety according to the study.

When correlation of anxiety was studied with disease factors, we found that severe anxiety was more prevalent in patients with lesser duration of diagnosis, who had stage 3b,3c,4a cancer. Patients with metastatic carcinoma had more severe anxiety when compared to patients without metastasis.

When correlation of depression was studied with demographic factors, we found that age of the patients did not interfere with the severity of depression. Higher depression scores were observed in educated patients, home makers and salaried employees. Type of family did not have any impact on the severity of depression according to the study.

When correlation of depression was studied with disease factors, we found that severe anxiety was more prevalent in patients with lesser duration of diagnosis, who had stage 3b,3c,4a cancer. Patients

with metastatic carcinoma had more severe depression when compared to patients without metastasis.

When correlation of QoL was studied with demographic factors we found that less than 60 years of age group had higher number of patients with moderate QoL. The patients who were not educated had better QoL when compared to educated. The patients who were in current occupation had better QoL when compared to unemployed. Type of family did not display any influence on the QoL according to this project.

When correlation of QoL was studied with disease factors, we found that QoL deteriorates as the duration since diagnosis increases. It was observed that as the stage of carcinoma advances the QoL deteriorates. Higher percentage of patients had poor QoL with metastasis in comparison to patients lacking metastasis.

It was observed that a significant correlation between anxiety and depression existed. Most patients with mild anxiety had moderate QoL, mild to moderate anxiety had moderate QoL and moderate to severe anxiety also had moderate QoL. Most patients with mild depression had moderate QoL, moderate depression had moderate QoL and severe depression had very poor QoL.

LIMITATIONS

LIMITATIONS

1) The data collection was performed by the chief investigator which might lead to bias.
2) This study was carried out at a single instance in time, which limits the assessment of a possible episodic pattern of depression and anxiety.
3) This research being cross-sectional, carries its own limitation in extrapolating the result at community level.
4) This study was held at a tertiary care centre. This implied majority patients suffered from dire symptoms and thereby again hindering generalizability.
5) As this study was under-taken at a single centre, it is difficult to generalize the results.
6) As this is a charitable institution majority of our patients were of below poverty line and from rural background which might limit the understanding of symptoms in urban population.
7) The study was focused at cervical cancer, hence the study group was restricted to gynecological patients and female gender.
8) All the patients in the study received the same treatment, so the correlation of different modalities of treatment with different variables could not be studied.
9) A bigger sample size could have aided in better understanding at the complex interplay of sociodemographic factors with outcome variables. This was not feasible due to limited statistics and time constraint.

FUTURE PROPOSITIONS

1) Accounting for the high occurrence of psychiatric illness in patients with CC, it is advocated to routinely evaluate these patients for anxiety, depression and any other psychiatric morbidity.
2) Appropriate counseling must play an integral role in comprehensive management of CC treatment based on a psychiatric evaluation.
3) The treatment should be centered at improving the overall QoL of patients whilst deliberating on the following parameters;

- Educate the affected individual about the course of illness and management
- Pretreatment assessment of psychiatric morbidity
- Counseling of the patients
- Revisit and assess patients after treatment for persistence of psychiatric illness or thoughts of ending life
- Pertinent treatment and psycho education of patients for any psychiatric morbidity if detected

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ANNEXURES

ANNEXURE 1:

PATIENT INFORMATION SHEET

STUDY TITLE: "A STUDY TO EVALUATE THE PREVALENCE OF DEPRESSION AND ANXIETY AND ITS IMPACT ON QUALITY OF LIFE IN PATIENTS WITH CERVICAL CANCER IN A TERTIARY CARE HOSPITAL"

STUDY SITE: R.L. JALAPPA HOSPITAL AND RESEARCH CENTRE, ATTACHED TO SRI DEVARAJ URS MEDICAL COLLEGE, TAMAKA, KOLAR

The purpose of the study is to assess the prevalence of depression and anxiety and also study its impact on quality of life in cervical cancer patients. You are requested to participate in this study conducted by the department of Psychiatry as a part of dissertation. This study will be done on patients diagnosed with carcinoma cervix between age group of 30-80 years who give valid informed consent for interview and screening questionnaires. This study has been approved by the institutional ethical committee. The information collected will be used only for dissertation and publication. There is no compulsion to participate. You are requested to provide sign/thumb impression only if you voluntarily agree to participate in the study. All information collected from you will be protected and kept strictly confidential and will not be disclosed to anyone. Your identity will not be revealed. You will not receive any monetary benefits to participate in this research. However, patients in future may benefit from the knowledge gained out of this study. This informed consent document is intended to give you a general background of study. Please read the following information carefully and make an informed decision. You can ask your queries related to study at any point of time during the study. If you are willing to participate in the study you will be asked to sign an informed consent form which implies that you acknowledge that you wish to participate in the study and entire procedure will be explained to you by the study doctor. Further you are at liberty to withdraw your consent to participate in the study any time without explanation and this will not change your future care.

Left Thumb Impression/Signature of the Patient

Left Thumb Impression/Signature of Witness

Signature of the investigator

For any further clarification you can contact the study investigator:
Dr. AFRA SHAZ RAHIMULLA
Mobile no. 9535909205
E-mail id: afrashaz@gmail.com

ರೋಗಿಯಮಾಹಿತಿಹಾಳೆ

ಅಧ್ಯಯನದಶೀರ್ಷಿಕೆ:

"ತೃತೀಯಆರೈಕೆಆಸ್ಪತ್ರೆಯಲ್ಲಿಗರ್ಭಕಂಠದಕ್ಯಾನ್ಸರ್ಹೊಂದಿರುವರೋಗಿಗಳಲ್ಲಿಖಿನ್ನತೆಮತ್ತುಆತಂಕದಹರಡುವಿಕೆಮತ್ತುಜೀವನದಗುಣಮಟ್ಟದಮೇಲೆ ಅದರಪ್ರಭಾವವನ್ನುನಿರ್ಣಯಿಸಲುಒಂದುಅಧ್ಯಯನ"

ಸ್ಥಡಿಸೈಟ್: ಆರ್.ಎಲ್.ಜಾಲಪ್ಪಆಸ್ಪತ್ರೆಮತ್ತುಸಂಶೋಧನಾಕೇಂದ್ರ, ಶ್ರೀದೇವರಾಜ್ಯುಆರ್ಎಸ್ಹೈದ್ಯಕೀಯಕಾಲೇಜ್ಗೆಲಗತ್ತಿಸಲಾಗಿದೆ, ತಮಕ, ಕೋಲಾರ

ಖಿನ್ನತೆಮತ್ತುಆತಂಕದಹರಡುವಿಕೆಯನ್ನುನಿರ್ಣಯಿಸುವುದುಮತ್ತುಗರ್ಭಕಂಠದಕ್ಯಾನ್ಸರ್ರೋಗಿಗಳಲ್ಲಿಜೀವನದಗುಣಮಟ್ಟದಮೇಲೆಅದರಪ್ರಭಾವವನ್ನುಅ ಧ್ಯಯನಮಾಡುವುದುಅಧ್ಯಯನದಉದ್ದೇಶವಾಗಿದೆ.
ಪ್ರಬಂಧದಭಾಗವಾಗಿಮನೋವೈದ್ಯಕೀಯವಿಭಾಗವುನಡೆಸುವಈಅಧ್ಯಯನದಲ್ಲಿಭಾಗವಹಿಸಲುನಿಮ್ಮನ್ನುವಿನಂತಿಸಲಾಗಿದೆ.
ಸಂದರ್ಶನಮತ್ತುಸ್ಕ್ರೀನಿಂಗ್ಪ್ರಶ್ನಾವಳಿಗಳಿಗೆಮಾನ್ಯತಿಳುವಳಿಕೆಯುಳ್ಳಒಪ್ಪಿಗೆಯನ್ನುನೀಡುವ 30-80
ವರ್ಷವಯಸ್ಸಿನನಡುವೆಕಾರ್ಸಿನೋಮಗರ್ಭಕಂಠದರೋಗನಿರ್ಣಯದರೋಗಿಗಳಮೇಲೆಈಅಧ್ಯಯನವನ್ನುಮಾಡಲಾಗುತ್ತದೆ.
ಈಅಧ್ಯಯನವನ್ನುಸಾಂಸ್ಥಿಕನೈತಿಕತೆಯಿಂದಅನುಮೋದಿಸಲಾಗಿದೆಸಮಿತಿ.
ಸಂಗ್ರಹಿಸಿದಮಾಹಿತಿಯನ್ನುಪ್ರಬಂಧಮತ್ತುಪ್ರಕಟಣೆಗೆಮಾತ್ರಬಳಸಲಾಗುತ್ತದೆ. ಭಾಗವಹಿಸಬೇಕುಎಂಬಒತ್ತಾಯವಿಲ್ಲ.
ನೀವುಸ್ವಯಂಪ್ರೇರಣೆಯಿಂದಅಧ್ಯಯನದಲ್ಲಿಭಾಗವಹಿಸಲುಸಮ್ಮತಿಸಿದರೆಮಾತ್ರಚಿಹ್ನೆ/ಹೆಬ್ಬೆರಳಿನಗುರುತನ್ನುಒದಗಿಸುವಂತೆನಿಮ್ಮನ್ನುವಿನಂತಿಸಲಾಗಿ ದೆ.
ನಿಮ್ಮಿಂದಸಂಗ್ರಹಿಸಿದಎಲ್ಲಾಮಾಹಿತಿಯನ್ನುರಕ್ಷಿಸಲಾಗುತ್ತದೆಮತ್ತುಕಟ್ಟುನಿಟ್ಟಾಗಿಗೌಪ್ಯವಾಗಿಇರಿಸಲಾಗುತ್ತದೆಮತ್ತುಯಾರಿಗೂಬಹಿರಂಗಪಡಿಸಲಾಗು ವುದಿಲ್ಲ. ನಿಮ್ಮಗುರುತನ್ನುಬಹಿರಂಗಪಡಿಸಲಾಗುವುದಿಲ್ಲ. ಈ
ಸಂಶೋಧನೆಯಲ್ಲಿಭಾಗವಹಿಸಲುನೀವುಯಾವುದೇಹಣಕಾಸಿನಪ್ರಯೋಜನಗಳನ್ನುಸ್ವೀಕರಿಸುವುದಿಲ್ಲ. ಆದಾಗ್ಯೂ, ಭವಿಷ್ಯದಲ್ಲಿರೋಗಿಗಳು ಈ ಅಧ್ಯಯನದಿಂದಪಡೆದಜ್ಞಾನದಿಂದಪ್ರಯೋಜನಪಡೆಯಬಹುದು. ಈ
ತಿಳುವಳಿಕೆಯುಳ್ಳಸಮ್ಮತಿಯಡಾಕ್ಯುಮೆಂಟ್ನಿಮಗೆಸಾಮಾನ್ಯಅಧ್ಯಯನದಹಿನ್ನೆಲೆಯನ್ನುನೀಡಲುಉದ್ದೇಶಿಸಲಾಗಿದೆ.
ದಯವಿಟ್ಟುಕೆಳಗಿನಮಾಹಿತಿಯನ್ನುಎಚ್ಚರಿಕೆಯಿಂದಓದಿಮತ್ತುತಿಳುವಳಿಕೆಯುಳ್ಳನಿರ್ಧಾರವನ್ನುತೆಗೆದುಕೊಳ್ಳಿ.
ಅಧ್ಯಯನದಸಮಯದಲ್ಲಿಯಾವುದೇಸಮಯದಲ್ಲಿಅಧ್ಯಯನಕ್ಕೆಸಂಬಂಧಿಸಿದನಿಮ್ಮಪ್ರಶ್ನೆಗಳನ್ನುನೀವುಕೇಳಬಹುದು.
ನೀವುಅಧ್ಯಯನದಲ್ಲಿಭಾಗವಹಿಸಲುಸಿದ್ಧರಿದ್ದರೆ, ತಿಳುವಳಿಕೆಯುಳ್ಳಸಮ್ಮತಿಯನಮೂನೆಗೆಸಹಿಹಾಕಲುನಿಮ್ಮನ್ನುಕೇಳಲಾಗುತ್ತದೆ,
ಇದುನೀವುಅಧ್ಯಯನದಲ್ಲಿಭಾಗವಹಿಸಲುಬಯಸುತ್ತೀರಿಎಂದುನೀವುಅಂಗೀಕರಿಸುತ್ತೀರಿಮತ್ತುಸಂಪೂರ್ಣಕಾರ್ಯವಿಧಾನವನ್ನುಅಧ್ಯಯನವೈದ್ಯರುನಿ ಮಗೆವಿವರಿಸುತ್ತಾರೆ.
ಇದಲ್ಲದೆಯಾವುದೇಸಮಯದಲ್ಲಿವಿವರಣೆಯಿಲ್ಲದೆಅಧ್ಯಯನದಲ್ಲಿಭಾಗವಹಿಸಲುನಿಮ್ಮಸಮ್ಮತಿಯನ್ನುಹಿಂಪಡೆಯಲುನಿಮಗೆಸ್ವಾತಂತ್ರ್ಯವಿದೆಮತ್ತುಇದು ನಿಮ್ಮಭವಿಷ್ಯದಕಾಳಜಿಯನ್ನುಬದಲಾಯಿಸುವುದಿಲ್ಲ.

ಎಡಹೆಬ್ಬೆರಳಿನಅನಿಸಿಕೆ/ರೋಗಿಯಸಹಿಎಡಹೆಬ್ಬೆರಳಿನಅನಿಸಿಕೆ/ಸಾಕ್ಷಿಯಸಹಿ

ತನಿಖಾಧಿಕಾರಿಯಸಹಿ

ಯಾವುದೇಹೆಚ್ಚಿನಸ್ಪಷ್ಟೀಕರಣಕ್ಕಾಗಿನೀವುಅಧ್ಯಯನತನಿಖಾಧಿಕಾರಿಯನ್ನುಸಂಪರ್ಕಿಸಬಹುದು:

ಡಾ. ಅಫ್ರಾಶಾಜ್ರಹಿಮುಲ್ಲಾ

ಮೊಬೈಲ್ನಂ. 9535909205

ಇ-ಮೇಲ್ಐಡಿ: afrashaz@gmail.com

ANNEXURE 2:

INFORMED CONSENT FORM

Name of the study - "A STUDY TO EVALUATE THE PREVALENCE OF DEPRESSION AND ANXIETY AND ITS IMPACT ON QUALITY OF LIFE IN PATIENTS OF CERVICAL CANCER IN A TERTIARY CARE HOSPITAL".

I have read the foregoing information, or it has been read to me in language understandable to me. I have had the opportunity to ask questions about it and any questions that I have asked have been answered to my satisfaction. I consent voluntarily to participate as a participant in this research.

Name of Participant _____

Signature of Participant _____ Date _____

For illiterate -

I have witnessed the accurate reading of the consent form to the potential participant, and the individual has had the opportunity to ask questions. I confirm that the individual has given consent freely.

Print name of witness_____ AND Thumb print of participant

Signature of witness _____ Date _____

Statement by the researcher/person taking consent -

I have accurately read out the information sheet to the potential participant with the best of my ability. I confirm that the participant was given an opportunity to ask questions about the study, and all the questions asked by the participant have been answered correctly and to the best of my ability. I confirm that the individual has not been coerced into giving consent, and the consent has been given freely and voluntarily.

A copy of this ICF has been provided to the participant.

Print Name of Researcher taking the consent_____

Signature of Researcher taking the consent_____ Date_____

PLACE OF STUDY: R. L. JALAPPA HOSPITAL AND RESEARCH INSTITUTE, TAMAKA, KOLAR.

PRINCIPAL INVESTIGATOR: Dr. AFRA SHAZ RAHIMULLA

ಮಾಹಿತಿನೀಡಿದಒಪ್ಪಿಗೆನಮೂನೆ

ಅಧ್ಯಯನದಹೆಸರು -

“ಖಿನ್ನತೆಮತ್ತುಆತಂಕದಹರಡುವಿಕೆಮತ್ತುತೃತೀಯಆರೈಕೆಆಸ್ಪತ್ರೆಯಲ್ಲಿಗರ್ಭಕಂಠದಕ್ಯಾನ್ಸರ್ರೋಗಿಗಳಲ್ಲಿಜೀವನದಗುಣಮಟ್ಟದಮೇಲೆಅದರಪ್ರಭಾವವನ್ನುನಿರ್ಣಯಿಸಲುಒಂದುಅಧ್ಯಯನ”.

ನಾನುಮೇಲಿನಮಾಹಿತಿಯನ್ನುಓದಿದ್ದೇನೆಅಥವಾಅದನ್ನುನನಗೆಓದಿದ್ದೇನೆ.
ಅದರಬಗ್ಗೆಪ್ರಶ್ನೆಗಳನ್ನುಕೇಳಲುನನಗೆಅವಕಾಶವಿದೆಮತ್ತುನಾನುಕೇಳಿದಯಾವುದೇಪ್ರಶ್ನೆಗಳಿಗೆನನ್ನತೃಪ್ತಿಗೆಉತ್ತರಿಸಲಾಗಿದೆ.
ಈಸಂಶೋಧನೆಯಲ್ಲಿಪಾಲ್ಗೊಳ್ಳುವವನಾಗಿಭಾಗವಹಿಸಲುನಾನುಸ್ವಯಂಪ್ರೇರಣೆಯಿಂದಸಮ್ಮತಿಸುತ್ತೇನೆ.

ಭಾಗವಹಿಸುವವರಹೆಸರು _____

ಭಾಗವಹಿಸುವವರಸಹಿ _____ ದಿನಾಂಕ _____

ಅನಕ್ಷರಸ್ಥರಿಗೆ -

ಸಂಭಾವ್ಯಪಾಲ್ಗೊಳ್ಳುವವರಿಗೆಒಪ್ಪಿಗೆಯನಮೂನೆಯನ್ನುನಿಖರವಾಗಿಓದುವುದನ್ನುನಾನುನೋಡಿದ್ದೇನೆಮತ್ತುವ್ಯಕ್ತಿಯುಪ್ರಶ್ನೆಗಳನ್ನುಕೇಳಲುಅವಕಾಶವನ್ನುಹೊಂದಿದ್ದಾನೆ. ವ್ಯಕ್ತಿಯುಮುಕ್ತವಾಗಿಒಪ್ಪಿಗೆನೀಡಿದ್ದಾರೆಎಂದುನಾನುದೃಢೀಕರಿಸುತ್ತೇನೆ.

ಸಾಕ್ಷಿಯಹೆಸರನ್ನುಮುದ್ರಿಸಿ_____ಮತ್ತುಭಾಗವಹಿಸುವವರಹೆಬ್ಬೆರಳುಮುದ್ರೆ

ಸಾಕ್ಷಿಯಸಹಿ _____ ದಿನಾಂಕ _____

ಒಪ್ಪಿಗೆಯನ್ನುತೆಗೆದುಕೊಳ್ಳುವಸಂಶೋಧಕ/ವ್ಯಕ್ತಿಯಹೇಳಿಕೆ –

ಸಂಭಾವ್ಯಭಾಗವಹಿಸುವವರಿಗೆನನ್ನಸಾಮರ್ಥ್ಯಕ್ಕೆತಕ್ಕಂತೆನಾನುಮಾಹಿತಿಹಾಳೆಯನ್ನುನಿಖರವಾಗಿಓದಿದ್ದೇನೆ.
ಭಾಗವಹಿಸುವವರಿಗೆಅಧ್ಯಯನದಬಗ್ಗೆಪ್ರಶ್ನೆಗಳನ್ನುಕೇಳಲುಅವಕಾಶವನ್ನುನೀಡಲಾಗಿದೆಎಂದುನಾನುಖಚಿತಪಡಿಸುತ್ತೇನೆಮತ್ತುಭಾಗವಹಿಸುವವರುಕೇಳಿದಎಲ್ಲಾಪ್ರಶ್ನೆಗಳಿಗೆಸರಿಯಾಗಿಉತ್ತರಿಸಲಾಗಿದೆಮತ್ತುನನ್ನಸಾಮರ್ಥ್ಯದಅತ್ಯುತ್ತಮ.
ವ್ಯಕ್ತಿಯನ್ನುಸಮ್ಮತಿಯನ್ನುನೀಡುವಂತೆಒತ್ತಾಯಿಸಲಾಗಿಲ್ಲಮತ್ತುಒಪ್ಪಿಗೆಯನ್ನುಮುಕ್ತವಾಗಿಮತ್ತುಸ್ವಯಂಪ್ರೇರಣೆಯಿಂದನೀಡಲಾಗಿದೆಎಂದುನಾನುದೃಢೀಕರಿಸುತ್ತೇನೆ.

ಈ ICF ನ ಪ್ರತಿಯನ್ನುಭಾಗವಹಿಸುವವರಿಗೆಒದಗಿಸಲಾಗಿದೆ.

ಸಮ್ಮತಿಯನ್ನುತೆಗೆದುಕೊಳ್ಳುವಸಂಶೋಧಕರಹೆಸರನ್ನುಮುದ್ರಿಸಿ_____

ಸಮ್ಮತಿಯನ್ನುತೆಗೆದುಕೊಳ್ಳುವಸಂಶೋಧಕರಸಹಿ_____ ದಿನಾಂಕ_____

ಅಧ್ಯಯನದಸ್ಥಳ:ಆರ್.ಎಲ್.ಜಾಲಪ್ಪಆಸ್ಪತ್ರೆಮತ್ತುಸಂಶೋಧನಾಸಂಸ್ಥೆ, ತಮಕ, ಕೋಲಾರ.

ಪ್ರಧಾನತನಿಖಾಧಿಕಾರಿ:ಡಾ. ಅಫ್ರಾಶಾಜಹೀಮುಲ್ಲಾ.

ANNEXURE 3:

SociodemographicProforma:

1.	**Patient Name**	
2.	**Age**	
3.	**UHID Number**	
4.	**Educational status**	
5.	**Occupation**	
6.	**Socioeconomic status**	
7.	**Type of Family**	
8.	**Number of children**	
9.	**Age of Marriage**	
10.	**Duration since Diagnosis**	
11.	**Stage of Carcinoma**	
12.	**Chemotherapy If received, Duration**	
13.	**Radiotherapy, if received, Duration**	
14.	**Metastasis, if present, organ**	

ANNEXURE 4:

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.

ANNEXURE 5:

Hamilton Depression Rating Scale (HDRS)

PLEASE COMPLETE THE SCALE BASED ON A STRUCTURED INTERVIEW

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

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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 ½ hour.
2 |__| Complains of nightly difficulty falling asleep.

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.

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.

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 patient:	b) According to weekly measurements:
0 |__| No weight loss.	0 |__| Less than 1 lb weight loss in week.
1 |__| Probable weight loss associated with present illness.	1 |__| Greater than 1 lb weight loss in week.
2 |__| Definite (according to patient) weight loss.	2 |__| Greater than 2 lb weight loss in week.
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: |__|__|

ANNEXURE 6:

EORTC QLQ-C30 (version 3)

We are interested in some things about you and your health. Please answer all of the questions yourself by circling the number that best applies to you. There are no "right" or "wrong" answers. The information that you provide will remain strictly confidential.

Please fill in your initials: _____

Your birthdate (Day, Month, Year): _____

Today's date (Day, Month, Year): 31 _____

		Not at All	A Little	Quite a Bit	Very Much
1.	Do you have any trouble doing strenuous activities, like carrying a heavy shopping bag or a suitcase?	1	2	3	4
2.	Do you have any trouble taking a long walk?	1	2	3	4
3.	Do you have any trouble taking a short walk outside of the house?	1	2	3	4
4.	Do you need to stay in bed or a chair during the day?	1	2	3	4
5.	Do you need help with eating, dressing, washing yourself or using the toilet?	1	2	3	4

During the past week:		Not at All	A Little	Quite a Bit	Very Much
6.	Were you limited in doing either your work or other daily activities?	1	2	3	4
7.	Were you limited in pursuing your hobbies or other leisure time activities?	1	2	3	4
8.	Were you short of breath?	1	2	3	4
9.	Have you had pain?	1	2	3	4
10.	Did you need to rest?	1	2	3	4
11.	Have you had trouble sleeping?	1	2	3	4
12.	Have you felt weak?	1	2	3	4
13.	Have you lacked appetite?	1	2	3	4
14.	Have you felt nauseated?	1	2	3	4
15.	Have you vomited?	1	2	3	4
16.	Have you been constipated?	1	2	3	4

Please go on to the next page

During the past week:	**Not at All**	**A Little**	**Quite a Bit**	**Very Much**
17. Have you had diarrhea?	1	2	3	4
18. Were you tired?	1	2	3	4
19. Did pain interfere with your daily activities?	1	2	3	4
20. Have you had difficulty in concentrating on things, like reading a newspaper or watching television?	1	2	3	4
21. Did you feel tense?	1	2	3	4
22. Did you worry?	1	2	3	4
23. Did you feel irritable?	1	2	3	4
24. Did you feel depressed?	1	2	3	4
25. Have you had difficulty remembering things?	1	2	3	4
26. Has your physical condition or medical treatment interfered with your family life?	1	2	3	4
27. Has your physical condition or medical treatment interfered with your social activities?	1	2	3	4
28. Has your physical condition or medical treatment caused you financial difficulties?	1	2	3	4

For the following questions please circle the number between 1 and 7 that best applies to you

29. How would you rate your overall health during the past week?

1	2	3	4	5	6	7
Very poor						Excellent

30. How would you rate your overall quality of life during the past week?

1	2	3	4	5	6	7
Very poor						Excellent

MASTER CHART

Column 1	**Serial Number**	
Column 2	**Age in years**	
Column 3	**Age group**	
	30-40	1
	41-50	2
	51-60	3
	>60	4
Column 4	**Educational status**	
	Illiterate	1
	Schooling	2
	PUC	3
	Degree	4
Column 5	**Occupation**	
	Homemaker	1
	Self employed	2
	Daily wage worker	3
	Salaried	4
Column 6	**SES**	
	BPL	1
	APL	2
Column 7	**Family Type**	
	Joint	1
	Nuclear	2
Column 8	**No of Children**	
	Nil	1
	1 to 3	2
	>3	3
Column 9	**Married Life**	
	<15years	1
	15-25years	2
	>25years	3
Column 10	**Duration of Diagnosis**	
	<4weeks	1
	4-26weeks	2
	>26weeks	3
Column 11	**Carcinoma Stage**	
	2b	1
	3a	2
	3b	3
	3c	4
	4a	5
Column 12	**Metastasis**	
	Yes	1
	No	2
Column 13	**HAMA-T Grades of Anxiety**	
	Mild	1
	Moderate	2
	Severe	3
Column 14	**HDRS-T Grades of Depression**	
	Normal	1
	Mild	2
	Moderate	3
	Severe	4
Column 15	**Quality of life Rating**	
	Very Poor	1
	Moderate	2
	Good	3
Column 16	**PF Rating**	
	No/little difficulty	1
	Moderate difficulty	2
	Severe difficulty	3
Column 17	**RF Rating**	
	No/little difficulty	1
	Moderate difficulty	2
	Severe difficulty	3
Column 18	**EF Rating**	
	No/little difficulty	1
	Moderate difficulty	2
	Severe difficulty	3
Column 19	**CF Rating**	
	No/little difficulty	1
	Moderate difficulty	2
	Severe difficulty	3
Column 20	**SF Rating**	
	No/little difficulty	1
	Moderate difficulty	2
	Severe difficulty	3
Column 21	**FA Rating**	
	Not at all	1
	A little	2
	Very much	3
Column 22	**NV Rating**	
	Not at all	1
	A little	2
	Very much	3
Column 23	**PA Rating**	
	Not at all	1
	A little	2
	Very much	3
Column 24	**DY Rating**	
	Not at all	1
	A little	2
	Very much	3
Column 25	**SL Rating**	
	Not at all	1
	A little	2
	Very much	3
Column 26	**AP Rating**	
	Not at all	1
	A little	2
	Very much	3
Column 27	**CO Rating**	
	Not at all	1
	A little	2
	Very much	3
Column 28	**DI Rating**	
	Not at all	1
	A little	2
	Very much	3
Column 29	**FI Rating**	
	Not at all	1
	A little	2
	Very much	3

Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Column 14	Column 15	Column 16	Column 17	Column 18	Column 19	Column 20	Column 21	Column 22	Column 23	Column 24	Column 25	Column 26	Column 27	Column 28	Column 29
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Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Column 14	Column 15	Column 16	Column 17	Column 18	Column 19	Column 20	Column 21	Column 22	Column 23	Column 24	Column 25	Column 26	Column 27	Column 28	Column 29
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Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Column 14	Column 15	Column 16	Column 17	Column 18	Column 19	Column 20	Column 21	Column 22	Column 23	Column 24	Column 25	Column 26	Column 27	Column 28	Column 29
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Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Column 14	Column 15	Column 16	Column 17	Column 18	Column 19	Column 20	Column 21	Column 22	Column 23	Column 24	Column 25	Column 26	Column 27	Column 28	Column 29
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Column 1	Column 2	Column 3	Column 4	Column 5	Column 6	Column 7	Column 8	Column 9	Column 10	Column 11	Column 12	Column 13	Column 14	Column 15	Column 16	Column 17	Column 18	Column 19	Column 20	Column 21	Column 22	Column 23	Column 24	Column 25	Column 26	Column 27	Column 28	Column 29
73	76	2	1	2	1	1	3	1	2	3	2	2	3	2	1	2	1	1	1	2	1	2	1	1	2	1	2	1
74	33	1	2	1	1	2	2	2	1	4	2	3	4	1	2	3	2	1	2	2	1	2	1	2	2	1	1	1
75	55	1	2	4	2	2	2	2	1	3	2	3	4	2	2	3	2	1	2	2	1	2	1	2	1	1	2	2
76	40	1	1	2	1	2	2	2	2	3	2	1	3	2	1	3	2	1	2	1	1	2	1	2	1	1	2	1