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**"STUDY OF RELIGIOSITY, COPING SKILLS AND THEIR  
IMPACT ON DEPRESSION IN CANCER PATIENTS - A  
CROSS SECTIONAL DESCRIPTIVE STUDY"**

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**BY**

**REG NO: BQ0120003**

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## ABSTRACT

### STUDY OF RELIGIOSITY, COPING SKILLS AND THE IMPACT ON DEPRESSION IN CANCER PATIENTS - A CROSS-SECTIONAL DESCRIPTIVE STUDY

**Introduction** -Cancer is a disease which is often diagnosed in it's late stages and progresses very rapidly leading to variety of complications. Depression is one of the important consequences of cancer which can increase the morbidity and mortality. Studies have indicated as depression is one of the most common psychiatric disorder among cancer patients and can adversely affect the outcome of cancer. Religious attitude and practices are supposed to positively affect the mental health in general. Studies on the effect of religiosity in depression are sparse in India. Given the unique importance religiosity has in Indian community, this study was conducted.

**Aim-** 1.To assess the impact of religiosity on depression in cancer patients.

2.To assess the impact of coping skills on depression in cancer patients.

**Material and methods** - Study was a cross sectional descriptive study including a sample size of 300 patients attending cancer OPD. Eligible patients were subjected to Patient Health Questionnaire (PHQ 9) to assess depressive disorder among them and later were assessed for religiosity using Durel Scale (Duke University Religion Index) and simultaneously assessed for coping using Life paths coping scale.

**Results-** Out of 300 patients ,102 patients (34%) were depressed. Out of which 50 % had mild depression, 27.4 had moderate, 14.7% moderately severe and 7.8 % had severe depression. It was found that depressed people had high overall lower religiosity than non-depressed people. There was a mild negative correlation between organizational( $r = -0.1619$ ) and non-organisational religiosity( $r=-0.1982$ ) and depression and moderate negative correlation between intrinsic religiosity( $r = -0.3635$ ) and depression. There was no difference between coping skills between both the groups.

**Conclusion**-The present study points out that high intrinsic and extrinsic religiosity appears to be a protective factor in depression.

**Keywords** - depression, religiosity, coping skills, cancer

## ABBREVIATIONS

ACRONYMS	
ER	Extrinsic religiosity
IR	Intrinsic religiosity
NORA	Non-organisational religious activity
QOL	Quality of life
PHQ	Patient Health Questionnaire
DUREL	Duke university Religion Index

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## **INTRODUCTION**

Cancer is a life changing and a feared diagnosis and is a source of significant psychological and emotional stress. Depression is known to be commonly co-morbid in cancer cases. Normal amount of sadness may be a normal response to a cancer diagnosis, however, stress beyond the coping mechanisms of patients may result in major depressive disorder, specially in cases with poor prognosis.

Depression leads to a poorer quality of life (QOL) and compromises the outcome of patient resulting in higher rates of mortality. The impact of mood and mental wellbeing on cancer progression is considered important by doctors and patients, with >70% of oncologists and 85% of patients believing that mood affects the progression of cancer.<sup>(1)</sup> Prior research has shown that social support and functional coping strategies alleviate depressive and anxious symptoms of cancer patients but the exact relationship between social support and coping strategies in amelioration of the symptoms is yet to be elaborated. Religiosity may also reduce psychological distress by increase self-esteem and help a person find his sense of meaning.

Generally, the interpretation of consequences or outcomes related to life events may be influenced by religious beliefs. It is suggested that religious practice is effective in emotion regulation, behavioural inhibition and self-control. It also helps in enabling the suppression of distressing thoughts and disorganised behaviours and acts as a defence against unpleasant feelings. Religious activity such as prayer or meditation helps to reduce distress and promote relaxation.

There are lack of studies looking into religiosity and religious coping. Currently, there has been very few studies in Indian context examining the association between religion and its impact on depression in cancer patients. Therefore, the aim of this study is to examine the association between religiosity, coping on depression in cancer patients.

## **OBJECTIVES**

- 1.To assess impact of religiosity on depression in cancer patients.
- 2.To assess impact of coping skills on depression in cancer patients.

## **REVIEW OF LITERATURE**

Depression is characterised by a state of low mood, loss of positive affect and a range of emotional, cognitive, and behavioural symptoms, such as anhedonia, disturbed eating and sleeping patterns, worthlessness, and repeated thoughts of death.<sup>(2)</sup> Without therapy, depression is likely to be persistent and recurring and is linked to a progressive decline in capacity. According to the World Health Organization, depression will overtake all other illnesses as the main global cause of death by the year 2030.<sup>(3)</sup> As a result, depression's independent disability may point to the burden that depression would likely have in the context of physical diseases.<sup>[4]</sup>

### **DEPRESSION AND CO MORBIDITY**

Depression and physical illness often occur concurrently. The presence of both depression and a medical condition rather than simply one or the other has been associated with worse quality of life (QoL), worse outcomes of physical illnesses, higher mortality, more medical expenses, more disability, and a stronger functional impact.<sup>(5)</sup> These findings have contributed to the increased awareness of depression and physical disease co-occurring as a clinical and public health problem<sup>(6)</sup> Despite past under recognition and neglect, a new field is making significant progress in the study of the risk factors and effective treatments for depression in patients with physical diseases.

Patients with cancer, stroke, and acute coronary syndrome in particular are more likely to have clinical depression. Life expectancy decreases, functional impairments increase, and death rates rise when people with these conditions also experience depression. Patients who have physical illnesses are more likely to experience depression. Not only individuals with genetic or epigenetic risk factors are affected by this; even those with environmental risk factors, such as a history of

depression, a severe physical impairment, or a string of traumatic experiences, are affected.

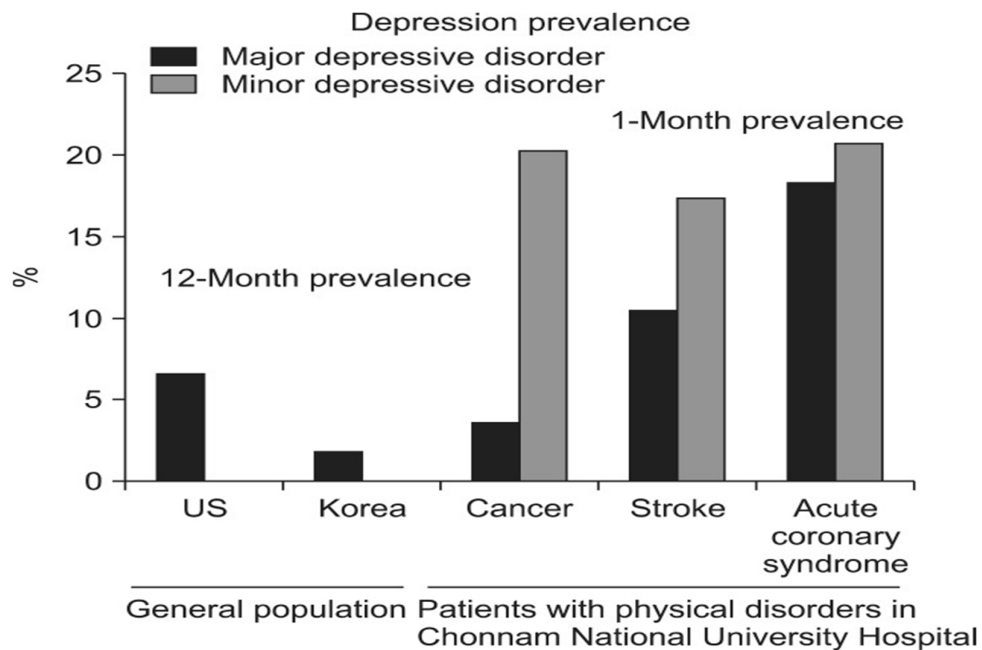
A large body of evidence suggests that people with physical issues, and in particular those with multiple physical ailments, are at increased risk for depression. A one-year prevalence survey of 30,801 people in the United States found that those with chronic medical conditions were around three times more likely to experience depression than healthy controls.<sup>(7)</sup> The World Health Organization conducted a research on the prevalence of depression among 245,400 patients across 60 nations over the course of a year and found that just 3.2% of those without a physical ailment suffered depression, whereas this number ranged from 9.3% to 18% among those with a single medical disorder.<sup>(7)</sup>

The large variety of reported depression prevalence rates is a result of methodological challenges such the use of various estimated time points and assessment tools. A comprehensive review of 31 prevalence studies using structured interviews revealed that 10.8% of cancer patients had major depressive disorder, whereas a meta-analysis of 61 research on depression after stroke indicated that 31% of survivors had the illness.<sup>(9)</sup>

Patients with physical conditions experienced depression two to three times more often than the general population as a whole (6.6 percent),<sup>(11)</sup> and similar findings have been seen in Korea.<sup>(12)</sup> According to the Korean National Health and Nutrition Examination Survey, depression affected 25.5 percent of stroke patients and 21.7 percent of patients with ACS.<sup>(13)</sup> Chonnam National University patients with a wide range of medical ailments, including 309 with breast cancer, 276 with stroke, and 969 with acute coronary syndrome (ACS), were surveyed to determine the frequency of depression among them. Researchers used the Diagnostic and Statistical

Manual of Mental Disorders, Fourth Edition (DSM-IV) Mini-International Neuropsychiatric Interview (MINI-I) to analyse individuals with severe and moderate depression (DSM-IV).<sup>(14)</sup> Patients with ACS (18.3%) had a higher prevalence of major and mild depressive disorders than those with breast cancer (2.6%) or a stroke (10.5%) or a vascular condition (20.7%). (Fig.1).<sup>(15)</sup>

**Fig 1. Prevalence of depression among the general population and in patients with cancer, stroke, and acute coronary syndrome**



**Fig 2: Review of the risk factors of depression in patients with cancer, stroke, and acute coronary syndrome**

	Genetic vulnerability	Environmental vulnerability
Cancer (especially breast cancer)	<ul style="list-style-type: none"> <li>BDNF <i>met/met</i> genotype (baseline, persistence)</li> <li>IL-1<math>\beta</math>-511T/T genotype</li> <li>Increasing numbers of pro-inflammatory cytokine risk alleles</li> <li>BDNF hypermethylation (exon VI) (1week and 1 year after mastectomy)</li> </ul>	<ul style="list-style-type: none"> <li>History of depression (baseline)</li> <li>Family history of depression (baseline)</li> <li>Number of metastatic axillary lymph nodes (persistence)</li> </ul>
Stroke	<ul style="list-style-type: none"> <li>5-HTTLPR <i>s/s</i> genotype (baseline)</li> <li>5-HTR2a 1438 A/A genotype (baseline)</li> <li>BDNF <i>met/met</i> genotype (baseline)</li> <li>IL-4 +33C/C genotype</li> <li>IL-10 -1082A/A genotype</li> <li>Increasing anti-inflammatory cytokine risk alleles</li> <li>5-HTTLPR promoter hypermethylation (baseline, persistent, incident)</li> <li>BDNF hypermethylation (exon VI) (1week and 1year after stroke)</li> </ul>	<ul style="list-style-type: none"> <li>Pre-stroke depression</li> <li>Severe disability</li> <li>More stressful life stress</li> <li>Poor support system</li> </ul>
Acute coronary syndrome	<ul style="list-style-type: none"> <li>5-HTTLPR <i>s/s</i> genotype (baseline, persistence)</li> </ul>	<ul style="list-style-type: none"> <li>Female (baseline)</li> <li>Lower educational level (baseline)</li> <li>Previous acute coronary syndrome (baseline)</li> <li>Higher heart rate (baseline)</li> <li>Current unemployment (incidence)</li> <li>Family history of depression (incidence)</li> <li>Higher baseline HAMD score (incidence, persistence)</li> <li>Lower LVEF (incidence)</li> <li>No depression treatment (persistence)</li> </ul>

DEPRESSION AND IMPACT ON THE PROGNOSIS OF PHYSICAL DISORDERS.

Given the high prevalence of depression among these people, there is a great possibility that this psychological condition will have a significantly detrimental impact on the prognosis of patients with physical disorders. In contrast to the presence of depression alone, any one medical disease, or any combination of physical disorders without depression, the presence of chronic comorbid depression dramatically lowers health status, according to earlier study by Moussavi et al. Poor QoL among cancer patients is more frequently correlated with mental health conditions like depression than with demographic or disease-related factors. Further studies have shown that, even after controlling for confounding factors like baseline QoL and the severity of ACS, post-stroke depression (PSD) has a role in defining QoL for stroke patients and that depression predicts poor QoL in patients with ACS. Depressive emotions and self-awareness of one's health are only two examples of the mental factors that have been found to play a part.<sup>(17)</sup> An analysis of long-term follow-up information from ACS patients, which included randomised trials of antidepressant medications, indicated that depression was linked to a lower quality of life and that depression therapy was linked to a higher quality of life.<sup>(18)</sup>

Recent research suggests that depressed patients with physical diseases show considerable deficiencies on both subjective and objective assessments in terms of functional limitations. In a sample of 30,801 individuals, it was shown that patients with both mental and physical disorders had substantially higher rates of functional impairments (OR: 2.48, 95 percent CI: 1.96-3.15), demonstrating that co-morbid depression had an independent influence on functional disability.<sup>(19)</sup> Clinical investigations have shown that antidepressant treatment may alleviate both depression

and its associated symptoms, leading to improved quality of life. Recent studies have demonstrated an inverse relationship between depression and functional results in 14 groups totaling 4,498 stroke patients.<sup>(20)</sup> Researchers in South Korea found that stroke survivors who had depression during the acute phase of their illness had worse functional outcomes a year later.<sup>(21)</sup> A systematic review of 31 studies indicated that, even after adjusting for the severity of the physical illnesses, individuals with comorbid depression and chronic physical conditions such as diabetes, lung disease, heart disease, and arthritis had considerably more medical symptoms.<sup>(22)</sup>

### Depression and cancer

When a patient receives the devastating and terrifying diagnosis of cancer, they go through a great amount of emotional distress. There is greater suffering after a cancer diagnosis than there is after a diagnosis of a non-neoplastic condition with a similar outlook.<sup>(23)</sup> Cancer patients who endure extreme emotional distress for a lengthy period of time may develop anxiety, depression, or both. Mixed symptomatology, including depression and anxiety, is common among cancer patients; in fact, 2/3 of depressed cancer patients also have clinically significant levels of worry.<sup>(24)</sup>

There is a connection between depression and an increase in cancer mortality, and depression also has a negative impact on patient outcomes and quality of life (QOL). A meta-analysis found that those with any degree of depression had a 39% greater chance of dying, and that those with even a few depressed symptoms had a 25% higher risk.<sup>(25)</sup> Over 70% of oncologists and 85% of patients believe that mood affects the course of cancer, demonstrating the widespread appreciation of the link between mood and mental health and cancer among both medical professionals and patients.<sup>(26)</sup>

Cancer patients may have up to three times the national average risk of depression <sup>(27)</sup> Studies utilising the DSM criteria<sup>(28)</sup> for major depressive disorder (MDD) have shown prevalences ranging from 2.0% to 43.5%, whereas reports from palliative care facilities have found prevalences as high as 49.0%<sup>(29)</sup> The vast variety of reported prevalences may be attributed to various evaluation methods, patient types examined, age groups, gender ratios, inpatient status, and other variables. Linden et al.<sup>(27)</sup> put the global prevalence of depression at 10.8%, whereas Ng et al. (30) found it to be 12.9% throughout their extensive literature assessment. More than sixteen percent more individuals are reportedly dealing with mild-to-moderate depression <sup>(27)</sup>

Cancers of the pancreas and lungs are associated with the greatest rates of depression, whereas invasive skin cancer is associated with the lowest.<sup>(27)</sup> The prevalence changes with age as well. Despite the fact that numerous kinds of adult cancer were negatively connected with age and depression, evidence shows that children and adolescents with cancer are not more depressed than healthy controls. Research has indicated that female cancer patients are at least twice as likely as male patients to experience depression. Psychological stress and sadness levels change over the course of the illness as well, reaching their maximum right after diagnosis.<sup>(27)</sup>

### Symptoms in cancer

Clinicians may mistake the somatic signs of depression, such as exhaustion, lack of appetite, weight shift and impaired cognition, for side effects of cancer therapy or other illnesses, which results in a reduction in the disorder's identification. According to a single study that also took into consideration cancer pain and physical functioning, changes in appetite and impaired cognitive function were positively connected with anhedonia, while sleep problems and exhaustion were not. This shows that decreased cognitive function and a lack of appetite are more accurate predictors

of depression in cancer patients than other factors.<sup>(30)</sup> Comparatively, depressive cancer patients are less likely to feel guilty or unsuccessful (4%) than depressed individuals who are otherwise healthy (56.5%).<sup>(33)</sup>

Pathogenesis of depression in cancer patients

Depression in cancer is a **multifactorial disorder** involving psychosocial, biological and even iatrogenic causes.

### **Psychological and social**

Non-pathological sadness, adjustment disorder, subclinical depression, and severe depression are all forms of depression. Stress that overwhelms a person's ability to adjust to life events can lead to depression, a poor mood, despair, anhedonia, and hopelessness. A bleak prognosis or considerable uncertainty can cause emotional stress. Cancer diagnosis and treatment can affect a patient's job, family, appearance, abilities, independence, and income. Maladaptive coping techniques, mental disease, and poor medical communication increase the likelihood of depression. Strong family and friend support and optimism safeguard against depression<sup>(34)</sup>

### **Inflammation**

Biological mechanisms may be relevant in cancer-related depression, in addition to emotional and psychological factors. Tissue destruction by surgery, chemotherapy, or radiotherapy causes damage-associated molecular patterns (DAMPs) on damaged tissue, which bind to pattern recognition receptors (PRRs) on leukocytes, particularly macrophages, causing the expression of nuclear factor (NF) and the production of pro-inflammatory cytokines, including interleukin-1 (IL-1), interferon- (INF-), IL-6, and tumour necrosis factor-<sup>(35)</sup> TNF- $\alpha$ , IL-1 and other cytokines have also been observed to increase the activity and expression of serotonin (5-HT) and noradrenaline (NA) reuptake transporters, through activation of the p38

mitogen activated protein kinase (MAPK). This reduces synaptic 5-HT and NA concentrations and can cause depression.<sup>(36,37)</sup> Pro-inflammatory cytokines boost CRF release (CRH). CRH can elicit depression-like behaviour changes.<sup>(38)</sup> These cytokines suppress neural development factors like BDNF, which is crucial for neurogenesis. Low BDNF and neurogenesis may cause depression.<sup>(39)</sup>

INF decreases DA-2 receptor expression and striatal DA release in non-human primates, causing anhedonia. INF- decreases phenylalanine to tyrosine conversion, which reduces DA production in the brain and may cause depressive symptoms, however the processes and pharmaceutical methods are unknown.<sup>(39)</sup>

Pro-inflammatory cytokines, especially TNF-, boost the activity of the tryptophan-degrading enzyme IDO. Destroying tryptophan reduces 5-HT levels. Depressed patients' brains contain less tryptophan than monoamines. IDO induces neurodegenerative tryptophan catabolites (TRYCATs). These TRYCATs, including kynurenine and quinolinic acid, may also be relevant in cancer-related depression. Quinolinic acid is a powerful NMDA receptor agonist and can promote excitotoxic lipid peroxidation in neurons, while kynurenine is anxiogenic. Quinolinic acid levels are elevated in the anterior cingulate cortex in severe depression. Neurotoxicity and hippocampal atrophy may cause depression<sup>(41)</sup>

### **Stress**

Cancer diagnosis and treatment cause persistent stress. During stress, the SNS is stimulated, the PSNS is blocked, and the HPA axis is activated<sup>(36,37)</sup> Stimulating the HPA-axis should release endogenous glucocorticoids, which decrease pro-inflammatory cytokine production. PRR activation by DAMPs inactivates the intracellular glucocorticoid receptor (GCR) in leukocytes, attenuating the anti-inflammatory impact of glucocorticoids and increasing cytokine production.

Proinflammatory cytokines may also reduce GCR sensitivity, reducing glucocorticoid anti-inflammatory efficacy and increasing cytokine production.<sup>(42)</sup> Chronic SNS stimulation promotes increased NA release, which binds to adrenergic receptors on macrophages, activating NF and increasing cytokine expression, reducing 5-HT and NA levels.<sup>(28,29)</sup> PSNS activity should reduce pro-inflammatory cytokine production; acetylcholine binds to leukocyte nicotinic receptors and suppresses NFB. Chronic stress inhibits the PSNS, increasing cytokine production and neurotransmitter levels.<sup>(43)</sup>

### **Medications**

Some cancer medicines cause depression-like symptoms. DA receptor-2 antagonist haloperidol decreases dopaminergic transmission in the brain and has been connected to depressive symptoms. Immunotherapy medicines, particularly INF, used in some tumours cause depression in up to 50% of patients<sup>(36,37)</sup>

Depression is an under-recognized comorbidity in cancer patients, affecting suffering, death, and healthcare costs.

Implications on the disease

### **Chemotherapy and healthcare**

In a cohort study of breast cancer patients with depression, 51% accepted and began chemotherapy, compared to 92% of the control group.<sup>(44)</sup> Depression impacts treatment participation, results, and death<sup>(44,45)</sup>

Depression worsens cancer patients' physical symptoms and affects them and their family throughout the disease. Patients with higher pre-chemotherapy levels of fatigue, depression, and sleep problems experienced worse QOL throughout treatment. Depression in cancer patients prolongs hospital stays and raises health care

costs.<sup>(46)</sup> Depressed cancer patients have a higher suicide risk than the overall population<sup>(46)</sup>

### **Depression and cancer progression**

Depressed cancer patients have a higher mortality risk than others.<sup>(45)</sup> Non-treatment accounts for some of the increased risk, but animal and human studies suggest that chronic stress may also increase cancer invasiveness, reduce tumour surveillance by the body, increase angiogenesis, reduce tumour suppressor gene activity, and reduce cellular apoptosis<sup>(47)</sup>

### **Immunotherapy**

Multiple immunological systems may explain why depressed patients have a higher mortality rate than others. Depression reduces the number of natural killer (NK) cells in healthy persons, and the same is expected in cancer patients<sup>(48)</sup> Depressed and worried ovarian cancer patients had lower amounts of T helper 1 cells, cytotoxic T lymphocytes, and interferon- (INF-) in the tumour microenvironment and peripheral blood. Chronically stressed mice (SKH1 hairless mice) were more likely to develop squamous cell carcinoma than non-stressed mice in a mouse investigation. The stressed group exhibited a shorter tumour latency, lower INF- expression, more infiltrating and circulating regulatory T cells, and less T helper cell infiltration.<sup>(49)</sup> Chronic stress reduces anti-tumor lymphocyte and NK cell function and increases immunosuppression.

### **Modifying genes**

In another mouse investigation, prolonged SNS stimulation during chronic stress interfered with p53. HPA axis activation was also thought to increase glucocorticoids and p53 inhibitors (namely MDM2). Chronic stress lowers p53's tumor-suppressor and anti-angiogenic functions.<sup>(50)</sup> Chronic stress in murine prostate

cancer models implicates catecholamines in boosting tumour growth via phosphorylating and inactivating Bcl-2-associated death promoter.<sup>(51)</sup>

### **Angiogenesis / invasiveness**

In an ovarian cancer model, chronic stress enhanced tissue catecholamines, the downstream expression of angiogenic factors (including vascular endothelial growth factor), and the production of pro-invasive enzymes.<sup>(52)</sup> Chronic stress may enhance angiogenesis and tumour invasiveness, increasing tumour burden.

### **Religiosity**

Religiosity has been defined as ‘use of cognitive and behavioural techniques in the face of stressful life situations, arising out of one’s religion or spirituality. Five key religious functions of having religious beliefs given by Pargament<sup>(52)</sup>

- 1.to give meaning to an event
- 2.to achieve a sense of control over a difficult situation.
- 3.to provide comfort during times of difficulty.
- 4.to provide intimacy with other like minded people
5. to assist people in making major life transformations.

According to the bio-psycho-social diathesis-stress paradigm, an individual's susceptibility to depression may be influenced by a number of different, but interrelated, biological, psychological, and social variables. Both predisposing and protecting variables have been identified as possible contributors to the development of depression. Because of their biology (such as age and gender), their bodies (such as health status, chronic conditions, disabilities, or recent medical setbacks), their minds (such as mental illness and heavy alcohol use), or their social environments, certain individuals are more susceptible to experience depression (e.g., marital status, education, income, social support, volunteerism, and adverse life events). This study

identifies religion as a protective factor, indicating that it may lessen a person's vulnerability to depression in general.<sup>(53)</sup>

Traditional definitions of religion include not only the abstract concept of "believing in a higher entity or something better than oneself," but also the concrete actions of "prayer," "meditation," "service attendance," "religious readings," and "affiliation with a particular religion or place of worship".<sup>(54)</sup> Religion is often structured in a hierarchical fashion, with a leader (pastor, rabbi, priest, etc.) at the top. Although a person's religious beliefs are what we mean by "religion," the term "religiosity" describes how those beliefs are put into practise.

There are three distinct varieties of religion described in the literature:

**Organisational**

**Nonorganizational**

**Intrinsic**

Attendance in religious services, which can involve the general public or organised groups, is a defined level for evaluating an organization's religiosity (Koenig et al., 1998; Sun et al., 2012). Individualistic religious practises, such as reading religious books, praying, and/or meditating, may be practised whenever and wherever the person pleases, in contrast to organised religion.<sup>(55)</sup> People's own understandings of religion and the practical implications of their religious convictions are at the heart of the study of what has come to be known as "intrinsic religiosity" <sup>(56)</sup> Research indicates that older adults, maybe in response to physical deterioration, participate in less public forms of religious expression, such as private prayer and meditation, rather than abandoning religion altogether<sup>(57)</sup>

People's religious beliefs become increasingly central to who they are as they age. According to a national study, over 70% of persons over the age of 50 and 44%

of those under the age of 30 feel that religion is highly important in their lives.<sup>(55)</sup> Older people are more likely to be religious and to actively engage in religious societies as compared to younger generations (Boswell, Kahana, & Dilworth-Anderson, 2006). The high rate of depression in the elderly, along with the trend toward more religiosity with age, implies that additional study is required to determine how these factors interact to cause emotional distress in the elderly.<sup>(57)</sup>

Few studies have looked at how a patient's religious beliefs may affect their risk of developing depression. Providers of mental health services would do well to educate themselves on the topic of religion and mental illness, since many of their patients turn to faith for solace in times of need.

In the United States, a two-year prospective research on the protective effects of religion on depression was conducted between 2006 and 2008 with a sample size of 7732 people. Regular church attendance was linked to a lower risk of depression at follow-up in people who had not experienced depression at baseline, but private prayer was linked to a lower risk of depression in those who had experienced depression at baseline. Research results reveal that two types of religiosity (organised and non-organized) both have an impact on depression outcomes (i.e., onset and recovery) but in distinct ways<sup>(57)</sup>

In the context of serious depression and chronic medical disease, another research found no association between religiosity and depressive symptoms. Nonetheless, more religious participation is linked to happier feelings, which may affect how depression develops over time.

With higher purpose, optimism, compassion, and appreciation, religious participation is shown in those with serious depression and persistent medical disease<sup>(58)</sup>

Numerous characteristics of religiosity were found to appear to connect cross sectionally to depressive symptoms in this sample of 145 teenage psychiatric patients in a prospective study of religion/spirituality and depression symptoms. It was also suggested that loss of faith may be a sign of poor prognosis among the depressed population.<sup>(59)</sup>

High-religion practitioners have been shown in a small number of studies to be more resilient to depression. It was shown that having an avoidant God-relationship was inversely related to clinical depression.<sup>(60)</sup>

In 2012, Thune-Boyle conducted a longitudinal research examining the effects of religiousness on depression and adjustment in the first year following a diagnosis of cancer among 150 patients who had just received the news that they had breast cancer. Researchers found that women who drew on religious beliefs and practises to help them deal with the stress of being diagnosed with breast cancer in the early phases of treatment had more positive outcomes.<sup>(61)</sup>

The mean score of relationship with God was higher in women than in men, and the rate of depression was higher among patients who had an avoidant strategy towards God and lower among patients who had a better attitude towards religion, according to Haghghi F. (2013) who conducted a descriptive correlation study on 150 cancer patients using the Pargament's questionnaire and the Beck's depression inventory.<sup>(62)</sup>

The results of a study of 60 people with depression who visited an outpatient clinic in northern India found that the patients' despondency and suicide intent inversely linked with their degree of religiosity.<sup>(63)</sup>

There was no statistically significant difference in the degree of religiosity between patients who tried suicide and those who did not, according to another Indian

research, with the exception of the latter group having a higher incidence of negative religious coping. Negative mood and suicide behaviour (ideation or attempt) are associated with lower levels of religion and spirituality compared to healthy controls.<sup>(64)</sup> Depressed patients are more likely to rely on negative religious coping strategies, whereas healthy controls are more likely to rely on positive coping strategies. Positive results were shown between increased coping abilities and reduced psychological discomfort in another investigation. Women who used positive religious coping strategies had less spiritual discomfort and a higher sense of well-being. When people used more positive religious coping statements, they were happier and more at peace with their spiritual lives.

According to earlier polls, only 40-70% of psychologists and psychiatrists claimed to have faith in God, although 90% of the general populace did.<sup>(65)</sup>

Kroll and Sheehan<sup>[10]</sup> and Larson et al. discovered that research on religion and spirituality and mental health is lacking. Numerous authors have emphasised the need of include patients' religious and spiritual life in psychiatric consultations.<sup>[66]</sup> Numerous mental health conditions, such as drug misuse, psychosis, anxiety, and obsessive-compulsive disorder, have been connected to religious beliefs.<sup>[67]</sup> When Kendler et al. looked at the correlation between religion and both extroverted and introverted mental disorders, they found a strong correlation. Higher degrees of general religiosity, forgiveness, belief in God as judge, and belief in God as involved, were associated with lower rates of drug misuse, criminal behaviour, and other interpersonal interaction issues. Both extroversion and introversion are mitigated by social religious practises like offering gratitude (major depression, phobias, panic disorder, generalised anxiety disorder and bulimia nervosa). Effects of religion on several aspects of depression, including prevalence, severity, psychopathology, time

to recovery, religious coping strategies, and religious psychotherapies, have been studied.<sup>[68,69]</sup> The effects of depression on religious practise and belief are complex. Some studies have shown a correlation between depressive symptoms and less religious observance or more severe symptomatology. Depressed persons who practised their religion had less depressive thoughts but the same physical symptoms.<sup>[70]</sup> A greater moral objection to suicide protected depressed in-patients from attempting suicide. Suicide rates were lower in places where more people were regular churchgoers, according to research by Bainbridge and Stark that looked at 78 American communities.<sup>[71]</sup> Higher levels of religiosity have been linked in longitudinal studies to a shorter duration of depressive symptoms and a speedier recovery time.<sup>[72,73]</sup>

Although many research have looked at religious practises as a means of dealing with both physical and mental illness, very few have evaluated how a patient's religiosity relates to their level of depressive psychopathology. If many people rely on religious beliefs to cognitively and emotionally manage with mental and physical disease, mental health professionals should be aware of this effect.<sup>(63)</sup>

This study highlights the paucity of research examining the connection between spirituality and depression in India, and specifically among patients.

To add, the majority of these research have only examined a single or a small number of characteristics of religious or spiritual practices. Although religion and spirituality are very important in the day-to-day lives of Indians, there has not been a sufficient amount of research done on their impact. Studies on the effect of religiosity in depression are sparse and very few done in India. Given the unique importance religiosity has in Indian community, it's worthwhile to explore the effect of religiosity in Indian context.

## **MATERIALS AND METHODS**

The study was designed as a cross-sectional descriptive study, aimed at assessing the religiosity and coping skills in cancer patients suffering from depression. The study was conducted at the oncology outpatient department at KLE'S Dr. Prabhakar Kore Charitable Hospital, Nehru Nagar, Belagavi. Data Collection took place between 1st January 2021 and 31st December 2021. Patients were recruited using purposive sampling.

The source of sample were patients diagnosed with any type of cancer who attended oncology OPD, KLE'S Dr. Prabhakar Kore Charitable Hospital, Belagavi.

**Sample size- 300**

**Sample size calculation-**

According to the meta analysis study by Krebber *et al* (2013) <sup>(6)</sup>, prevalence was taken as 24%.

Using  $pq/r^2$  formula, sample size = 291(which was rounded off to 300)

Where  $p= 0.24$

$$q= (1-p) = 0.76$$

$$r = 5\%$$

**Sampling procedure:**

Purposive sampling: All consecutive patients fulfilling eligibility criteria.

### **Inclusion criteria**

All patients with confirmed primary diagnosis of cancer.

### **Exclusion criteria**

1. Patients with primary psychotic/mood disorder.
2. Patients with other chronic medical illnesses.
3. Patients with history of substance dependence (except nicotine).
4. Patients with a past history of depression.

### **Ethical clearance**

Prior to commencement, the ethical clearance was obtained from Institutional Ethics Committee, Jawahar Lal Nehru Medical College, Belagavi. (Ethical clearance number-MDC/DOME/43)

### **Informed consent**

Patients fulfilling the selection criteria were explained about nature of study and a written informed consent was obtained before enrollment.

### **Tools**

- 1) **PHQ-9 SCALE-** The patient health questionnaire is a widely used diagnostic tool to screen adult patients for the presence and severity of depression .It has 9 items and 4 responses. Total score is 27. It classifies severity of depression into none, minimal, moderate, moderately severe, severe depression<sup>(74)</sup>
- 2) **DUREL SCALE-( Duke university religiosity index)-**This scale was used to measure religiosity in he study population and developed by Koenig, Parkerson, and Meador (1997). It is a brief measure of religiosity consisting of five items that measure three dimensions of religiosity: Organized Religious Activity (ORA), Non-Organized Religious Activity (NORA) and Intrinsic Religiosity

(IR). ORA refers to public religious activities such as attending religious services or participating in other group-related religious activity. NORA refers to religious activities conducted in a personal manner, such as private scripture reading, and personal prayer time. IR assesses the degree of personal religious commitment and motivation. It scores between a range of 5–27. Studies of the DUREL's psychometric properties by other investigators have also found it to be a reliable and valid measure of religiosity. The reliability of the DUREL is high (intra-class correlation coefficient of 0.91). The DUREL has been used in over 100 published studies conducted throughout the world and is available in 10 languages.<sup>(75)</sup>

- 3) LIFE PATHS COPING SCALE** - This scale was used for assessing coping skills in the study. This coping questionnaire assesses cognitive, emotional, and behavioral methods of dealing with problems. Some items focusing on cognitive and emotional approaches, were adapted from Holahan and Moos' (1987) widely-used Coping Strategies Scale (items 2, 3, and 4 below), while other cognitive and emotional items were original (1, 5, 6, and 8). The remainder of the items were adapted from Spitzberg and Coach's (2008) framework for assessing coping in response to stalking. It is a 13 item scale. Each answer category is assigned a value from 4 to 1. The total score can be a sum or mean of all the items. Higher scores indicate higher levels of coping.<sup>(76)</sup>

Figure 3

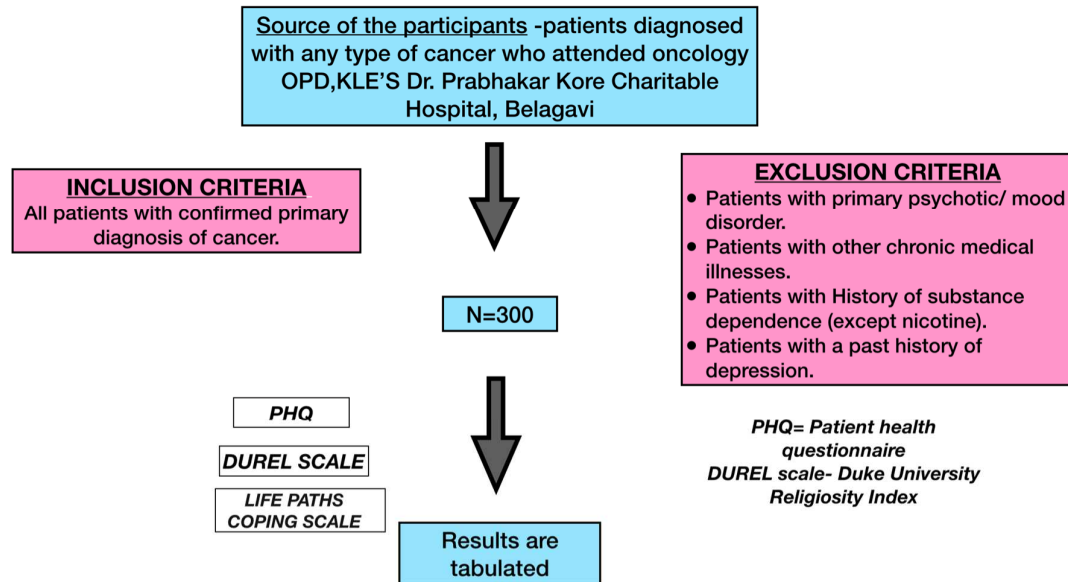
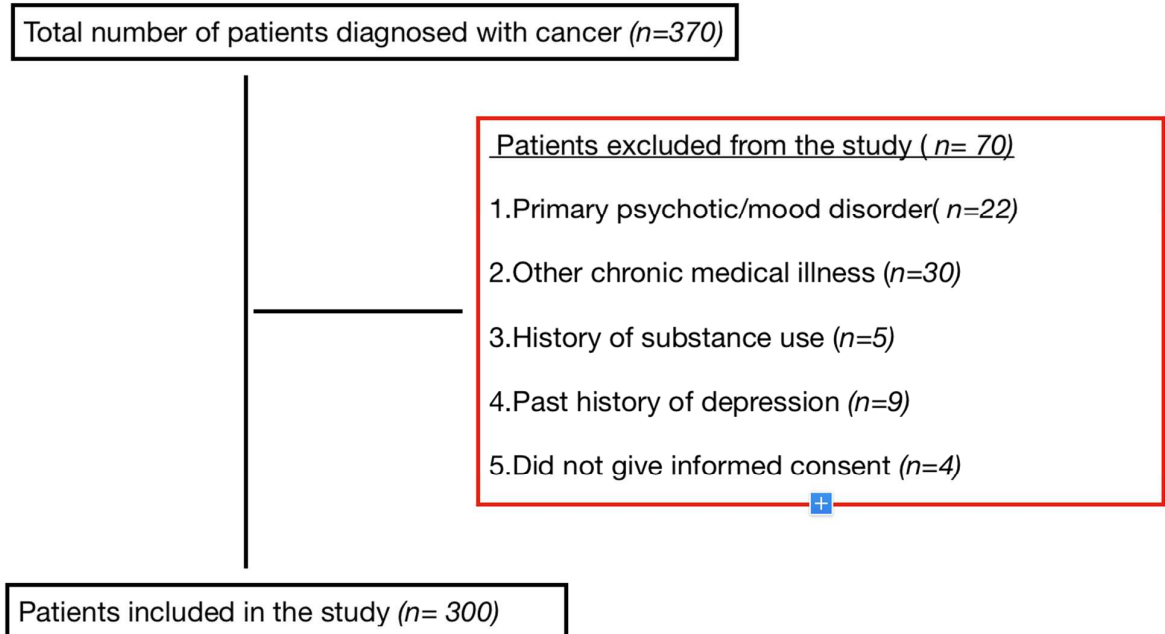


Figure 4



### **Variable**

In this study, depression was considered as the dependent variable. Religiosity and coping skills were both independent variables assumed to affect depression.

### **Procedure**

Patients attending oncology OPD were explained regarding nature of the study. A written informed consent was taken from patients in their vernacular language. Those who fulfilled the inclusion and exclusion criteria were interviewed.

Sociodemographic details were collected using a semi structured proforma. Eligible patients were subjected to Patient Health Questionnaire (PHQ 9) to assess depressive disorder among them.

All patients would be assessed for their religiosity using Durel Scale (Duke University Religion Index) and assessed for coping scale using Life paths coping scale.

### **Data analysis**

Data obtained was tabulated in Microsoft excel version 16.48. Descriptive statistics were presented as percentages for categorical variables, mean and standard deviation for continuous variables.

The strength of association between the two variables (p value) was calculated using unpaired t test or Mann -Whitney U test (non-parametric) for continuous variables and Chi-square test or Fischer exact test for categorical variables.

The correlation between the continuous variables was calculated using spearman. All tests were 2 -tailed tests. Statistical significance was set at p value less than 0.05.

## RESULTS

Table 1: Socio-demographic profile of the study sample

Profile	No of patients	% of patients
<b>Age groups</b>		
<=40yrs	58	19.33
41-50yrs	67	22.33
51-60yrs	79	26.33
>=61yrs	96	32.00
<b>Sex</b>		
Male	120	40.00
Female	180	60.00
<b>Education</b>		
Illiterate	46	15.33
Primary school	65	21.67
High school	159	53.00
Graduate	30	10.00
<b>Occupation</b>		
Unemployed	102	34.00
Unskilled	20	6.67
Semi-skilled	158	52.67
Professional	20	6.67
<b>Religion</b>		
Hindu	224	74.67
Muslim	76	25.33
Total	300	100.00

Table 1 shows sociodemographic profile of the study sample. The maximum number (32%) were older than 61 years. ,40% of them were males and majority (60%) were females. With respect to education,15.3% were found to be illiterate, 21.7% had studied upto primary school. Maximum (53%) went till high school and 10% were found to have graduate degree. 34% were unemployed. 6.7% were found to be unskilled and 52.7% were found to be performing semi-skilled work. Number of patients who were found to be professional were 6.7%. Majority (74.6%) of the patients belonged to Hindu religion whereas Non - hindu was population was 25.3%.

**Table 2: Distribution of patients by health related parameters**

Health parameters	No of respondents	% of respondents
<b>Type of cancer</b>		
Hematological	60	20.00
Solid tumour	240	80.00
<b>Stage of cancer</b>		
No staging	178	59.33
Stage 1	45	15.00
Stage 2	40	13.33
Stage 3	25	8.33
Stage 4	12	4.00
<b>Duration of illness</b>		
More than one year	182	60.67
Less than one year	118	39.33
<b>Any chemotherapies given</b>		
Yes	171	57.00
No	129	43.00
<b>Any hormonal therapy given</b>		
Yes	11	3.67
No	289	96.33
<b>Progress of illness</b>		
Known to the patient	177	59.00
Not known to the patient	123	41.00
<b>Side effect of chemotherapy</b>		
Yes	119	39.67
No	181	60.33
Total	300	100.00

Table 2 describes health related parameters related to the illness in the study sample. Majority (80%) of patient had solid tumours, and rest of the patients had hematological malignancies (20%). Majority (59.3%) of the patients were un-staged and rest of 15.3%, 13.3% ,8.6% and 4% were found to have STAGE I, II,III, IV cancer respectively. Patients who had total duration of illness more than one year were 60.67% and 39.3% had duration of illness less than one year. No. of patients who received chemotherapies were 57% and who did not receive were 43%. Majority (96.3%) of patients did not receive any hormonal therapy. With respect to patients who were aware of the prognosis of illness before were 59% and those who were not aware were 41%. Majority (60.3%) of patients experienced side effects were 39.6% did not experience any side effects.

**Table 3: Prevalence of depression in the study sample**

Groups	N	%
Non- depressed	198	66.00
Depressed	102	34.00
Total	300	100.00

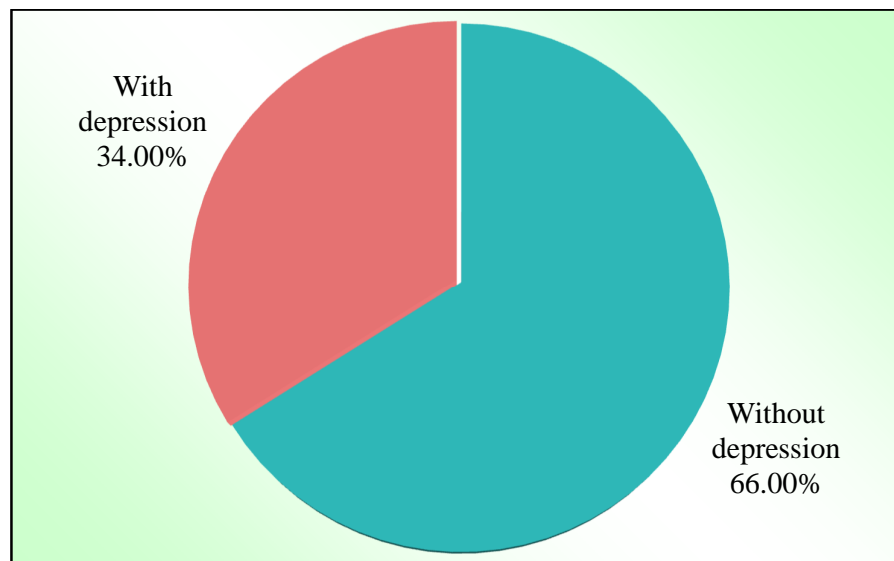
**Figure 5 Prevalence of depression in the study sample**

Figure 5 And Table 3 shows prevalence of depression in the study sample. Total number of people who were found to have with depression were 102(34%) {PHQ >5} and number of people who did not have depression were 198(66%)

**Table 4: Grades of depression**

Grades of depression	n =102	%
Mild depression	51	50.00
Moderate depression	28	27.4
Moderately severe depression	15	14.7
Severe depression	8	7.8

Table 4 shows grades of depression. Out of 102 patients, who suffered depression 50% had mild, 27.4% had moderate, 14.7% had moderate severe and 7.8% had severe depression.

**Table 5: Comparison of extrinsic religiosity between non-depressed and depressed groups**

Components	Non-depressed (n=198)		Depressed(n=102)		p-value
	Mean	SD	Mean	SD	
ER1	3.79	1.47	3.02	1.82	0.0033*
ER2	3.88	1.43	3.09	1.80	0.0012*

ER1 - Organised religious activity, ER 2 -Non-organised religious activity. \*p<0.05

**Figure 6: Comparison of extrinsic religiosity non-depressed and depressed groups**

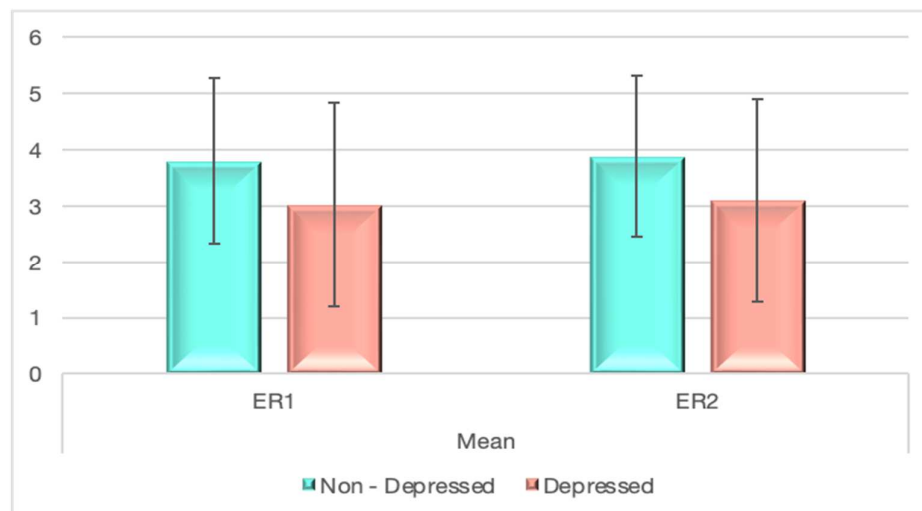


Table 5 and Figure 6 shows comparison of non-depressed and depressed groups with extrinsic religiosity. In both subdomains, ER 1 (organizational religiosity) and ER 2 (non-organizational religiosity), depressed group had lower mean scores than the non depressed group. Both the differences were statistically significant as p value <0.05.

**Table 6: Comparison of intrinsic religiosity scores of non-depressed and depressed groups**

Variables	Non-depressed (n= 198)		Depressed (n=102)		p-value
	Mean	SD	Mean	SD	
Intrinsic religiosity	11.08	2.72	8.73	4.37	0.0001*

**Figure 7: Comparison of intrinsic religiosity scores of non-depressed and depressed**

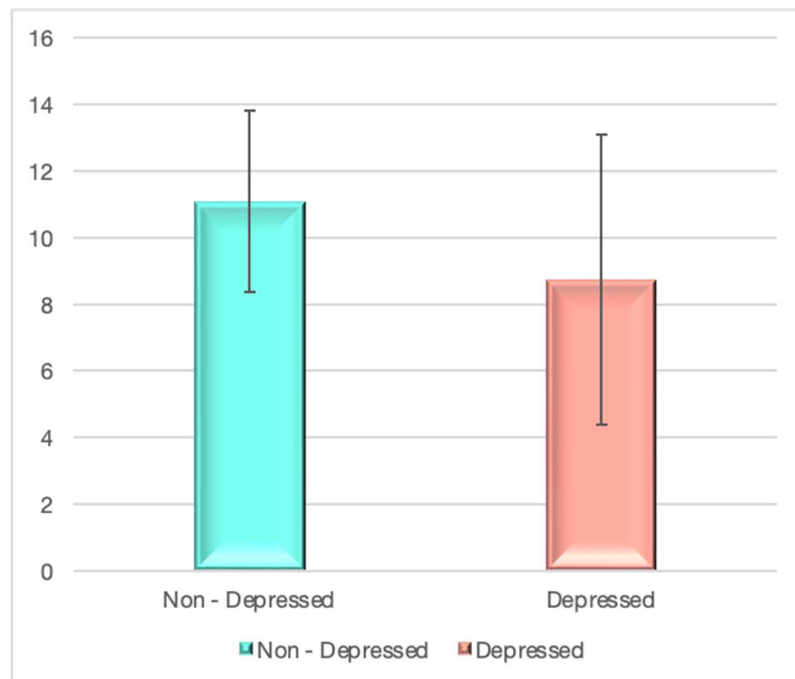


Table 6 and Figure 7 shows comparison of intrinsic religiosity scores of non-depressed and depressed. The mean scores are found to be lower in depressed group and values are statistically significant (p value <0.05)

**Table 7: Comparison of coping skills between non-depressed and depressed groups**

Variables	Nondepressed (n=198)		Depressed (n=102)		p-value
	Mean	SD	Mean	SD	
Coping skills	42.61	8.22	41.37	7.19	0.1988

**Figure 8: Comparison of coping skills scores between non-depressed and depressed groups**

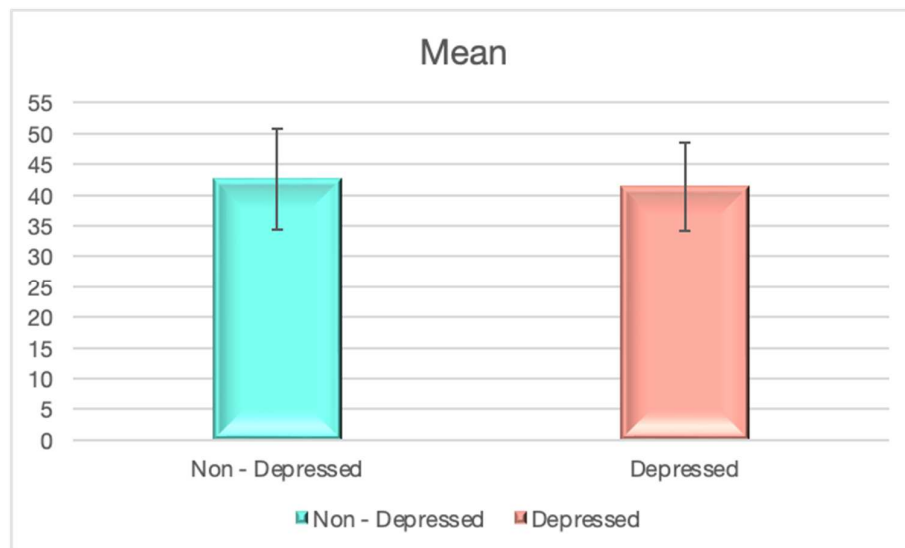


Table 7 and Figure 8 shows comparison of non-depressed and depressed with coping skills scores. In both the groups, mean scores were found to be comparable (p value >0.05)

**Table 8: Correlation between depression scores with extrinsic religiosity by Spearman's rank correlation**

Components of Religiosity	N	Spearman R	p-value
ER1	300	-0.1619	0.0049*
ER2	300	-0.1982	0.0006*

ER1 -organised religious activity ER2 - Non organised religious activity.

\*p<0.05

**Figure 9: Scatter diagram showing the correlation between depression scores with extrinsic religiosity.**

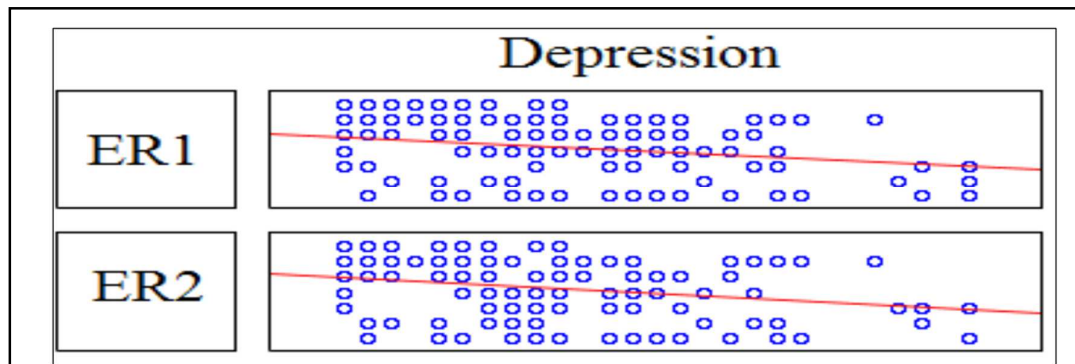


Table 8 and figure 9 shows correlation between depression scores with extrinsic religiosity scores. There is mild negative correlation with extrinsic religiosity (both sub-scales ER 1 and 2) and depression. This correlation was found to be statistically significant in all domains (p value <0.05) which means as extrinsic religiosity levels increase, depression tends to decrease.

**Table 9: Correlation between depression scores with intrinsic religiosity scores by Karl Pearson's correlation**

Variables	Correlation between depression scores with		
	N	r-value	p-value
Intrinsic religiosity scores	300	-0.3635	0.0001*

\*p<0.05

**Figure 10: Scatter diagram showing the correlation between depression scores with intrinsic religiosity scores**

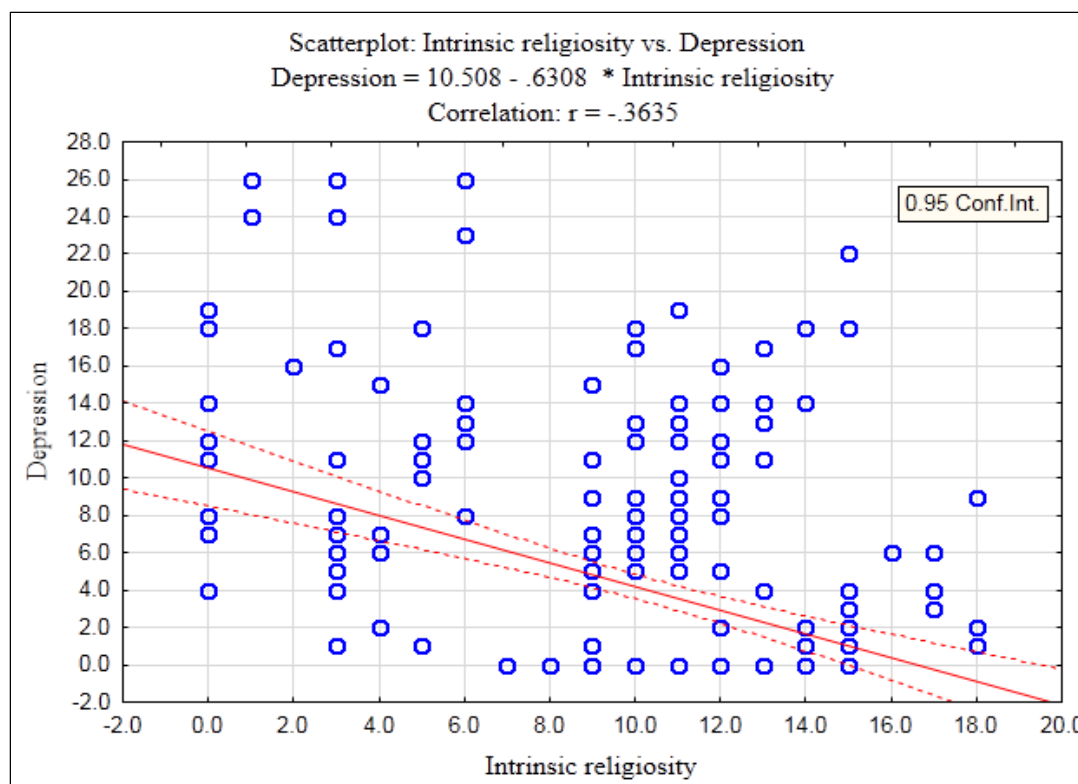


Table 9 and Figure 10 shows the correlation between depression scores with total intrinsic religiosity. There is a moderate negative correlation between depression and intrinsic religiosity and this correlation is found to be statistically significant.(p value <0.05) which means as level of intrinsic religiosity increases , depression decreases.

**Table 10: Correlation between depression scores with coping skills scores by Karl Pearson's correlation**

Variables	Correlation between depression scores with		
	N	r-value	p-value
Coping scores	300	-0.0814	0.1598

**Figure 11: Scatter diagram showing the correlation between depression scores with coping skill scores**

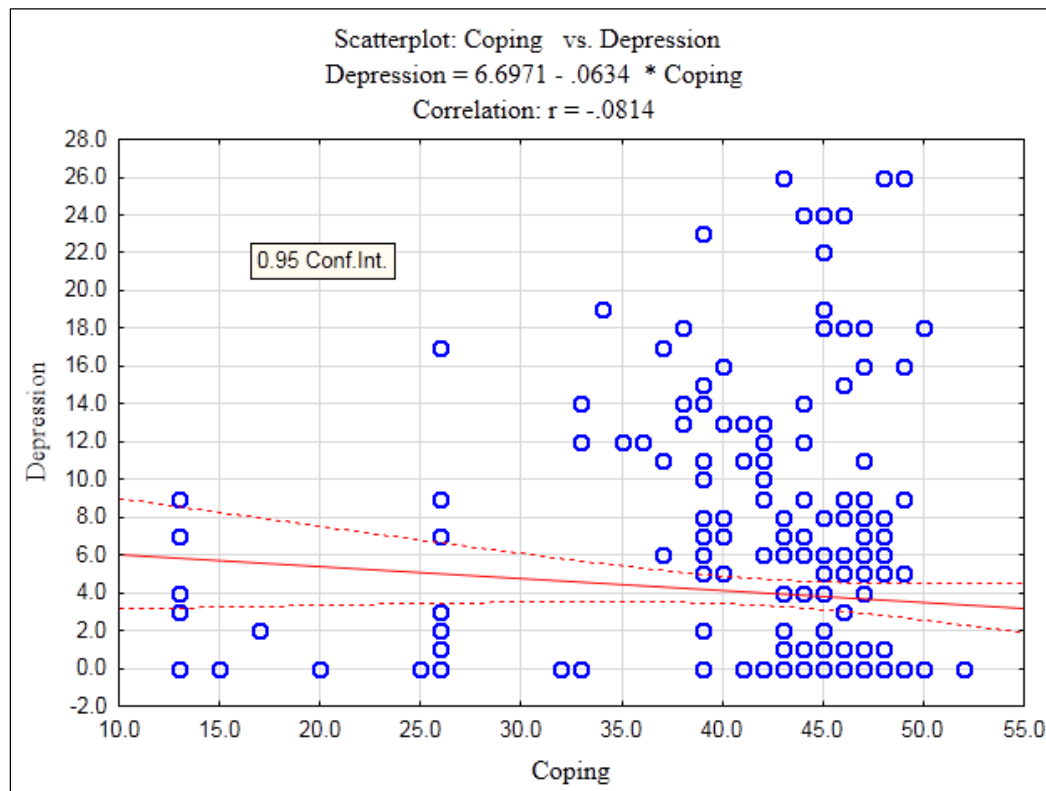


Table 14 and Figure 16 shows the correlation between depression scores with coping scores . There was no correlation with coping and higher grades of depression. (p value > 0.05)

## DISCUSSION

### **Sociodemographic details of the study sample**

In our study, majority of patients were in the age group more than 61 years. And majority (60%) were females. Maximum number (53%) had studied up to high school and around 10% were graduates. In terms of occupation, around half of the population did semi-skilled work. In study done by Hinz *et al* (2016) assessing depression in cancer patients, the mean age of the sample was 62.3 years, majority were females (54%).<sup>(77)</sup>

In another study done by Dahiya *et al* (2021). Out of 400 participants, 47.5% were from the age group >50 years followed by 41.5% from the 31–40 years.<sup>(78)</sup> In study done by Francis *et al* (2019) on 622 patients there were 64.8% females and 35% males.<sup>(79)</sup>

### **Comparison of other health related parameters**

In our study, majority (80%) patients had solid tumours. In terms of duration of illness, around 60% of patients had illness more than one year.

Majority had received chemotherapies in our study and around 60% patients experienced side effects.

In study by Jason *et al* (2010) majority had (73%) had solid tumours and 27% had haematological malignancies. 55% patients had received chemotherapies<sup>(80)</sup>

In study by Sahin *et al* (2014) majority patients received chemotherapies (72.2%)

With respect to the duration of illness, more than 50 % have more than one year duration.<sup>(81)</sup>

In study done by Dahiya *et al* (2021) among 400 respondents, 60.5% of the participants were from 6 months to 1 year diagnostic duration followed by 30.5% in

1–3-year diagnostic duration. In terms of staging of disease, 39% of the respondents were in the Stage II of disease followed by 31.8% in III stage.<sup>(78)</sup>

In another study done by Ng *et al* (2016) The average duration of cancer was 38 months. Haematological cancers were around 11.5% and majority were solid tumours.<sup>(82)</sup>

Our study also has similar results as above mentioned studies.

### **Studies on prevalence of depression in cancer patients**

In our study ,total prevalence was found to be 34% that means almost one third patients suffered from depression which is higher than the prevalence in normal population.50% had mild depression, 27.4% had moderate depression, 14.7 % had moderate severe depression and 7.8 % had severe depression.

Studies using Diagnostic for Statistical Manual of Mental Disorders (DSM) criteria for major depressive disorder (MDD) have identified a variety of prevalences ranging from 2.0–43.5% <sup>(83,84)</sup>

A meta analysis done by Krebber *et al* (2013) to investigate the prevalence of depression in cancer patients which included 211 studies found out mean prevalence of depression ranged from 8 to 24%. Prevalence of major depressive disorder appeared to be 13% as measured by DSM or ICD.<sup>(84)</sup>

Another study by Dogar *et al* (2009)<sup>(86)</sup> to examine the prevalence of depression and anxiety in an out-patient department of a tertiary care hospital in pakistan estimated prevalence to be around 52%.

A study done by Dahiya *et al* (2021)<sup>(78)</sup> with 400 patients in India assessed level of depression using PHQ scale revealed level of depression among cancer patients,

out of them 8.8% were having minimal depression, 20.3% mild depression, 39.8% moderate depression, 17.8% moderately severe depression, and 13.5 were having severe depression.

Our study also shows results in line with the above mentioned studies. Hence, depression is more prevalent in cancer patients than the normal population. Strategies to screen these patients at regular intervals of time should be implicated which would improve the overall outcome of these patients and reduce morbidity and mortality rates.

### **Studies comparing religiosity and depression**

Our study assessed impact of religiosity on depression and found out depressed people have overall lower non-organizational, organizational and intrinsic religiosity and has negative correlation with depression.

A 2 year prospective study done by Ronneberg et al (2016)<sup>(57)</sup> in United States with a large sample size of 7732 patients found religiosity to be protective against depression. Individuals not depressed at baseline remained non-depressed 2 years later if they frequently attended religious services, whereas those depressed at baseline were less likely to be depressed at follow-up if they more frequently engaged in private prayer suggesting both organizational and nonorganizational forms of religiosity affect depression outcomes.

Another prospective study by Dew et al (2010)<sup>(58)</sup> on 145 adolescent psychiatric assessing relationship of depression and religion longitudinally and cross-sectionally. Study concluded that several aspects of religiousness appeared to relate cross sectionally to depressive symptoms in sample and suggested that lack of faith may be a marker of poor prognosis among the depressed population.

A longitudinal study done by Boyle et al (2012) <sup>(61)</sup> for assessing 150 newly diagnosed patients with breast cancer and assessing several aspects of religiousness in relation to depression and adjustment in the first year after diagnosis of cancer. The study concluded that using religious resources in the coping process during the early stages of breast cancer played an important role in the adjustment process.

Another study by Haghghi F. *et al*(2013)<sup>(62)</sup> conducted on 150 cancer patients using the Pargament's questionnaire and Beck's depression inventory reported that rate of depression was higher who had an avoidant strategy towards God and lower among patients who had a better attitude towards religion.

Study done by Ng et al <sup>(82)</sup> on 200 Malay cancer patients using DUREL scale also showed that subjects with depression showed more negative religious coping and had lower non-organization religiosity.

### **Studies done in India**

There have been very few studies in India which assess relationship between religiosity/spirituality and depression directly in cancer patients. Most of the studies have been done outside India.

A study conducted in north India by Gupta et al (2011)<sup>(63)</sup> in an outpatient clinic with 60 patients to compare the psychopathology between depressed patients with low and high religiosity showed that in patients with depression, hopelessness and suicide intent correlated negatively with the level of religiosity.

Another research in India by Dua et al(2021)<sup>(64)</sup> comparing the religiosity of patients with and without suicidal attempts found no significant difference, except for higher use of negative religious coping by those who attempt suicide. In depressed individuals with suicidal conduct (ideation or attempt), religiosity and spirituality were lower than in healthy controls.

One study done by Haokip et al (2022)<sup>(87)</sup> on 103 cancer patients in a tertiary care unit assessed relationship between spirituality on depression and found out patients with high spirituality had minimal or no depression and found a statistically significant negative correlation between depression and spirituality.

Our study also produces results on similar lines. Depressed people showed less religiosity over all than non depressed people and patients engaging in organisational, private religious activity (non-organisational activity) and having intrinsic religiosity showed statistical significance. Also, with higher religiosity, depression decreases.

This implies that religiosity has significant impact on the psychopathology of the depressed patient. Hence, incorporation of religious elements in the treatment of depressed is likely to have a useful positive impact.

### **Studies on coping and depression**

Our study does not seem to show any impact of coping on depression. Both the groups had similar levels of coping skills and there was no correlation between both the variables.

A study by Holubova et al (2017) done to investigate relationship between quality of life and coping strategies of 82 outpatient with depressive disorder showed overuse of negative coping strategies in depressive patients and affecting their quality of life<sup>(88)</sup>

Another study done by Hadi et al (2020) on Iranian women diagnosed with breast cancer evaluated coping strategies using the Brief cope scale and reported negative correlation with depression and anxiety.<sup>(89)</sup>

Another study done by Silva et al (2017) shows reciprocity between coping and depressive/anxiety symptoms that breast cancer patients with lower levels of anxiety practice more efficient coping techniques whereas those with high anxiety tend to cope in less efficient ways.<sup>(90)</sup>

However our study shows contrasting results. There was no difference found in coping skills in both the groups. This discrepancy could be due to improper assessment using the coping skills scale. Although it was a validated tool however it could be possible that we did not get appropriate answers from the patients using this scale.

## **CONCLUSION**

The prevalence of depression in cancer patients was found to be 34%. It was found that patients in non- depressed group had overall higher religiosity scores than the depressed group. Also, there was a mild negative co-relation found between depression and extrinsic religiosity and moderate negative correlation between intrinsic religiosity and depression.

Depressed patients and non depressed groups had similar level of coping skills. There was no correlation was found to be existing with coping and depression.

### **Strengths**

1. There are very few Indian studies assessing impact of religiosity on depression in cancer patients.
2. Our study had reasonably large sample size.
3. Our study used validated tools for all the assessments.

### **Limitations**

1. It has a cross sectional assessment.
2. There is a chance of recall bias and reporting bias at the time of interview.
3. Study has been done in tertiary care hospital. So results might not be generalisable.

## SUMMARY

In Summary, Cancer is associated with the significant level of psychological distress. Depression is found to be highly prevalent in cancers patients and is associated with reduced quality of life. The current study also showed that cancer patients had high level of co-morbid depression. Cancer patients may use religious beliefs to cope with the diagnosis and consequences of living with cancer. Our study shows depressed patients to have lower extrinsic and intrinsic religious beliefs. Hence, religiosity has significant affect on the psychopathology of depression and acts as a protective factor for depression. Coping strategies have an essential role in solving and coping with a depressive illness and the use of specific coping strategies, especially maladaptive overuse of negative coping strategies can affect the prognosis of the illness. Interventions aimed at increasing the use of the religious coping strategies may help to cope with stressful life situations and also improve the patient's mood and QoL and may become a useful tool in prevention and control of the depressive disorders. Given the high prevalence of depression among cancer patients, clinicians should be aware of the benefits associated with both religious service attendance and involvement in private prayer, assessing individuals religious needs and involvement, and determine whether patients face any barriers to attending services or pursuing their faith. Hence, measurements in reducing negative religious coping and encouraging religious activities could help to reduce psychological distress and occurrence of depression in cancer patients. Through these assessments, clinicians can better help patients to connect to such religious services within their communities. Care plans or therapy goals can be developed which can address these issues as well.

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**ANNEXURE I**

**INFORMED CONSENT**

**PRIMARY INVESTIGATOR: REG NO: BQ0120003**

**GUIDE: DR.** \_\_\_\_\_

**CO-GUIDE: DR.** \_\_\_\_\_

Dear Mr./Mrs./Dr. \_\_\_\_\_, you are kindly requested to enroll yourself in a research study titled, "STUDY OF RELIGIOSITY, COPING SKILLS AND THEIR IMPACT ON DEPRESSION IN CANCER PATIENTS—A CROSS SECTIONAL DESCRIPTIVE STUDY" being conducted by REG NO: BQ0120003 a post graduate student in M.D. Psychiatry and the study will be carried out under the direct supervision and guidance of Dr. \_\_\_\_\_, Associate Professor, Department of Psychiatry, Jawaharlal Nehru Medical College, Belagavi.

You have been requested to participate in this as you fit into the laid-out criteria for a study 'subject'/ participant.

Your participation in study is voluntary. During the study you will be undergoing an interview session. Your decision whether or not to participate in the study will not affect your treatment in any form. If you decide to participate you are free to withdraw at any time.

**TITLE OF THE STUDY:**

"STUDY OF RELIGIOSITY, COPING SKILLS AND THEIR IMPACT ON DEPRESSION IN CANCER PATIENTS—A CROSS SECTIONAL DESCRIPTIVE STUDY"

**PURPOSE OF THE STUDY:**

To assess religiosity, coping skills and its impact on depression in cancer patients.

**PROCEDURES INVOLVED:**

If you agree to enroll yourself in my study, you will be subjected to semi-structured questionnaires to assess the above objectives.

**RISKS AND BENEFITS:**

There are no potential risks involved in this study.

**Benefits of taking part in this research:**

To assess impact of religiosity and coping skills on depression in cancer patients.

**VOLUNTARY PARTICIPATION / WITHDRAWAL FROM THE STUDY:**

**Taking part in the study is voluntary. You may choose not to enroll yourself in this study and may choose to leave the study anytime in between.**

**ALTERNATIVES:**

Your decision regarding participation in study will not change present or future health care services offered to you at KLES Dr. Prabhakar Kore Hospital and Medical Research Centre, Belagavi. You would simply be excluded from the study if you wish to, and all your details shall be kept confidential and you will get the routine line of management.

**INSTITUTIONAL/SPONSORS POLICY**

Does not apply to my research

**PRIVACY AND CONFIDENTIALITY:**

All data collected or disclosed by you during the course of participation of study, will be kept fully confidential. If however during the course it becomes necessary for the progress of the course to disclose the identity, it would be done so only after your informed & written consent.

The only people to know that you are a research subject are members of the research team. No information about you will be disclosed to other without your written permission except:

- In an emergency to protect your rights AND welfare.
- If required by law.

**AUTHORIZATION TO PUBLISH RESULT:**

The results of the study may be used to publish an article. When the results of research are published or discussed, in a conference, no information will be displayed that would disclose your identity. Any information obtained in connection with this study and that can be identified with you will remain confidential.

**FINANCIAL INCENTIVES FOR PARTICIPATION:**

No additional costs shall be incurred upon you for the purpose of this study. It is purely being done with the idea of research and all the cost of study will be borne by the investigator. There will not be any remuneration, reimbursement, compensation or free medical care.

**QUESTIONS/CONTACT DETAILS:**

You shall be free to contact the below mentioned name & addresses anytime during the study period for any clarification or help as you may desire for.

**In case of the queries during study or in future you may contact following persons,**

Dr. \_\_\_\_\_  
Associate Professor  
Department of Psychiatry  
JNMC Medical college  
K.A.H.E.R, Belagavi

Dr. \_\_\_\_\_  
Professor  
Department of oncology  
JNMC Medical college  
K.A.H.E.R, Belagavi

**REG NO: BQ0120003**  
Primary investigator  
Junior resident  
Department of Psychiatry  
JNMC Medical college  
K.A.H.E.R, Belagavi

Dr. Harsha Hegde  
Chairperson  
Jnmc ethical committee  
Jnmc medical college  
K.A.H.E.R, Belgavi

**STATEMENT OF CONSENT**

I have read and have completely understood the entire information given in the consent form, which explains all the details of the study, i.e, the purpose, procedure involved, risks & benefits, privacy & confidentiality, incentives and the authorization to publish the results of the study. My signature in the space provided for signature below indicates that I have voluntarily agreed to participate in the study. I may withdraw my participation for any reason or may be withdrawn by the investigator from the study for any reason at any time. I am giving up any of my legal rights by signing this consent form.

Signature of the participant with date: \_\_\_\_\_

Name of the participant: \_\_\_\_\_

Signature of the Investigator with date: \_\_\_\_\_

Name of the investigator: \_\_\_\_\_

ಸಂಶೋಧನಾ ಅಧ್ಯಯನದಲ್ಲಿ ಪಾಲ್ಗೊಳ್ಳಲು ಸಲಹೆ

1. ನಾನು ಅಧ್ಯಯನದಲ್ಲಿ ಪಾಲ್ಗೊಳ್ಳುತ್ತಿದ್ದೇನೆ ಎಂದು ನಾನು ಅರ್ಥಮಾಡಿಕೊಂಡಿದ್ದೇನೆ.
2. ರೋಗಿಯ ಮಾಹಿತಿಹಾಳೆಯಲ್ಲಿ ನಮಾಹಿತಿಯನ್ನು ನಾನು ಓದಿದ್ದೇನೆ ಮತ್ತು ಅರ್ಥಮಾಡಿಕೊಂಡಿದ್ದೇನೆ ಎಂದು ನಾನು ದೃಢೀಕರಿಸುತ್ತೇನೆ. ಅಧ್ಯಯನದಲ್ಲಿ ಪಾಲ್ಗೊಳ್ಳುವ ಅನುಕೂಲಗಳು ಮತ್ತು ಅನಾನುಕೂಲತೆಗಳ ಬಗ್ಗೆ ಮಾಹಿತಿಯೊಂದಿಗೆ ಕಾರ್ಯವಿಧಾನವನ್ನು ನನಗೆ ವಿವರವಾಗಿ ವಿವರಿಸಲಾಗಿದೆ. ಪ್ರಯೋಗದ ಎಲ್ಲಾ ಅಂಶಗಳನ್ನು ಚರ್ಚಿಸಲು ನನಗೆ ಅವಕಾಶ ನೀಡಲಾಗಿದೆ, ಪ್ರಶ್ನೆಗಳನ್ನು ಕೇಳಿ ಮತ್ತು ಅದರ ಮೇಲೆ ಈ ಕೆಳಗಿನವುಗಳನ್ನು ವಿವರಿಸಿರುವ ವಿಚಾರಣೆಯಲ್ಲಿ ಪಾಲ್ಗೊಳ್ಳಲು ಸಮ್ಮತಿಸಿ ನೀಡಲಾಗಿದೆ.
3. ಈ ಅಧ್ಯಯನದ ಪಾಲ್ಗೊಳ್ಳುವ ನಿರ್ಧಾರ ಸಂಪೂರ್ಣವಾಗಿ ಸ್ವಯಂಪ್ರೇರಿತವಾಗಿದೆ ಮತ್ತು ನಾನು ಆಯ್ಕೆಬಹುದು ಎಂದು ನನಗೆ ತಿಳಿದಿದೆ. ಸಮಯದ ಹಂತದಲ್ಲಿ ಅಧ್ಯಯನದಿಂದ ಹೊರಬರಲು.
4. ವೈದ್ಯಕೀಯ, ವೈಜ್ಞಾನಿಕ ಅಥವಾ ಶೈಕ್ಷಣಿಕ ಉದ್ದೇಶಗಳಿಗಾಗಿ ನನ್ನ ದೇಹದ ಸೂಕ್ತವಾದ ಭಾಗಗಳನ್ನು ಒಳಗೊಂಡ ಕಾರ್ಯವಿಧಾನದ ಛಾಯಾಚಿತ್ರ ಅಥವಾ ರೆಕಾರ್ಡಿಂಗ್‌ನನ್ನು ಒಪ್ಪಿಗೆಯನ್ನು ಬಹಿರಂಗಪಡಿಸಲಾಗಿಲ್ಲ. ಅಥವಾ ಚಿತ್ರಗಳನ್ನು ಒಳಗೊಂಡಿರುವ ವಿವರಣಾತ್ಮಕ ಪಠ್ಯಗಳ ಮೂಲಕ ಬಹಿರಂಗಪಡಿಸುವುದಿಲ್ಲ.
5. ಈ ಅಧ್ಯಯನದಲ್ಲಿ ಮಾಡಿದ ಪರೀಕ್ಷೆಯಲ್ಲಿ ಯಾವುದೇ ಮಹತ್ವದ ಅಪಾಯವಿಲ್ಲ ಎಂದು ನಾನು ಅರ್ಥಮಾಡಿಕೊಂಡಿದ್ದೇನೆ.
6. ಪಡೆಯಬಹುದಾದ ಫಲಿತಾಂಶಗಳಿಗೆ ಯಾರಿಗೂ ಖಾತರಿ ಅಥವಾ ಭರವಸೆ ನೀಡಲಾಗಿಲ್ಲ.
7. ಮೇಲಿನ ರೂಪವನ್ನು ಅರ್ಥಮಾಡಿಕೊಂಡ ನಂತರ ನಾನು ಭಾಗವಹಿಸಲು ಸ್ವಇಚ್ಛೆಯಿಂದ ನಿರ್ಧರಿಸಿದ್ದೇನೆ ಎಂದು ಈ ರೂಪದಲ್ಲಿ ನನ್ನ ಸಹಿಸೂಚಿಸುತ್ತದೆ.

ಭಾಗವಹಿಸುವವರ ಹೆಸರು / ಕಾನೂನುಬದ್ಧವಾಗಿ ಅಧಿಕೃತ ಪ್ರತಿನಿಧಿ

ಪ್ರತಿನಿಧಿಸಹಿ

ಸಂದರ್ಶಕರ ಹೆಸರು ಮತ್ತು ಸಂದರ್ಶಕರ ಸಹಿ

ದಿನಾಂಕ:

ಸ್ಥಳ:

अनुसंधान अध्ययन में भाग लेने के लिए सहमति

1. मैं समझता हूँ कि मैं अध्ययन में भाग ले रहा हूँ ।
2. मैं पुष्टि करता हूँ कि मैं नैसर्गिक सूचना शीट में जानकारी पढ़ली हूँ और समझली हूँ। अध्ययन में समझाया गया है कि अध्ययन में भाग लेने के फायदे और नुकसान के बारे में जानकारी के साथ मुझे विस्तार से बताया गया है। मुझे परीक्षण के सभी पहलुओं पर चर्चा करने का अवसर दिया गया है। प्रश्न पूछे और इस तरह से सुझाव दिए गए मुझे सहभागिता की सहमति है।
3. यह समझें कि इस अध्ययन में भाग लेने का निर्णय पूरी तरह से स्वच्छिक है और मुझे पता है कि मैं चुन सकता हूँ एक समय पर अध्ययन से वापस लेने के लिए।
4. मंडिकल, वैज्ञानिक या शैक्षिक उद्देश्यों के लिए मनुष्य के उपयोग के सहित कार्य करने के लिए प्रक्रिया की तस्वीर या रिकॉर्डिंग के लिए सहमति दी गई है। बशर्ते मनुष्य पहचान चित्रों में या उनके साथ आनखाली वर्णनात्मक ग्रंथों में प्रकट नहीं हुई है।
5. मैं समझता हूँ कि इस अध्ययन में किए गए किसी भी महत्वपूर्ण जोखिम को शामिल नहीं किया गया है।
6. कोई गारंटी या आश्वासन किसी भी व्यक्ति द्वारा दिए गए परिणाम के रूप में नहीं दिया गया है।
7. इस फार्म पर मनुष्य हस्ताक्षर दर्शाता है कि मैंने ऊपर की जानकारी समझने के बाद खुशी-खुशी भाग लेने का फैसला किया है।

प्रतिभागी के नाम / कानूनी तौर पर अधिकृत प्रतिनिधि

हस्ताक्षर नाम

गवाह के हस्ताक्षर

साक्षात्कारकर्ता का नाम और हस्ताक्षर

दिनांक :

स्थान :

संशोधन अभ्यासक्रमात सहभागी होण्या साठी संमती

1. मला समजतऱकी मी या अभ्यासात भाग घेत आहे
2. मी पुष्टी करतो की मी रुग्णमाहिती पत्रकात माहितीवा चली आहेआणि समजून घेतली आहे  
अभ्यासात भागघेण्याच्या फायदाआणि तोट्या विषयीमाहिती सहप्रक्रियात पशीलानमला  
समजावून सांगितलआहेमला चाचणीच्या सर्व पालूवर चर्चा करण्याची, प्रश्न विचारण्याद्वारा  
आणि उपरोक्त दिलेल्याचाचणीत सहभागी होण्या संसंमती देण्याची संधी दिली गेली आहे
3. समजूनघ्या कीया अभ्यासात भाग घेण्याचा निर्णय पूर्णपणेस्वयं सखी आहेआणि मला याची  
जाणीव आहेकी मीनि वडूशक तोए कावळअ अभ्यासातून बाह्य पडण्यासाठी
4. वैकीय, वैज्ञानिक किंवा शाणिक हतूं साठी माझ्या शरीराच्या योग्यभागां सहित कार्या  
साठी छायाचित्र काढणकिं वा रक्तोर्डिंग करण्या संसंमती देणाहणजसाझी ओळखचित्रां मध्य  
किंवा त्यांच्या सोबत असलेल्यावर्णनात्मक ग्रंथां मध्यउघड झाली नाही.
5. मला हसमजतऱकी या अभ्यासात कलेल्याचा चणी मध्याकोणतही लक्षणीय धोका समाविष्ट  
नाही.
6. कोणतीही हमी किंवा आश्वासन कोणी ही मिळ वूशकतील असापरिणाम म्हणून देत नाही.
7. या फॉर्म वर माझस्वाक्षरी असादर्शवतऱकी मी उपरोक्त माहिती समजल्यानंतर सहभागी  
होण्या चानिर्णय घेतला आहे

सहभागी चासाव / कायदखीर पणअधिकृत प्रतिनिधी

स्वाक्षरी चासाव

साक्षीदारांची सही नाव:

मुला खतकाराचासाव वस्वाक्षरी

दिनांक:

ठिकाण:

**ANNEXURE II. PROFORMA**

“STUDY OF RELIGIOSITY,COPING SKILLS AND THEIR IMPACT ON  
DEPRESSION IN CANCER PATIENTS-A CROSS-SECTIONAL DESCRIPTIVE  
STUDY”

1.NAME:

2.AGE:

3.SEX:

MALE

FEMALE

4.RELIGION

5.EDUCATION: PROFESSIONAL DEGREE

GRADUATE

DIPLOMA

HIGH SCHOOL

MIDDLE SCHOOL

PRIMARY SCHOOL

ILLITERATE

6.OCCUPATION:PROFESSIONAL

SEMI PROFESSIONAL

SKILLED

SEMI SKILLED

UNSKILLED

UNEMPLOYED

7.PER CAPITA INCOME:

8.IPNO:

9.TYPE OF CANCER:

10.STAGE OF CANCER:

STAGE I

STAGE II

STAGE III

STAGE IV

11.DURATION OF ILLNESS(MONTHS):

12.ANY CHEMOTHERAPIES RECEIVED:

YES

NO

13.NO. OF CHEMOTHERAPIES RECIEVED:

14.ANY HORMONAL THERAPY RECEIVED:

YES

NO

15.DOES THE PATIENT UNDERSTANDS OR HAS BEEN TOLD ABOUT THE  
PROGNOSIS OF ILLNESS:

YES

NO

16.NO. OF HOSPITALIZATIONS FOR CANCER TREATMENT:

17.SIDE EFFECTS:

HAIR LOSS(YES/NO)

NUMBNESS /TINGLING IN HANDS/FEET(YES/NO)

DIARRHOEA(YES/NO)

WEIGHT LOSS(YES/NO)

HAIR LOSS(YES NO)

DYSGYSIEA(YES/NO)

CONSTIPATION(YES/NO)

**ANNEXURE III. TOOLS**

**PHQ SCALE**

**PATIENT HEALTH QUESTIONNAIRE (PHQ-9)**

ID #: \_\_\_\_\_ DATE: \_\_\_\_\_

Over the last 2 weeks, how often have you been bothered by any of the following problems?  
(use "✓" to indicate your answer)

	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so fidgety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3

add columns  +  +

(Healthcare professional: For interpretation of TOTAL, TOTAL:   
please refer to accompanying scoring card).

10. If you checked off any problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	_____
	Somewhat difficult	_____
	Very difficult	_____
	Extremely difficult	_____

**2.DUREL SCALE.**

<p><b>DUREL: Duke University Religion Index<sup>1</sup></b> (available in Spanish, Portuguese, Chinese, Romanian, Japanese, Thai, Persian, Hebrew, German, Norwegian, Dutch, Danish, Italian, Malaysian, Filipino, Serbian, Tamil, and Hindi versions)</p> <p><u>Directions:</u> Circle the number in front of the answer that most accurately describes your usual <b>behavior</b> or <b>belief</b>? (circle only one answer for each question).</p> <p>(1) How often do you attend church or other religious meetings?  1. More than once/wk  2. Once a week  3. A few times a month  4. A few times a year  5. Once a year or less  6. Never</p> <p>(2) How often do you spend time in private religious activities, such as prayer, meditation or Bible study?  1. More than once a day  2. Daily  3. Two or more times/week  4. Once a week  5. A few times a month  6. Rarely or never</p> <p><i>The following section contains 3 statements about religious belief or experience. Please mark the extent to which each statement is true or not true for you.</i></p> <p>(3) In my life, I experience the presence of the Divine (i.e., God)  1. Definitely true of me  2. Tends to be true  3. Unsure  4. Tends <i>not</i> to be true  5. Definitely <i>not</i> true</p> <p>(4) My religious beliefs are what really lie behind my whole approach to life.  1. Definitely true of me  2. Tends to be true  3. Unsure  4. Tends <i>not</i> to be true  5. Definitely <i>not</i> true</p> <p>(5) I try hard to carry my religion over into all other dealings in life.  1. Definitely true of me</p>	<p>2. Tends to be true  3. Unsure  4. Tends <i>not</i> to be true  5. Definitely <i>not</i> true</p> <p><b>SCORING of DUREL.</b></p> <p><b>Subscale 1</b> Reverse score item 1 to obtain frequency of religious attendance <b>subscale</b> score</p> <p><b>Subscale 2</b> Reverse score item 2 to obtain frequency of private religious activity <b>subscale</b> score</p> <p><b>Subscale 3</b> Reverse score items 3-5 and total to obtain intrinsic religiosity <b>subscale</b> score</p> <p><b>Overall Score</b> For overall religiosity, sum up reversed scores for items 1-5 (NOT RECOMMENDED)</p> <p><b>Points</b></p> <ul style="list-style-type: none"> <li>• Be sure to reverse score items before analysis</li> <li>• Examine each dimension (<b>subscale</b>) in a separate regression model when examining health outcomes</li> <li>• Don't recommend including all <b>subscales</b> in a single model due to strong multiple collinearity between <b>subscales</b></li> <li>• Don't recommend using the total score, since <b>subscale</b> scores may cancel out the effects of each other.</li> </ul>
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### 3. LIFE PATHS COPING SCALE

#### Coping Scale

Hamby, Grych, & Banyard, 2013

Partially adapted from: Holahan & Moos, 1987; Spitzberg & Copach, 2008

This coping questionnaire assesses cognitive, emotional, and behavioral methods of dealing with problems. Some items, focusing on cognitive and emotional approaches, were adapted from Holahan and Moos's (1987) widely-used Coping Strategies Scale (items 2, 3, and 4 below), while other cognitive and emotional items were original (1, 5, 6, and 8). The remainder of the items were adapted from Spitzberg and Copach's (2008) framework for assessing coping in response to stalking. Adapted items were reworded to focus on general coping patterns (versus a response to a specific situation) and simplified to suit a community sample in which some have limited reading levels and educational attainment.

**Development and validation of measure in pilot study and main sample:** To establish reliability and validity for new and adapted items, we conducted a pilot study with 104 participants from the same community as the main sample, recruited through a local email classifieds list and word-of-mouth. Of the 17 coping items used in the main sample of over 2500 participants, a domain-level factor analysis for all regulatory strengths produced this 13-item factor, consisting of items reflecting both appraisal and behavioral methods of coping. Internal consistencies (coefficient alphas) for the pilot and main samples are 0.88 and 0.91, respectively. Validity was established in the main sample with strong correlations with other measures of regulatory strengths, such as Anger Management ( $r = .57$ ) and Endurance ( $r = .63$ ), and with measures of well-being, such as Subjective Well-being ( $r = .53$ ) and Posttraumatic Growth ( $r = .65$ ).

**Scoring:** Each answer category was assigned a value from 4 to 1. The total score can be a sum or mean of all the items. We used z-scores of the scale score in our analyses. Higher scores indicate higher levels of coping.

**Life Paths version:** Hamby, S., Grych, J., & Banyard, V. L. (2015). *Life Paths measurement packet: Finalized scales*. Sewanee, TN: Life Paths Research Program. <http://www.lifepathsresearch.org/strengths-measures/>

**Partially adapted from:** Holahan, C. J., & Moos, R. H. (1987). Personal and contextual determinants of coping strategies. *Journal of Personality and Social Psychology*, 52(5), 946-955.

Spitzberg, B., & Copach, W. (2008). Managing unwanted pursuit. In M. Motley (Ed.), *Studies in Applied Interpersonal Communication* (pp. 3-25). Thousand Oaks, CA: Sage.

1. When dealing with a problem, I spend time trying to understand what happened.
 

Mostly true about me .....	4
Somewhat true about me .....	3
A little true about me .....	2
Not true about me .....	1
2. When dealing with a problem, I try to see the positive side of the situation.
 

Mostly true about me .....	4
Somewhat true about me .....	3
A little true about me .....	2
Not true about me .....	1
3. When dealing with a problem, I try to step back from the problem and think about it from a different point of view.
 

Mostly true about me .....	4
Somewhat true about me .....	3
A little true about me .....	2
Not true about me .....	1
4. When dealing with a problem, I consider several alternatives for handling the problem.
 

Mostly true about me .....	4
Somewhat true about me .....	3
A little true about me .....	2
Not true about me .....	1
5. When dealing with a problem, I try to see the humor in it.
 

Mostly true about me .....	4
Somewhat true about me .....	3
A little true about me .....	2
Not true about me .....	1

2 of 2

6. When dealing with a problem, I think about what it might say about bigger lifestyle changes I need to make.  
 Mostly true about me ..... 4  
 Somewhat true about me ..... 3  
 A little true about me ..... 2  
 Not true about me ..... 1
7. When dealing with a problem, I often wait it out and see if it doesn't take care of itself.  
 Mostly true about me ..... 4  
 Somewhat true about me ..... 3  
 A little true about me ..... 2  
 Not true about me ..... 1
8. When dealing with a problem, I often try to remember that the problem is not as serious as it seems.  
 Mostly true about me ..... 4  
 Somewhat true about me ..... 3  
 A little true about me ..... 2  
 Not true about me ..... 1
9. When dealing with a problem, I often use exercise, hobbies, or meditation to help me get through a tough time.  
 Mostly true about me ..... 4  
 Somewhat true about me ..... 3  
 A little true about me ..... 2  
 Not true about me ..... 1
10. When dealing with a problem, I make jokes about it or try to make light of it.  
 Mostly true about me ..... 4  
 Somewhat true about me ..... 3  
 A little true about me ..... 2  
 Not true about me ..... 1
11. When dealing with a problem, I make compromises.  
 Mostly true about me ..... 4  
 Somewhat true about me ..... 3  
 A little true about me ..... 2  
 Not true about me ..... 1
12. When dealing with a problem, I take steps to take better care of myself and my family for the future.  
 Mostly true about me ..... 4  
 Somewhat true about me ..... 3  
 A little true about me ..... 2  
 Not true about me ..... 1
13. When dealing with a problem, I work on making things better for the future by changing my habits, such as diet, exercise, budgeting, or staying in closer touch with people I care about.  
 Mostly true about me ..... 4  
 Somewhat true about me ..... 3  
 A little true about me ..... 2  
 Not true about me ..... 1

**ANNEXURE IV. KEY TO MASTER CHART**

**Equivalents in master chart**

**SEX**

Male=0

Female=1

**EDUCATION**

Illiterate=0

Primary school=1

High school=2

Graduate=3

**OCCUPATION**

Unemployed/housewives=0

Unskilled = 1

Semi-skilled =2

Professional = 3

**ANY CHEMO RECEIVED**

Yes=0

No=1

**ANY HORMONAL THERAPY RECIEVED**

Yes=0

No=1

**DOES THE PATIENT KNOW PROGNOSIS**

Yes=0

No=1

TYPE OF CANCER

Haematological -0

Solid tumours-1

SIDE EFFECTS

Present =0

Absent =1

RELIGION

Hindu=0

Muslim=1

Table 1

Serial no.	Age	Sex	Education	Occupation	Type of cancer	Stage of cancer	Duration of illness	Any chemotherapies given	No. Of chemotherapies given	Any hormonal therapy given	Does the patient understand or has been told about the prognosis of illness	Is the patient troubled by the side effect of chemotherapy?	Religion	PHQ 9	Religiosity ER1	ER 2	IR 1	IR 2	IR 3	CO 1	CO 2	CO 3	CO 4	CO 5	CO 6	CO 7	CO 8	CO 9	CO1 0	CO1 1	CO1 2	
1	45	0	2	2	Solid tumour		Less than one year	0	8	1	0	0	0	0	2	2	4	4	4	3	3	4	4	4	3	4	3	3	3	4	3	
2	59	1	3	0	Solid tumour		More than one year	1		1	0	1	0	0	3	2	3	3	2	4	3	4	3	4	3	3	4	4	4	4	3	
3	67	0	3	2	haematological		More than one year	0	32	1	0	0	1	0	2	2	3	4	3	4	4	4	3	4	4	3	3	3	4	3	4	
4	60	1	2	1	Hematological		Less than one year	0	3	1	0	0	0	0	3	2	2	3	3	4	3	4	4	3	3	4	4	4	4	4	3	
5	53	1	1	0	Solid tumour	STAGE II	Less than one year	0	9	1	0	0	0	0	3	2	2	2	2	3	4	3	3	3	4	4	3	3	4	3	3	
6	75	0	0	0	Solid tumour	STAGE I	More than one year	1		1	0	1	0	0	2	3	2	2	2	3	4	4	3	3	3	4	3	3	3	4	4	
7	26	0	3	3	Solid tumour		Less than one year	0	6	1	1	0	0	0	3	2	3	3	3	3	3	4	4	4	3	4	4	3	4	4	3	
8	62	1	1	0	Solid tumour	STAGE III	More than one year	1		1	1	1	0	0	2	3	3	3	3	4	4	3	3	3	4	4	3	3	4	4	4	
9	49	1	2	0	Solid tumour cancer		More than one year	0	12	1	0	1	0	0	3	3	3	3	4	4	3	4	3	3	4	3	3	4	4	3	4	
10	41	1	2	0	Solid tumour		More than one year	1		1	0	1	1	0	3	3	4	2	3	4	3	3	4	4	4	3	4	3	3	4	3	
11	65	1	0	0	Solid tumour	STAGE III	More than one year	0	15	1	1	1	0	0	2	2	4	3	2	3	4	4	3	4	3	4	3	4	3	3	3	
12	65	0	0	2	Solid tumour	STAGE IV	Less than one year	0	4	1	1	1	1	0	2	3	4	2	2	3	4	3	3	3	3	3	3	4	3	4	4	
13	58	1	0	0	Hematological		More than one year	1		1	0	1	0	0	2	3	2	3	2	4	4	3	4	3	4	3	3	3	4	4	3	
14	51	1	2	2	Solid tumour	STAGE II	Less than one year	1		1	0	1	0	0	2	3	3	4	4	4	4	3	3	4	4	4	3	4	3	4	4	
15	73	0	1	1	Solid tumour	STAGE II	Less than one year	0	4	1	0	1	0	0	2	3	3	2	3	3	4	4	4	3	3	4	4	4	3	3	4	
16	41	1	1	2	Solid tumour	STAGE I	More than one year	0	25	1	1	0	0	0	2	2	2	2	4	4	3	4	4	4	3	4	4	3	3	3	4	
17	62	1	0	0	Solid tumour		Less than one year	1		1	0	1	0	0	2	3	2	2	3	3	4	3	4	3	3	3	4	3	4	4	3	
18	52	1	2	1	Solid tumour		Less than one year	1		1	1	1	0	0	3	3	2	2	3	4	4	3	3	4	4	4	4	3	3	4	3	
19	62	0	2	2	solid tumour	STAGE I	More than one year	0		1	1	1	0	0	3	2	3	3	4	3	4	4	3	4	3	4	4	3	4	3	4	
20	67	0	3	3	Hematological	STAGE I	Less than one year	1		1	1	1	0	0	3	2	2	2	2	4	3	4	3	4	3	3	3	4	4	4	3	
21	65	1	2	0	Solid tumour	STAGE II	Less than one year	0	3	1	0	1	1	0	2	2	4	4	3	3	4	3	4	4	4	4	4	3	4	4	4	
22	75	0	2	2	Hematological		Less than one year	0	5	1	0	1	1	0	3	3	2	4	4	3	3	4	3	4	3	3	3	3	4	4	4	
23	32	0	2	2	Solid tumour		More than one year	0	8	1	1	0	1	0	3	2	3	4	3	3	3	3	3	3	4	4	4	4	4	4	4	
24	42	1	2	0	Solid tumour		Less than one year	0	6	1	0	0	1	0	3	3	2	2	4	3	3	4	3	4	3	4	3	3	3	3	4	
25	67	0	3	2	haematological		More than one year	0	18	1	0	0	1	0	3	2	3	3	2	3	3	3	4	3	3	4	4	4	4	4	4	
26	36	1	2	2	solid tumour		More than one year	0	5	1	0	0	0	0	3	3	4	2	4	3	4	4	4	4	4	3	4	3	4	4	3	
27	45	0	2	2	Solid tumour	STAGE II	More than one year	0	9	1	0	1	1	0	2	3	4	4	2	4	3	4	4	3	4	4	3	4	3	3	3	
28	59	0	2	2	solid tumour		More than one year	1	0	1	0	1	0	0	3	2	4	4	2	4	3	4	3	4	3	4	4	4	4	3	4	
29	75	0	2	2	Hematological		More than one year	1	0	1	0	1	1	0	3	3	2	3	3	4	3	4	4	4	3	3	4	4	4	3	3	4
30	54	1	2	0	Solid tumour		Less than one year	0	12	1	0	1	0	0	3	2	4	4	4	3	4	3	3	4	3	4	3	4	3	3	4	
31	70	0	2	2	solid tumour		Less than one year	1		1	1	1	1	0	2	2	3	3	4	3	4	3	3	4	3	3	4	4	4	4	3	
32	52	0	2	2	Solid tumour	STAGE II	Less than one year	0		1	1	1	0	0	3	3	4	4	4	4	4	3	4	3	3	3	4	3	3	3	4	
33	35	1	3	2	Solid tumour		Less than one year	1		1	0	1	1	0	3	3	2	4	4	4	4	4	4	3	4	4	4	3	3	4	3	

34	63	1	2	0	Solid tumour		More than one year	0	17	1	0	1	0	0	3	2	3	4	4	4	4	4	3	3	4	4	3	4	3	4	4	
35	39	1	3	0	Solid tumour	STAGE III	Less than one year	1	0	1	0	1	0	0	3	3	4	3	3	4	4	4	3	4	4	3	3	4	3	4	3	
36	65	0	2	3	Hematological	STAGE I	Less than one year	0	5	1	1	0	0	0	3	3	2	2	2	4	4	3	4	3	3	3	3	4	3	3	3	
37	54	1	1	2	Solid tumour	STAGE II	Less than one year	0	9	1	0	0	0	0	2	2	2	2	3	3	4	3	3	3	4	3	3	4	3	4	4	
38	49	1	1	2	Solid tumour		More than one year	1		1	0	0	0	0	3	2	2	4	2	3	4	4	4	3	3	4	4	3	3	4	4	
39	45	1	2	2	solid tumour	STAGE III	Less than one year	1		1	0	1	0	0	3	3	3	2	3	4	4	3	4	3	4	4	3	3	3	4	3	
40	43	0	2	2	Solid tumour	STAGE IV	More than one year	0	23	1	0	0	1	0	2	2	4	3	3	4	3	3	4	3	3	3	4	3	3	3	4	
41	45	0	0	2	Solid tumour		Less than one year	0	4	1	0	1	0	0	3	3	2	2	3	4	4	3	4	3	3	3	4	4	3	3	4	
42	39	1	2	2	Solid tumour	STAGE I	Less than one year	1		1	0	1	0	0	3	2	2	2	3	3	3	4	4	4	4	3	3	4	4	4	4	
43	54	1	2	0	Solid tumour		Less than one year	1		1	1	1	0	0	2	3	4	3	2	4	4	4	3	4	3	3	4	4	4	3	4	
44	43	1	2	1	Hematological	STAGE I	Less than one year	0	3	1	0	1	1	0	2	3	3	2	2	3	3	3	4	4	3	4	3	3	3	4	3	
45	62	1	2	0	solid tumour		More than one year	0	14	1	1	0	0	0	3	2	2	2	3	2	2	2	2	2	2	2	2	2	2	2	2	
46	45	1	2	0	Solid tumour	STAGE III	More than one year	0	14	0	1	0	0	0	3	3	3	2	4	4	4	4	3	4	3	4	4	3	4	4	3	
47	43	0	0	2	Solid tumour		Less than one year	0	10	1	0	1	0	0	3	2	2	2	2	4	3	4	3	4	3	4	4	4	3	3	3	
48	54	1	2	0	Solid tumour		Less than one year	1		1	1	1	0	0	3	2	2	3	4	4	4	3	4	4	3	4	4	3	4	4	3	
49	50	1	2	2	Solid tumour	STAGE III	Less than one year	1		1	1	1	1	0	3	3	4	2	3	3	3	3	3	4	3	4	4	4	4	3	3	
50	69	1	1	0	Solid tumour		More than one year	0	12	1	1	0	1	0	3	2	4	3	2	3	4	4	3	3	3	3	3	3	3	3	4	
51	65	0	0	2	Solid tumour		Less than one year	0	4	1	0	0	0	0	2	3	4	4	4	3	3	4	4	3	3	4	4	3	4	4	4	
52	70	0	0	2	Solid tumour	STAGE III	More than one year	1		1	1	1	0	0	2	2	2	3	4	3	3	4	4	3	3	4	3	3	3	4	3	
53	43	1	2	2	Solid tumour		Less than one year	0	10	1	1	0	0	0	2	2	2	2	2	3	3	4	3	3	4	3	4	3	4	4	4	
54	41	1	2	2	Solid tumour	STAGE I	More than one year	0	20	1	0	0	0	0	3	3	4	4	3	4	4	3	4	4	3	3	3	3	3	4	4	
55	54	1	0	0	Solid tumour	STAGE I	Less than one year	1	0	1	0	1	0	0	3	3	2	3	2	4	3	3	3	3	4	4	4	4	3	4	4	
56	45	0	2	2	Solid tumour		More than one year	0	5	1	0	1	1	0	2	3	3	4	2	4	3	4	3	4	4	3	4	3	4	4	3	
57	37	1	0	0	Solid tumour		More than one year	0	23	1	1	0	0	0	3	3	3	2	2	4	4	3	4	4	4	4	4	3	4	3	3	
58	39	1	2	0	Hematological		Less than one year	0	21	1	0	0	0	0	3	3	3	2	2	3	4	4	3	4	4	3	4	3	3	4	4	
59	62	0	2	2	Solid tumour	STAGE I	More than one year	0		1	1	1	0	0	2	3	2	4	3	3	3	4	3	4	4	4	4	4	3	4	3	
60	49	0	2	2	Solid tumour	STAGE II	More than one year	0		1	1	1	1	0	3	2	2	4	3	3	4	4	4	4	4	4	4	4	3	4	3	
61	62	1	2	2	Solid tumour	STAGE II	More than one year	0	9	1	0	0	0	0	2	2	2	4	3	3	3	3	4	4	3	4	4	3	4	4	4	
62	48	0	2	2	Solid tumour	STAGE II	More than one year	0	12	1	0	0	1	0	2	3	4	3	4	4	3	4	4	4	4	4	3	4	4	3	4	
63	52	0	3	3	Hematological	STAGE I	More than one year	0	10	0	1	1	1	0	6	5	4	2	2	4	4	3	4	4	3	3	4	3	4	3	3	
64	54	0	0	2	Hematological	STAGE IV	Less than one year	0	4	1	0	0	0	0	6	4	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2	
65	50	1	2	2	Solid tumour		Less than one year	1		1	1	1	0	0	4	3	3	5	5	4	4	3	3	3	3	4	4	3	4	3	3	
66	45	0	3	3	Solid tumour	STAGE II	Less than one year	1		1	1	1	0	0	4	5	5	3	4	3	4	4	4	4	4	3	3	3	3	3	4	4
67	59	1	1	0	Solid tumour		More than one year	0	18	1	0	0	0	0	4	4	3	5	5	4	4	3	4	3	3	4	3	4	3	4	4	
68	42	1	2	0	Hematological		Less than one year	1		1	1	1	0	0	3	3	3	4	4	4	3	3	3	4	4	3	3	4	4	3	4	
69	61	1	0	0	Solid tumour	STAGE II	Less than one year	1		1	0	1	1	0	4	6	4	3	5	3	3	3	3	4	3	3	4	3	4	4	4	
70	65	0	0	2	Solid tumour	STAGE IV	Less than one year	0	4	1	0	0	0	0	6	3	3	3	4	3	3	4	3	4	3	3	4	4	4	3	4	
71	38	1	1	0	Solid tumour		More than one year	0	5	1	0	0	0	0	3	4	3	3	3	2	2	2	2	2	2	2	2	1	1	1	1	
72	62	0	0	2	Solid tumour	STAGE II	Less than one year	0	4	1	0	0	0	0	3	4	5	4	4	2	2	2	2	2	2	2	2	1	1	1	1	
73	39	0	2	2	haematological	STAGE III	Less than one year	0	15	1	0	1	0	0	3	6	5	3	5	2	2	2	2	2	2	2	1	1	1	1	1	
74	37	1	2	2	Solid tumour	STAGE I	More than one year	0	3	1	0	0	0	0	6	3	4	4	4	2	2	2	2	2	2	2	1	1	1	1	1	

75	62	0	0	2	Solid tumour	STAGE I	More than one year	0	15	1	0	0	0	0	3	6	3	5	5	3	3	3	3	3	3	3	2	2	2	2	2	2
76	42	1	2	0	Solid tumour		Less than one year	1		1	0	1	0	0	4	3	4	4	5	3	3	3	3	3	3	3	2	2	2	2	2	2
77	46	1	2	0	Solid tumour		More than one year	0	12	1	1	0	0	0	6	5	4	3	5	3	3	3	3	3	3	3	2	2	2	2	2	2
78	53	1	2	2	Solid tumour		Less than one year	1		1	1	1	0	0	3	3	3	5	3	3	3	3	3	3	3	2	2	2	2	2	2	
79	32	1	3	2	Solid tumour	STAGE I	More than one year	1	0	1	0	1	1	0	3	5	3	4	4	3	3	3	3	3	3	2	2	2	2	2	2	
80	43	0	0	0	Solid tumour		Less than one year	0	4	1	0	0	0	0	6	3	4	5	3	3	3	3	3	3	3	2	2	2	2	2	2	
81	54	0	0	2	Solid tumour		Less than one year	0	10	1	1	1	1	0	6	5	5	4	4	3	3	3	3	3	3	2	2	2	2	2	2	
82	51	1	1	2	Solid tumour		Less than one year	1		1	1	1	0	0	6	4	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4
83	49	0	2	2	Solid tumour		Less than one year	0	12	1	0	1	0	0	3	4	3	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4
84	43	1	2	0	Solid tumour		Less than one year	1		1	1	0	1	0	4	6	4	4	3	4	4	4	4	4	4	4	4	4	4	4	4	4
85	45	0	2	2	Solid tumour	STAGE I	Less than one year	0		1	1	1	0	0	4	3	5	3	4	4	4	4	4	4	4	4	4	4	4	4	4	4
86	57	1	2	0	Hematological		More than one year	0	12	1	0	1	0	0	4	6	3	5	5	3	3	3	3	3	3	3	3	3	3	3	3	3
87	50	0	2	2	solid tumour		Less than one year	0	3	1	0	0	1	0	3	5	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3
88	62	1	2	0	Hematological	STAGE I	Less than one year	1		1	0	1	0	0	3	4	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3
89	39	0	0	2	Solid tumour	STAGE IV	Less than one year	0	15	1	0	1	0	0	6	6	4	5	3	4	4	4	4	4	4	4	4	4	4	4	4	4
90	62	1	2	0	Hematological		Less than one year	0	10	1	1	0	0	0	4	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
91	66	1	2	0	solid tumour		More than one year	0	11	1	1	0	0	0	5	5	3	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4
92	65	0	3	3	Hematological	STAGE I	More than one year	0	8	0	1	0	0	0	4	3	3	4	5	4	4	4	4	4	4	4	4	4	4	4	4	4
93	55	1	2	2	Solid tumour	STAGE I	Less than one year	1		1	1	1	1	0	6	6	3	5	5	4	3	4	3	3	4	3	4	4	3	4	3	4
94	65	1	2	0	Solid tumour		More than one year	0	20	1	1	0	1	0	3	5	3	5	5	4	4	4	4	4	4	3	3	4	4	3	4	4
95	57	1	1	2	Solid tumour		Less than one year	1		1	1	1	0	0	5	4	3	3	5	4	4	3	4	4	3	3	4	3	3	4	3	
96	52	1	2	0	Solid tumour	STAGE II	More than one year	0	6	1	0	1	0	0	3	6	3	4	4	4	3	4	3	4	3	4	3	3	4	3	3	4
97	32	1	3	2	Solid tumour	STAGE I	More than one year	1		1	1	1	0	0	6	5	3	3	3	4	4	3	3	3	4	4	4	3	4	3	4	4
98	66	1	2	2	Solid tumour	STAGE I	Less than one year	0	4	1	1	0	1	0	3	4	4	3	3	4	3	3	3	4	4	4	3	3	4	4	4	3
99	36	1	2	0	Hematological		More than one year	1		1	0	1	0	0	3	3	5	5	3	3	4	3	4	3	3	3	4	3	3	4	4	4
100	40	1	1	2	Hematological		Less than one year	1		1	1	1	0	0	5	6	3	3	4	3	4	3	3	3	3	4	4	3	3	4	4	4
101	55	1	1	2	Solid tumour		Less than one year	1		1	0	1	0	0	3	5	4	3	4	4	4	4	4	4	4	3	3	4	4	4	3	4
102	66	1	1	2	Solid tumour		Less than one year	1		1	0	1	1	0	5	6	3	4	4	3	3	3	3	3	3	3	4	4	3	3	4	4
103	35	1	1	0	Solid tumour		More than one year	1		1	1	1	0	0	5	6	4	3	5	4	3	4	4	4	3	4	3	3	4	4	4	4
104	40	1	2	0	Solid tumour		More than one year	1		1	1	1	0	0	3	5	5	4	5	4	4	3	3	3	3	3	4	3	4	3	3	3
105	39	1	2	2	Solid tumour		More than one year	1		1	1	1	0	0	3	6	3	5	5	4	4	4	4	4	4	4	4	4	3	4	4	4
106	38	1	2	2	Solid tumour		More than one year	1		1	0	1	0	0	6	4	4	4	4	4	3	3	4	3	4	4	4	3	3	4	4	3
107	32	0	2	2	Solid tumour		Less than one year	0	8	1	0	0	1	0	4	3	4	3	4	3	3	4	3	3	4	4	3	3	3	3	3	4
108	45	0	2	2	Solid tumour		Less than one year	0	10	1	0	1	0	0	6	5	5	5	5	4	3	4	4	3	3	4	4	4	4	4	3	3
109	55	0	2	2	Solid tumour		Less than one year	0	8	1	0	1	1	0	3	6	3	3	5	4	4	3	3	4	3	3	3	3	3	3	4	3
110	56	0	2	2	Solid tumour		more than one year	0	16	1	0	1	0	0	6	5	3	5	3	3	4	3	4	3	4	4	4	4	3	3	3	3
111	67	0	2	2	Solid tumour		more than one year	0	17	1	0	0	1	0	6	3	3	4	3	4	4	3	3	4	4	3	3	3	3	3	3	4
112	37	0	2	2	Solid tumour		Less than one year	0	8	1	0	0	0	0	5	4	5	3	4	3	3	3	4	4	3	4	3	4	3	4	3	4
113	62	0	2	2	Solid tumour	STAGE I	Less than one year	1	0	1	1	1	0	0	5	5	3	4	3	4	4	4	4	4	4	4	3	4	3	3	3	4



152	62	0	2	2	Solid tumour		Less than one year	0	8	1	0	0	0	6	6	4	3	3	4	4	4	3	4	4	4	4	4	4	4	4	3
153	59	1	3	0	Solid tumour		Less than one year	1		1	0	1	0	6	4	3	5	3	2	2	1	1	1	1	1	1	1	1	1	1	1
154	67	0	3	2	haematological		More than one year	0	24	1	0	0	1	5	3	3	5	4	3	3	3	3	3	4	4	3	4	3	4	4	
155	60	1	2	1	Solid tumour		Less than one year	0	3	1	0	0	0	6	6	5	5	4	2	2	2	2	2	2	2	2	1	2	2	2	
156	53	1	1	0	Solid tumour	STAGE II	Less than one year	0	9	1	0	0	0	5	5	5	5	5	4	3	3	3	4	3	3	3	4	3	4	3	
157	75	0	0	0	Solid tumour	STAGE I	More than one year	1		1	0	1	0	5	4	5	5	3	3	4	4	3	4	3	4	3	4	4	4	4	
158	26	0	3	3	Solid tumour		Less than one year	0	6	1	1	0	0	5	6	5	3	3	4	4	3	3	3	4	3	3	4	4	4	4	
159	62	1	1	0	Solid tumour	STAGE III	More than one year	1		1	1	1	0	4	3	4	3	3	4	4	3	3	3	3	3	4	3	4	3	4	
160	49	1	2	0	Solid tumour		More than one year	0	12	1	0	1	0	5	6	5	4	4	4	4	4	3	4	3	3	4	3	4	3	3	
161	41	1	2	0	Solid tumour		More than one year	1		1	0	1	1	6	5	3	5	5	2	2	2	2	2	2	3	3	3	3	3	3	
162	65	1	0	0	Solid tumour	STAGE III	More than one year	0	15	1	1	1	0	4	6	3	4	3	3	3	4	3	3	4	4	3	3	3	4	3	
163	65	0	0	2	Solid tumour	STAGE IV	Less than one year	0	4	1	1	1	1	6	6	3	4	3	2	2	2	2	2	2	2	2	2	2	2	2	
164	58	1	0	0	Hematological		More than one year	1		1	0	1	0	3	3	4	3	3	3	3	4	3	3	3	3	3	3	3	3	3	
165	51	1	2	2	Solid tumour	STAGE II	Less than one year	1		1	0	1	0	6	3	5	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
166	73	0	1	1	Solid tumour	STAGE II	Less than one year	0	4	1	0	1	0	4	3	4	4	5	4	4	3	3	3	3	4	4	3	3	4	4	
167	41	1	1	2	Solid tumour	STAGE I	More than one year	0	25	1	1	0	0	4	6	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	
168	62	1	0	0	Solid tumour		Less than one year	1		1	0	1	0	6	5	3	5	3	4	4	4	3	4	4	3	3	3	4	4	4	
169	52	1	2	1	Solid tumour		Less than one year	1		1	1	1	0	4	6		3	3	4	4	4	4	4	4	4	4	4	4	4	4	
170	62	0	2	2	Solid tumour	STAGE I	More than one year	0		1	1	1	0	6	4	3	3	3	4	3	3	4	4	4	3	4	4	4	4	4	
171	67	0	3	3	Hematological	STAGE I	Less than one year	1		1	1	1	0	4	4	4	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
172	65	1	2	0	Solid tumour	STAGE II	Less than one year	0	3	1	0	1	1	4	3	4	5	3	4	4	4	4	3	3	4	3	3	3	4	3	
173	75	0	2	2	Hematological		Less than one year	0	5	1	0	1	1	5	5	4	3	5	3	3	4	4	3	3	3	4	4	3	4	3	
174	32	0	2	2	Solid tumour		More than one year	0	8	1	1	0	1	23	0	1	1	0	0	3	3	3	3	3	3	3	3	3	3	3	
175	42	1	2	0	Solid tumour		Less than one year	0	6	1	0	0	1	26	1	1	2	2	1	3	3	3	3	3	3	4	3	4	3	4	
176	67	0	3	2	Hematological		More than one year	0	48	1	0	0	1	26	0	1	0	1	1	4	3	4	3	4	3	3	4	4	4	4	4
177	36	1	2	2	Solid tumour		More than one year	0	5	1	0	0	0	27	5	5	5	5	5	4	4	3	3	3	3	3	3	4	3	3	
178	45	0	2	2	Solid tumour	STAGE II	More than one year	0	9	1	0	1	1	27	2	1	2	2	0	4	4	3	3	4	4	4	3	3	4	3	
179	59	0	2	2	Solid tumour		More than one year	1	0	1	0	1	0	24	0	2	0	0	0	4	4	4	3	4	3	3	3	3	3	3	
180	75	0	2	2	Hematological		More than one year	1	0	1	0	1	1	23	2	1	1	0	0	4	4	3	3	4	3	4	4	4	4	3	4
181	54	1	2	0	Solid tumour		Less than one year	0	12	1	0	1	0	23	2	1	2	2	1	3	3	4	4	4	4	4	3	3	4	4	
182	70	0	2	2	Solid tumour		Less than one year	1		1	1	1	1	15	2	1	0	2	1	3	4	3	4	4	4	4	4	4	3	4	
183	52	0	2	2	Solid tumour	STAGE II	Less than one year	0		1	1	1	0	18	0	0	0	0	4	4	4	3	4	4	3	4	4	3	4	3	
184	35	1	3	2	Solid tumour		Less than one year	1		1	0	1	1	17	5	3	4	4	3	4	4	3	4	3	4	4	4	4	4	3	
185	63	1	2	0	Solid tumour		More than one year	0	17	1	0	1	0	15	0	0	2	1	2	3	3	4	4	4	3	3	3	3	4	4	
186	39	1	3	0	Solid tumour	STAGE III	Less than one year	1	0	1	0	1	0	18	4	3	3	4	5	4	4	4	3	4	3	4	4	3	4	4	
187	65	0	2	3	Hematological	STAGE I	Less than one year	0	5	1	1	0	0	15	0	0	3	3	3	4	4	3	3	3	3	4	3	4	3	4	

188	54	1	1	2	Solid tumour	STAGE II	Less than one year	0	9	1	0	0	0	17	3	5	5	3	4	3	3	4	3	4	4	4	3	3	3	3	3	3
189	49	1	1	2	Solid tumour		More than one year	1		1	0	0	0	19	4	3	5	3	4	2	2	2	2	2	2	2	2	2	2	2	2	2
190	45	1	2	2	Solid tumour	STAGE III	Less than one year	1		1	0	1	0	19	5	5	4	4	3	2	2	2	2	2	2	2	2	2	2	2	2	2
191	43	0	2	2	Solid tumour	STAGE IV	More than one year	0	23	1	0	0	1	18	3	5	5	5	5	4	2	4	2	2	4	4	2	4	2	3	3	
192	45	0	0	2	Solid tumour		Less than one year	0	4	1	0	1	0	19	4	4	3	3	3	2	3	3	4	2	4	4	2	4	4	3	2	
193	39	1	2	2	Solid tumour	STAGE I	Less than one year	1		1	0	1	0	16	1	2	2	0	0	3	3	2	2	4	2	3	2	3	2	2	4	
194	54	1	2	0	Solid tumour		Less than one year	1		1	1	1	0	18	1	0	0	0	1	3	2	3	4	2	2	4	4	4	3	2	4	
195	43	1	2	1	Hematological	STAGE I	Less than one year	0	3	1	0	1	1	19	3	3	3	3	3	4	4	2	4	3	4	4	3	3	2	2	2	
196	62	1	2	0	Solid tumour		More than one year	0	14	1	1	0	0	15	1	1	0	0	2	2	4	2	4	3	2	2	4	2	4	3	2	
197	45	1	2	0	Solid tumour	STAGE Ii	More than one year	0	14	0	1	0	0	10	6	6	6	6	6	2	3	4	2	3	2	4	3	2	3	2	4	
198	43	0	0	2	Solid tumour		Less than one year	0	10	1	0	1	0	10	3	4	3	3	4	4	4	4	4	2	2	3	3	2	3	2	2	
199	54	1	2	0	Solid tumour		Less than one year	1		1	1	1	0	10	0	0	0	0	0	3	2	4	4	2	3	2	3	3	3	3	2	
200	50	1	2	2	Solid tumour	STAGE III	Less than one year	1		1	1	1	1	14	3	4	3	5	3	2	3	2	3	3	3	2	3	4	3	4	3	
201	69	1	1	0	Solid tumour		More than one year	0	12	1	1	0	1	14	3	5	5	5	5	4	2	2	3	2	4	4	2	2	2	2	2	
202	65	0	0	2	Solid tumour		Less than one year	0	4	1	0	0	0	11	4	3	5	5	3	2	3	4	4	2	4	2	4	2	4	2	3	
203	70	0	0	2	Solid tumour	STAGE III	More than one year	1		1	1	1	0	11	4	5	3	5	4	4	2	3	3	4	2	2	2	3	4	4	2	
204	43	1	2	2	Solid tumour		Less than one year	0	10	1	1	0	0	12	5	4	3	3	3	4	3	4	2	2	2	2	4	4	3	2	2	
205	41	1	2	2	Solid tumour	STAGE I	More than one year	0	20	1	0	0	0	14	4	4	3	4	5	4	3	3	4	2	3	4	3	3	3	4	2	
206	54	1	0	0	Solid tumour	STAGE I	Less than one year	1	0	1	0	1	0	14	3	4	1	2	2	4	4	4	3	4	4	3	4	4	3	4	4	
207	45	0	2	2	Solid tumour		More than one year	0	5	1	0	1	1	11	3	5	1	2	2	3	2	2	2	4	3	4	3	4	2	3	3	
208	37	1	0	0	Solid tumour		More than one year	0	23	1	1	0	0	12	4	3	1	2	2	3	2	3	3	2	2	4	4	4	4	4	3	
209	39	1	2	0	Hematological		Less than one year	0	21	1	0	0	0	13	5	4	1	2	2	3	3	2	2	4	3	4	2	2	4	3	2	
210	62	0	2	2	Solid tumour	STAGE I	More than one year	0		1	1	1	0	14	3	3	3	4	3	4	4	4	4	4	3	4	2	4	4	4	3	
211	49	0	2	2	Solid tumour	STAGE II	More than one year	0		1	1	1	1	11	4	5	3	4	5	2	2	4	2	4	3	2	3	4	2	2	4	
212	62	1	2	2	Solid tumour	STAGE II	More than one year	0	9	1	0	0	0	11	4	4	5	5	5	4	3	3	4	4	4	3	4	4	4	3	3	
213	48	0	2	2	Solid tumour	STAGE II	More than one year	0	12	1	0	0	1	10	4	4	3	4	3	3	3	4	4	3	2	4	3	3	3	2	4	
214	52	0	3	3	Hematological	STAGE I	More than one year	0	10	0	1	1	1	11	0	0	0	0	0	3	4	3	4	2	3	4	3	3	2	4	2	
215	54	0	0	2	Hematological	STAGE IV	Less than one year	0	4	1	0	0	0	10	5	3	3	4	3	2	2	4	2	3	4	3	3	2	2	4	4	
216	50	1	2	2	Hematological		Less than one year	1		1	1	1	0	10	4	3	5	4	4	2	4	4	4	4	3	2	3	4	3	4	4	
217	45	0	3	3	Solid tumour	STAGE II	Less than one year	1		1	1	1	0	10	3	4	4	5	5	3	4	2	2	2	2	3	4	4	4	2	2	
218	59	1	1	0	Solid tumour		More than one year	0	18	1	0	0	0	13	5	4	5	4	3	4	4	4	2	3	2	4	4	3	4	2	3	
219	42	1	2	0	Hematological		Less than one year	1		1	1	1	0	14	4	4	4	3	4	4	2	4	2	4	4	2	2	2	3	2	3	
220	61	1	0	0	Solid tumour	STAGE II	Less than one year	1		1	0	1	1	12	3	5	5	5	5	3	3	2	4	2	3	2	4	3	3	2	2	
221	65	0	0	2	Solid tumour	STAGE IV	Less than one year	0	4	1	0	0	0	13	0	0	2	2	2	2	4	3	4	2	2	4	4	4	3	4	4	
222	38	1	1	0	Solid tumour		More than one year	0	5	1	0	0	0	10	3	5	3	3	5	2	4	4	3	4	4	2	2	4	2	4	3	
223	62	0	0	2	Solid tumour	STAGE II	Less than one year	0	4	1	0	0	0	11	5	5	4	5	5	4	4	2	3	3	4	2	2	4	3	3	3	
224	39	0	2	2	haematological	STAGE III	Less than one year	0	15	1	0	1	0	13	4	4	5	3	5	4	3	2	3	4	4	4	2	4	2	3	3	
225	37	1	2	2	Solid tumour	STAGE I	More than one year	0	3	1	0	0	0	9	6	6	4	4	3	3	4	4	4	3	4	3	3	4	4	3	4	
226	62	0	0	2	Solid tumour	STAGE I	More than one year	0	15	1	0	0	0	7	4	3	3	3	3	4	3	4	3	3	3	3	3	4	3	4	4	3

227	42	1	2	0	Solid tumour		Less than one year	1		1	0	1	0	6	4	3	3	3	3	4	4	3	4	3	3	4	3	4	3	3	
228	46	1	2	0	Solid tumour		More than one year	0	12	1	1	0	0	7	1	0	2	0	0	4	4	4	4	3	4	3	3	3	4	3	4
229	53	1	2	2	Solid tumour		Less than one year	1		1	1	1	0	9	3	4	3	4	4	4	3	3	4	3	4	3	3	4	3	4	
230	32	1	3	2	Solid tumour	STAGE I	More than one year	1	0	1	0	1	1	5	3	3	4	3	3	3	3	3	4	4	4	4	3	3	4	3	
231	43	0	0	0	Solid tumour		Less than one year	0	4	1	0	0	0	7	3	3	4	4	4	4	4	3	3	3	3	4	3	4	3	3	
232	54	0	0	2	Solid tumour		Less than one year	0	10	1	1	1	1	7	0	2	3	3	4	3	4	4	4	4	4	4	4	3	3	4	
233	51	1	1	2	Solid tumour		Less than one year	1		1	1	1	0	5	0	2	3	3	4	3	4	3	4	4	3	4	3	3	3	4	
234	49	0	2	2	Solid tumour		Less than one year	0	12	1	0	1	0	7	4	4	3	4	3	4	4	3	4	3	4	3	4	3	3	4	
235	43	1	2	0	Hematological		Less than one year	1		1	1	0	1	8	0	0	4	3	3	4	4	3	4	4	4	3	4	3	4	4	
236	45	0	2	2	Solid tumour	STAGE I	Less than one year	0		1	1	1	0	9	2	2	0	0	0	4	4	4	4	3	4	3	3	4	3	4	
237	57	1	2	0	Hematological		More than one year	0	12	1	0	1	0	6	5	6	5	6	5	3	4	4	4	4	3	4	4	3	4	3	
238	50	0	2	2	Solid tumour		Less than one year	0	3	1	0	0	1	7	6	6	3	4	4	4	3	4	3	4	4	3	4	3	3	4	
239	62	1	2	0	Hematological	STAGE I	Less than one year	1		1	0	1	0	8	3	4	4	4	4	3	3	3	3	3	4	3	4	3	3	4	
240	39	0	0	2	Solid tumour	STAGE IV	Less than one year	0	15	1	0	1	0	6	5	5	4	4	3	4	4	4	3	4	3	3	4	4	3	3	
241	62	1	2	0	Hematological		Less than one year	0	10	1	1	0	0	6	4	3	4	3	3	3	4	3	3	4	4	4	3	3	3	4	
242	66	1	2	0	Solid tumour		More than one year	0	11	1	1	0	0	7	5	5	5	6	5	4	3	3	4	3	3	3	4	3	4	4	
243	65	0	3	3	Hematological	STAGE I	More than one year	0	8	0	1	0	0	7	4	4	4	3	4	3	4	3	3	4	4	3	4	3	3	3	
244	55	1	2	2	Ca esoothagus	STAGE I	Less than one year	1		1	1	1	1	9	3	4	4	4	3	3	3	4	3	3	3	4	3	3	4	4	
245	65	1	2	0	Solid tumour		More than one year	0	20	1	1	0	1	6	4	3	3	4	3	3	3	4	3	3	3	3	3	4	3	3	
246	57	1	1	2	Solid tumour		Less than one year	1		1	1	1	0	9	3	3	4	3	3	4	3	3	3	4	4	3	4	3	4	3	
247	52	1	2	0	Solid tumour	STAGE II	More than one year	0	6	1	0	1	0	6	4	3	4	4	3	3	4	4	3	4	3	4	3	3	4	3	
248	32	1	3	2	Solid tumour	STAGE I	More than one year	1		1	1	1	0	6	1	1	1	1	1	3	3	4	4	4	3	4	4	4	3	3	
249	66	1	2	2	Solid tumour	STAGE I	Less than one year	0	4	1	1	0	1	9	0	0	0	2	1	4	4	4	3	3	4	4	4	3	3	3	
250	36	1	2	0	Hematological		More than one year	1		1	0	1	0	9	4	3	3	4	4	4	3	4	3	3	3	3	3	4	4	3	
251	40	1	1	2	Hematological		Less than one year	1		1	1	1	0	8	5	5	5	6	6	3	4	3	4	4	4	4	3	3	3	3	
252	55	1	1	2	Solid tumour		Less than one year	1		1	0	1	0	6	5	5	3	3	4	3	3	4	4	4	3	4	3	3	3	4	
253	66	1	1	2	Solid tumour		Less than one year	1		1	0	1	1	9	4	3	4	4	4	4	3	4	4	4	4	4	4	4	4	3	
254	35	1	1	0	Solid tumour		More than one year	1		1	1	1	0	7	3	3	3	3	4	3	3	3	3	3	3	3	3	3	3	3	
255	40	1	2	0	Ca solid tumour		More than one year	1		1	1	1	0	9	4	4	4	3	4	3	3	3	3	3	3	3	3	3	3	3	
256	39	1	2	2	Solid tumour		More than one year	1		1	1	1	0	5	3	3	4	3	3	3	3	3	3	3	3	3	3	3	3	3	
257	38	1	2	2	Solid tumour		More than one year	1		1	0	1	0	9	1	0	0	1	2	3	3	3	3	3	3	3	3	3	3	3	
258	32	0	2	2	Solid tumour		Less than one year	0	8	1	0	0	1	5	3	3	4	4	3	2	2	2	2	2	2	2	2	2	2	2	
259	45	0	2	2	Solid tumour		Less than one year	0	10	1	0	1	0	9	3	3	3	3	4	2	2	2	2	2	2	2	2	2	2	2	
260	55	0	2	2	Solid tumour		Less than one year	0	8	1	0	1	1	6	3	3	3	4	4	1	1	1	1	1	1	1	1	1	1	1	
261	56	0	2	2	Solid tumour		more than one year	0	16	1	0	1	0	7	5	6	6	6	6	3	4	4	3	4	4	3	4	4	4	3	
262	67	0	2	2	Solid tumour		more than one year	0	17	1	0	0	1	9	6	6	4	3	3	4	3	4	4	4	3	4	4	4	3	3	
263	37	0	2	2	Solid tumour		Less than one year	0	8	1	0	0	0	5	4	4	3	4	3	4	3	4	4	4	3	3	4	4	3	3	
264	62	0	2	2	Solid tumour	STAGE I	Less than one year	1	0	1	1	1	0	9	6	5	6	5	5	1	1	1	1	1	1	1	1	1	1	1	
265	63	0	1	1	Solid tumour	STAGE IV	More than one year	1	0	1	1	1	0	9	5	6	3	3	3	3	2	2	2	4	3	2	2	3	2	2	



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<b>CO1</b>
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