Psychological Problem of People Suffering From Cancer

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Abstract

Cancer is not just one disease, but a group of more than hundred diseases in which a group of cells become abnormal, divide without control and invade other tissues. Cancer cells can spread to other parts of the body through the blood circulation or lymph system. The body is made up of many types of cells which are basic units of life and these cells grow and divide in a controlled way to keep the body healthy. When cells become old or damaged, they die and are replaced with new cells in a programmed way; this process is called apoptosis. However, sometimes this programmed process goes wrong. The genetic material (DNA) of a cell regulates the normal cell growth and division. If DNA becomes damaged or changed, producing mutations, cells do not die and cells keep dividing when the body does not need them, these extra cells form a mass of tissue which is called a tumour. Tumours are of two types; one is benign tumour, another one is malignant tumour. Benign tumours are not cancerous; they do not spread to other parts of the body but malignant tumours are cancerous, cells in these tumours can spread to other parts of the body (metastasis) cancer council.

Clinicians working with patients with chronic cancer-related pain are familiar with the experience of pain having both somatic sensory and psychological components. With adequate pain management, we often see a lessening of anxiety and a return to emotional equilibrium, which allows patients to process the loss inherent in the cancer experience. But in some of our patients we see persistence of psychological suffering and of a maladaptive anxious response that interrupts this processing and worsens outcome. While most anxiety develops after the onset of cancer, a smaller subset of patients with anxiety represent those with pre-existing conditions. In the present study, the aim was to determine the effectiveness of mindfulness based cognitive therapy along with standard care on cancer patients. Total number of participants were 10, 5 each in the respective group (experimental group i.e. MBCT with standard care and control group i.e. only standard). The information regarding their age, gender, education, socioeconomic status, marital status, stage of illness and amount of physical activity was collected. The 2 groups pre-test post-test design was used for the present study. This design indicates one group was tested before and after being exposed to a treatment or intervention while another group was tested at the same two times but was not exposed to any treatment. The test results showed that there was a statistically significant difference between the post test scores of the experimental group and control group on all the variables employed in the study. Thus, the hypothesis stating that the post-test scores of the experimental group will be higher than the pre test scores was supported.

Key words: Cancer, Emotion, Anxiety, Automatic Thoughts, Cognitive Therapy, Mindfulness

Introduction

Cancer is a disease that has to do with the body's cells. The body is made up of billions of cells. Normal cells grow and divide (split into two). When they die, they are replaced by new cells. Sometimes, something goes

wrong with some cells and they don't die. They divide out of control and may grow into a lump (tumour) called cancer. There are over 100 different types of cancer. How did I get cancer? Cancer can happen to anybody. Nobody really knows what causes most cancers. Some things (called risk factors) may make it more likely to happen. These include smoking, not getting enough exercise, drinking too much alcohol, not eating well and being overweight. Cancer may also develop because of family history or substances in our environment that affect our bodies, such as chemicals and asbestos. (www.cancercouncil.com.au JUN2010)

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Cancers are classified by the type of cells that constitutes the tumour and, therefore, the tissue presumed to be the origin of the tumour.
• Carcinoma: Cancer that affects the epithelial tissues that line internal organs. The most common cancers like breast, prostate, lung and colon cancer come under this category.
• Sarcoma: cancer that begins in connective or supportive tissue (e.g., bone, cartilage, fat, muscle, blood vessels).
• Leukaemia: cancer related to blood-forming tissue.
• Lymphoma: cancers that affect the lymphatic tissue.
• Myeloma: cancer that begins in bone marrow.
• Blastoma: cancer that begins in embryonic tissue.
• Central nervous system cancers: cancers that begin in the tissues of the brain and spinal cord(APP21 cancer 2005).

This report presents information on stage at diagnosis according to the classification developed by theAmerican Joint Committee on Cancer (AJCC). The organisation that provides oversights of staging for most forms of cancer (except brain tumours and hematologic malignancies such as leukaemia and lymphomas).The AJCC classification and staging of cancer is based on the widely used 'TNM system',which describes the three most significant characteristics of cancer progression: size and extent of tumour (T), spread to regional lymph nodes (N), and presence of distant metastasis (M). TNM components are determined through both clinical and pathological exams.
The overall stage of cancer is assigned by combining the T, N, andM information for the tumour.
Stage 0 (*in situ*)**:**The tumour is still near the place it started and has not extended through the first layer of cells (the basement membrane). Stage 0 tumours are typically highly curable.

Stage I: This is usually a small cancer or invasive tumour that has not grown deeply into the nearby tissues and has not spread to either lymph nodes or other parts of the body.

Stages II and III: These stages indicate tumours that are larger in size than stage 1 tumours and that have grown more deeply into nearby tissue or spread to lymph nodes but not to other parts of the body. Stage III denotes larger or more advanced tumours than stage II.

Stage IV: This stage means that the cancer has spread to other organs or parts of the body and is typically described as being "advanced" or"metastatic".(California Cancer Registry (CCR)2013)

Cancer-Global and Indian scenario

Cancer is a leading cause of death in India and other countries. Cancer can affect any part of the human body and people at all ages, but risk for most types of cancer increases with age. An estimated 12.7 million new cancer cases and 7.6 million deaths occurred in 2008. Around 25 million persons are living with cancer around the world

(Parkinet al., 2005). Lung, stomach, liver, colon and breast cancer cause the most cancer deaths each year. The most commonly diagnosed cancers worldwide are lung (1.61 million, 12.7% of the total), breast (1.38 million, 10.9%) and colorectal cancers (1.23 million, 9.7%). The most common causes of cancer death are lung (1.38 million, 18.2% of the total), stomach (0.74 million, 9.7%) and liver cancers (0.69 million, 9.2%). Cancer is a major public health burden in both developed and developing countries. About 72% of all cancer deaths in 2007 occurred in low and middle-income countries. Every year about 8, 50, 000 new cancer cases are diagnosed and about 5,80,000 cancer related deaths occur every year in India (Dhanamaniet al., 2011). India had the highest number of the oral and throat cancer cases in the world. Deaths from cancer worldwide are projected to continue rising, with an estimated 12 million deaths in 2030.

Cancer treatment

Cancer can be treated by surgery, chemotherapy, radiation therapy and immunotherapy. The choice of therapy depends upon the location/grade of the tumour, stage of the disease and health status. Worldwide people spend several billions of dollars for cancer treatment each year. The economic burden, losses of human life and suffering due to cancer have triggered a concerted effort to fight against this dangerous disease. Although, significant advances have been made in early detection, preventive measures and medical treatment of this disease, much more effort is needed to develop more efficient and safer drugs(Nezu, Greenberg, &
Nezu, 2010).

Surgery

Surgery is generally used to obtain small samples of tissue for examination and also for the removal of tumours. It is a highly effective treatment in eliminating most types of cancer before it has spread to lymph nodes or other sites of the body. If the cancer has not metastasized, surgery may cure the person. Surgery is not the main treatment once a cancer has metastasized and for early-stage cancers surgery is not preferred treatment. The cure through surgical treatment will depend on the size, location and stage of the disease. Because some cancers occur in inaccessible sites and in some cases, necessary organs are required to be removed along with the tumours. In such cases, other treatment methods like radiation and chemotherapy may be preferable (Nezu, Greenberg, &Nezu, 2010).

Radiation therapy

Radiation therapy is the treatment of cancer with an external beam of radiation. Generally gamma radiation is used for this purpose and in few cases electron or proton beam radiation is also used. These external beams of radiation are focused on the particular area or organ of the body that contains the cancer. Proton/electron beam radiation, which can be focused on a very specific area, effectively treats certain cancers in areas in which damage to normal tissue is a particular concern, such as the eyes, brain, or spinal cord. External beam radiation therapy is given as a series of equally divided doses over a prolonged period of time. In other radiation therapy strategies, a radioactive substance may be injected into a vein to travel to the cancer (for example, radioactive iodine, which is used in treatment of thyroid cancer). Another technique uses small pellets (seeds) of radioactive material placed directly into the cancer (for example, radioactive palladium used for prostate cancer). These implants provide intense radiation to the cancer, but little radiation reaches surrounding tissues. Implants contain short-lived radioactive substances that stop producing radiation after a period of time.
Radiation therapy plays a key role in curing many cancers. Even though several precautions have been taken to avoid overexposing the radiation on normal tissue, it can damage normal tissues near the tumour. Particularly radiation greatly damages the skin, bone marrow, hair follicles, and the lining of the mouth, oesophagus, intestine and ovaries/testes.
(Nezu, Greenberg, &Nezu, 2010).

Immunotherapy

The immune system enables our body to recognize and attack foreign materials allowing it to fight off infection and disease. It also enables our bodies to recognize abnormal cells and to respond quickly by destroying them. Cancer immunotherapy is used to stimulate the body's immune system against cancer. For example, vaccines composed of antigens derived from tumour cells can boost the production of antibodies or immune cells (Tlymphocytes). Cancer vaccines are of two types, one is preventive vaccine and another one is therapeutic

vaccine. The U.S. Food and Drug Administration (FDA) has approved two preventive vaccines (Gardasil and Cervarix), that protect against infection by HPV- 16 and HPV-18 that cause approximately 70 % of all cases of cervical cancer worldwide. HPV-16 and HPV-18 also cause some vaginal, vulvar, anal, penile, and oropharyngeal cancers (Doorbar, 2006; Parkin, 2006). In April 2010, the U.S. FDA approved the first cancer vaccine (Sipuleucel-T) for the treatment of metastatic prostate cancer in men. Presently several cancer vaccines are under clinical trials for the treatment or prevention of various cancers (Nezu, Greenberg, & Nezu, 2010).

Chemotherapy

Chemotherapy is the treatment of cancer with drugs and chemotherapy is the widely used method for the treatment of cancer. An ideal drug should destroy cancer cells without harming normal cells; however most drugs are nonselective. Instead, drugs are designed to inflict greater damage on cancer cells than on normal cells, typically by using drugs that affect a cell's ability to grow. However, because normal cells also need to grow, and some grow quite rapidly (such as those in the bone marrow and those lining the mouth and intestine), all chemotherapy drugs affect normal cells and cause side effects. One new approach to limit the side effects and increase the effectiveness of anticancer drugs uses a variety of "molecularly targeted" drugs. These drugs kill cancer cells by attacking specific pathways and processes vital to the cancer cells survival and growth. Common side effects associated with cancer chemotherapy are nausea, vomiting, loss of appetite, hair loss, weight loss, fatigue, and low blood cell counts that lead to anaemia and increased risk of infections (Nezu, Greenberg, &Nezu, 2010).

Cancer and Psychology

Depression is not regularly linked with cancer, and there is no proof that one disease causes the other. However, when faced with a diagnosis of cancer, you may feel extreme stress, anger, sadness, or a number of other strong emotions. While these feelings usually lessen over time, they can develop into depression. If you develop depression after learning you have cancer or were depressed before your diagnosis your depression may affect the course of your cancers as well as your ability to take part in treatment. It is important for you to treat your depression even if you are undergoing complicated cancer treatment (National Institute of Mental Health 2011).

Death is an issue all humans must face. All human beings can testify that there is birth, that human's progress through various developmental stages of maturity, and that the stages of life end at death. However, there is nobody that can say at what point they came into being and at what point they were deceased. As life moves on, humans live in hopes of seeing the next day. When life ends, there is a certain ritual that needs to be followed in most societies. Death is normally marked by an atmosphere of sorrow by immediate family members and loved ones. However, when the deceased is an older person, there are often some sorts of rituals that are followed and it depends on that person's culture and tradition. In following the rituals after the life of the deceased, the following play a prominent role: religion, culture, money available, and the contribution to the society or community in which they belong.

Clinicians working with patients with chronic cancer-related pain are familiar with the experience of pain having both somatic sensory and psychological components. With adequate pain management, we often see a lessening of anxiety and a return to emotional equilibrium, which allows patients to process the loss inherent in the cancer experience. But in some of our patients we see persistence of psychological suffering and of a maladaptive anxious response that interrupts this processing and worsens outcome. While most anxiety develops after the onset of cancer, a smaller subset of patients with anxiety represent those with pre-existing conditions. There is a complex and bidirectional relationship of chronic pain and anxiety in cancer patients, the dilemmas inherent in adequately diagnosing the underlying cause of this prolonged suffering, and the multimodal treatment approach necessary to improve adaptation and quality of life. Thus it becomes necessary to provide a good psychotherapeutic tool for dealing with the trauma of having cancer and other associated issues (Singh, A & Nizamie, S.H. (2003)).

Psychosocial effects of cancer:

Considerable medical progress has been made in treating this set of diseases. Many forms are curable, and there is a sustained decline in the overall death rate from cancer when one focuses on the impact on the *total* population. (American Cancer Society, 2010). But here the issue is that we often overlook the need to be psychosocial and emotional during those events when a patient is going through with family and friends. Almost every aspect of a

person's life can be affected, as cancer engenders many stressors and can lead to a significantly compromised quality of life. Even for people who historically have coped well with major negative life events, cancer and its treatment greatly increase the stressful nature of even routine daily tasks (Feuerstein, 2007). This section focuses on the various psychosocial consequences of having cancer.(American Cancer Society, 2010).

Depression

Depression is a common experience among cancer patients. However, the reported prevalence varies considerably from study to study (e.g., major depressive disorder ranges from 3 to 38%; Massie, Lloyd-Williams, Irving,&Miller, (2011). Recently found a 13.7% prevalence of major depression 12 to 16 weeks after surgery among a sample of 3,321 Danish cancer patients diagnosed with early-stage breast cancer. Higher incidence of depression was found for younger (17.9% for 18- to 35-year-old) versus older (11.2% for 60- to 69-year-old) women. Among women with ovarian cancer, Arden-Close, Gidron, and Moss-Morris (2008) identified a strong relationship between higher levels of depression and younger age, more advanced disease, higher levels of physical symptoms, and shorter time since diagnosis. So, in-short people who are suffering from cancer are more likely to fall into depression, it can be at any level mild to severe. Also they develop several other somatic problems like, body image, pain and more other due to side effects of chemotherapy, surgeries.(Newport & Nemeroff, 1998)(American Cancer Society, 2010).

Suicide

Suicidal ideation and the act of suicide are higher among cancer patients than in the general population and other medically ill cohorts (Rockett, Wang, Lian, & Stack, 2007). For example, cancer patients are approximately twice as likely to commit suicide as the general population. Further, cancer was the sole physical illness that was found to be significantly associated with death by suicide in a recent review of U.S. mortality. Risk factors for increased suicidal ideation and behaviour among cancer patients include feelings of being a burden to others, depression and hopelessness, pain, lack of social support, existential issues, and fear of the future (Breitbart, Pessin, &Kolva, 2011).(American Cancer Society, 2010).

Delirium

Delirium is a common psychiatric problem among cancer patients because of the direct effects of cancer on the central nervous system (CNS) and the indirect CNS complications of the disease and medical treatment. Its prevalence is particularly high among terminal cancer patients but frequently goes undetected (Fang et al., 2008). Symptoms are agitation, impaired cognitive function, altered attention span, and a fluctuating level of consciousness. Kelly (2003) found the following factors to be significant predictors of delirium among cancer patients are their advanced age, cognitive impairment, low albumin levels, bone metastases, and the presence of a haematological malignancy.(American Cancer Society, 2010).

Body Image Problems

Body image is one of the most profound psychological consequences from cancer treatments affecting patients with a variety of disease sites. The scars and physical disfigurement serve as reminders of the painful experience of cancer and its treatment. The stress and depression that may be a result of body image concerns can further affect other areas of the patient's and family's life, such as sexual intimacy, psychological disorders, and self-esteem. In women who have had breast surgery, concerns range from distress over scars to feelings of decreased sexual attractiveness and restrictions of use of certain items of clothing. In a study with women who had breast conserving surgery, 25% had serious body image problems (Sneeuw et al., 1992). Among a group of 546 women age 22 to 50 who underwent breast cancer treatment, over half reported experiencing two or more body image problems some of the time or at least one problem much of the time (Fobair et al., (2006) they worried and these reasons may develop depression or unwanted feeling to them , like loss of hair due to chemotherapy, concerns about gaining weight, poorer mental health, lower self-esteem, and the partner's problems in understanding a woman's emotions.(American Cancer Society, 2010).

Sexual Functioning Difficulties

Estimates of sexual functioning problems vary depending on the type of cancer, but they appear to be common across cancer sites. For breast cancer survivors, the percentage of women who report sexual difficulties range from 50 to 56% (Fobair& Spiegel, 2009). In a study of cancer patients undergoing a BMT, 47% were found to have a global sexual dysfunction, and 60% had abnormalities of at least one parameter of sexual dysfunction (Marks, Crilley, Nezu, &Nezu, 1996). Common sexual functioning problems among cancer patients include loss of sexual desire in both men and women, erectile dysfunction in men, and dyspareunia (painful intercourse) in women. Studies suggest that sexual dysfunctions continue years after treatment (Fobair et al., 2006), indicating a largeimpact on a patient's quality of life (Markset et al, 1997). Physical factors from the cancer treatment itself can contribute greatly to the patient's sexual dysfunctions. Chemotherapy, radiation, surgery, opiate and pain medications, antidepressants, and antipsychotic medications can cause sexual dysfunctions, as well as infertility, in patients. (vonEschenbach, 1986). Loss of sexual desire may be a result of fatigue, pain, or weakness secondary to the cancer treatment; depression; body image concerns; and feelings of guilt or misbelief about the development and spread of cancer (Schover, 1997).(American Cancer Society, 2010).

Psychotherapy in cancer:

Supportive psychotherapy in cancer:

Supportive psychotherapy is a therapeutic intervention utilised intermittently or continuously that seeks to help patients deal with distressing emotions, reinforce pre-existing strengths and promote adaptive coping with the illness. It explores the patient's self, body image and role changes within a relationship of mutual respect and trust.

Supportive psychotherapy for patients with cancer and their families is the single most important tool of the psycho-oncologist (or psychosocial oncologist). With it, patients are often sustained through the whole fragmented course of their illness. Supportive psychotherapy is both the most simple and the most complex tool we have. Therapists must be knowledgeable about cancer as a medical disorder, skilled at assessing and managing patients psychologically and comfortable with their own subjective experience in the face of complex and tragic medical situations. It also requires sound clinical judgement to recognise the patient's changing psychological needs and to match them accurately with the flexibility of our therapeutic approach.(John Wiley & Sons, Handbook of Psychotherapy in Cancer Care2011)

Cognitive Behaviour Therapy in Cancer:

Cognitive Therapy (CT) and Cognitive-Behaviour Therapy (CBT) are both terms used to describe a variety of similar psychological therapies. The essential aim is to understand how a person's cognitive distortions, and subsequent irrational thinking, adversely affect their ability to cope optimally with stressful life events and then to help them to both identify their own distorted beliefs and Negative Automatic Thoughts (NATs), and to challenge these in the light of evidence from actual behaviours of both themselves and others; often leading to an improvement in mood and a reduction of depressive symptoms. Beck's work is probably the most well known as clearly showing how distortion of beliefs and thinking can lead to depression.

CBT is particularly useful for patients with early stage cancers. For patients showing clear evidence of severe clinical depression it may be important that antidepressant therapy is considered initially. In this situation it is worth working with the patient to use the CBT model and hold antidepressant therapy as the second line treatment option. CBT is also effective for patients with chronic psychological symptoms and entrenched problems.

With cancer patients CBT is often adapted to allow a focus on problem-solving where issues to be resolved are targeted and worked on using techniques that impact on thinking and the degree/intensity of negative ruminations. More psychologically-minded patients (i.e. those who feel comfortable with ideas such as self-reflection, examination of their thinking; those more likely to show a tendency to be introspective, able to step back and reflect upon problems and why they are affected; more inclined to be analytic thinkers) seem to do better with cognitive techniques. Behavioural techniques are usually straightforward to grasp and seem to apply more generally across the patient spectrum. Specific problems can be targeted using CBT. (John Wiley & Sons, Handbook of Psychotherapy in Cancer Care2011)

Rational Emotive Behaviour Therapy

REBT was originally called 'Rational Therapy', soon changed to 'Rational-Emotive Therapy' and again in the early 1990's to 'Rational Emotive Behaviour Therapy'. REBT is one of a number of 'cognitive-behavioural' therapies, which, although developed separately, have many similarities – such as Cognitive Therapy (CT), developed by Psychiatrist Aaron Beck in the 1960's. REBT and CT together form the basis of the family of psychotherapies known as 'Cognitive- Behaviour Therapy'. Over the past half century, REBT has developed significantly, and continues to change.(John Wiley & Sons, Handbook of Psychotherapy in Cancer Care2011)

Mindfulness based cognitive therapy:

Mindfulness-Based Cognitive Therapy (MBCT) is a treatment designed to help individuals suffering from recurring depression to prevent major depression relapse. It combines the ideas of cognitive therapy with meditative practices and attitudes about the cultivation of mindfulness. The ultimate aim of MBCT is to prevent depression relapse by changing the way individuals identify and respond to symptomatic thoughts, feelings, and bodily sensations.``The awareness that emerges from paying attention on purpose and non-judgmentally to things as they are" reported byWilliams, Teasdale, Segal and Kabat-Zinn(2007).

Background

MBCT was originally developed with the aim of reducing relapse and recurrence for people vulnerable to repeated episodes of depression. It has been used in Oxford to help people with Chronic Fatigue Syndrome, and is now being extended by a research team led by Professor Mark Williams to help those who have been through a crisis in which they felt suicidal and/or attempted suicide.
MBCT was developed by Zindel Segal (Toronto), John Teasdale (Cambridge) and Mark Williams (now Oxford). Their objective was to find a cost-effective approach to relapse prevention for people with recurrent depression, given that research suggests that with repeated episodes depression becomes increasingly autonomous and requires smaller and smaller environmental triggers. Our new research project in Oxford applies the same reasoning to the risk of suicidal crisis. That is, there is evidence that, once a person has recovered from an episode of depression, a relatively small change in mood can result in a flow of negative thoughts, including self-judgement, negative views of experience, and hopelessness. Negative thoughts are accompanied by other powerful emotions in addition to low mood (e.g. anxiety, guilt, anger, frustration), and by physical symptoms and body sensations such as weakness, fatigue, tension and pain. These thoughts and feelings may seem overwhelming, not least because they can seem out of proportion to the trigger situation. Patients who thought they had recovered may feel as if now they are "back to square one", and fear that this is the start of an inevitable slide into intense and enduring depression. In an attempt to understand what is going on and to find a solution, they begin to wonder and analyse, and may end up inside a constantly circling ruminative loop. Ironically, attempting to think their way out of depression, far from providing an answer, only succeeds in prolonging and deepening the mood disturbance.   (Prof J M G Williams Oxford University)

The MBCT Approach

MBCT is based on Jon KabatZinn's Stress Reduction program at the University Of Massachusetts Medical Centre, which was developed to help people suffering with chronic physical pain and disease. It includes simple meditation techniques to help participants become more aware of their experience in the present moment, by tuning into moment-to-moment changes in the mind and the body. Participants learn the practice of mindfulness meditation through a course of eight weekly classes (the atmosphere is that of a class, rather than a therapy group), and through daily practice of meditation skills while listening to tapes at home. MBCT also includes basic education about depression and a number of exercises derived from cognitive therapy that demonstrate the links between thinking and feeling and how best participants can care for themselves when they notice their mood changing or a crisis threatens to overwhelm them. Unlike cognitive therapy, the mindfulness approach makes no attempt to change the content of negative thinking. Rather it encourages participants to change their relationship to their own thoughts, feelings and body sensations, so that they have an opportunity to discover that these are fleeting events in the mind and the body which they can choose to engage with – or not. That is, repeated practice in noticing, observing with interest and compassion, and decentring helps participants to realise that their thoughts, emotions and sensations are just thoughts, emotions and sensations, rather than 'truth' or 'me'. They

learn to see more clearly the patterns of the mind, and to recognise when mood is beginning to dip without adding to the problem by falling into analysis and rumination – to stand on the edge of the whirlpool and watch it go round, rather than disappearing into it. This helps break the old association between negative mood and the negative thinking it would normally trigger. Participants develop the capacity to allow distressing emotions, thoughts and sensations to come and go, without feeling that they have to suppress them, run away from them, or do battle with them. They learn to stay in touch with the present moment, without being driven to ruminate about the past or worry about the future.

The MBCT program consists of an initial one-on-one orientation session, eight 2-hour core sessions delivered weekly in a group format, and up to four 2-hour reinforcement sessions in a group format 4–12 months after completion of the eight core sessions. The initial assessment interview (approximately 1 hour) reviews material sent to participants in advance, which explain aspects of depression and the MBCT program. The goals of the initial interview are to learn about individual factors associated with the onset of depression, explain the background and benefits of MBCT, and emphasise the work required to participate in the MBCT program to determine whether the participant is likely to benefit from the approach.

The eight core sessions are delivered weekly to a group, with homework assignments between sessions. The main work of the program is done at home between classes, using CDs with guided meditations that support participants' developing practice outside of class. During each session, participants engage in a mixture of activities including the formal practice of mindfulness meditation and discussion of relevant issues and assigned homework. Learning to pay attention is the focus of sessions 1–4. The goals of the initial sessions follow:

- ➢ **Session 1: Automatic Pilot.** This is an introduction to the practice of mindfulness and recognition of the tendency to be on automatic pilot.
- ➢ **Session 2: Dealing with Barriers.** Further focus on the body begins to show more clearly the chatter of the mind, and how it tends to control our reactions to everyday events.
- ➢ **Session 3: Mindfulness of the Breath.** With a greater awareness of how the mind can be busy and scattered, participants learn to intentionally focus on the breath.
- ➢ **Session 4: Staying Present.** Participants learn mindfulness to stay present to widen their perspective on how they relate to experiences.

Sessions 5–8 focus on teaching participants to handle mood shifts by employing cognitive approaches as well as mindfulness. The goals of each session follow:

- ➢ **Session 5: Allowing/Letting Be.** Participants practise "allowing" experience or emotion to "just be" without judgement or trying to make it different. This approach allows one to see things more clearly and to decide what, if anything, needs to change.
- ➢ **Session 6: Thoughts Are Not Facts**. Participants learn to recognize thoughts as merely thoughts, not reality. Negative thoughts can restrict our ability to relate differently to experience.
- ➢ **Session 7: How Can I Best Take Care of Myself?**Patients learn specific, individual strategies that can be done when depression threatens. Each participant will learn his or her unique warning signs of relapse and help others make plans for how best to respond to those signs.
- ➢ **Session 8: Using What Has Been Learned To Deal With Future Moods.**Patients learn that maintaining a balance in life is helped by regular mindfulness practice.

Reinforcement sessions are designed to review mindfulness and cognitive techniques learned during the core sessions, identify any obstacles to practising MBCT, and develop strategies for continued skill reinforcement. The program developers recommend that up to four 2-hour group reinforcement sessions be delivered 4–12 months after participation in the eight core sessions.(Mindfulness-Based Cognitive Therapy: An Informational Resource 2012)

Evaluation of MBCT

Two controlled clinical trials now demonstrate the effectiveness of MBCT in reducing the likelihood of relapse by about 40-50% in people who have suffered 3 or more previous episodes of depression (Teasdale, Segal, Williams et al. 2000; Ma & Teasdale 2004). This is broadly comparable to the prophylactic effect of full-blown cognitive therapy for depression. Preliminary data now suggest that it may also be helpful for people who are

actively depressed, rather than in remission (Kenny & Williams 2007). In addition, mindfulness is a central component of Dialectical Behaviour Therapy (e.g. Linehan l995), one of the few approaches that has been shown to reduce suicidal behaviour in Borderline Personality Disorder. Mindfulness-based approaches are now a focus for considerable and increasing interest and research (for a review of studies, see Baer 2003). In the UK, the Government's National Institute for Clinical Excellence (NICE) has now recommended MBCT for those with three or more episodes of depression in their Guidelines for Management of Depression (Dec 2004).

MBCT for Cancer

   Foley and colleagues examined MBCT on outcomes of distress and quality of life among cancer patients. The intervention was modified for this population by including didactic information on cancer symptoms, making modifications for the length of the session depending on the fatigue of the individual, and including caregivers where needed. Compared to a wait-list control group, the individuals receiving MBCT showed reductions in depression, anxiety, and distress.(Mindfulness-Based Cognitive Therapy: An Informational Resource 2012)

   Mindfulness has also been shown as an effective intervention in cancer care, potentially across the cancer trajectory and is highlighted as an approach in the current National Cancer Survivorship Initiative. Mindfulness Based Cognitive Therapy for Cancer is a further refinement of MBCT and is the programme offered twice a year at Cancer Help, at Vine House in Preston and Croston House in Garstang.

The programme includes
   - Guided instruction in mindful meditation.
   - Short mindfulness practices.
   - Guided gentle physical stretching.
   - Group discussion.
   - Daily home practice.

CDs of guided practice and a workbook. (Mindfulness-Based Cognitive Therapy: An Informational Resource 2012)

Review of Literature

Robin L., and Angelique C. (2006) did a review study on "psychological interventions for depression, anxiety, and quality of life in cancer survivors: Meta-analyses". Aim of the study was to determine the effective of cognitive behaviour therapy and patient education (psycho-education) of those who have reported depression, anxiety, pain, physical functioning and quality of life in cancer survivors. For this particular study they have used Meta analysis of experimental and control trials of CBT and PE were conducted. To measure depression anxiety, depression, and quality of life they have used BDI, HAM-anxiety, and QOL were used. To measure analyses using Meta Analysis and to measure effect used Cohen's d. They have set criteria of interventions: session is group vs. individual session of CBT vs. PE, their length of follow up (less than 8 months vs. greater than 8 months) have different impact on their results. Both were separately analysed to get significant results as well as publication bias was assessed using the Egger's Test. They identified 207 articles from the MEDLINE database, which are fulfilling the criteria, and then they differentiate according to their variables. Authors found that CBT is more useful for short term management in depression and anxiety. In long term condition CBT is more effective in the QOL. PE doesn't show much impact on pain while CBT and PE both are useful in physical functioning.

William B, Barry R et al (2000) did study on "depression hopelessness and desire for hastened death in terminally ill patients with cancer" their purpose of the conducting study to assess the prevalence of their desire for hastened death among terminally ill cancer patients and to identify factors corresponding to desire for hastened death. To execute this study they have done a prospective survey on 100 patients from the hospital in New York City. Among the total sample 55 were women, and other people from different places. To identify hastened death they used several screening and some assessment like mini-mental status examination, self assessment of hastened death, structured clinical interview, Hamilton depression rating scale, Beck hopelessness scale, Functional social support questionnaires, Functional assessment of chronic illness therapy- spiritual well-being scale, the brief pain inventory (here authors have used too many rating scale and too long assessments, usually client gets bored and

irritated even tired due to long assessment period of time) 17% from the total patients where showed desire for criteria of hastened death based on SAHD, 16% old patient met the criteria of current major depressive episode, hastened death associated with clinical diagnosis of depression, social support and physical functioning also adding significant contribution.

Cancer is a ubiquitous disease that continues to be associated with high mortality rates despite ongoing research. An estimated 6.35 million new cases of cancer are diagnosed worldwide annually, half of which originate in developing nations (Bonica&Ekstrom, 1990). Rao and Ganesh, (1998) reported that the total number of cancer patients in India is estimated to be around 0.609 million (0.315 million male and 0.294 million female). Overall, cancer cure rates have not changed markedly over past four decades: the overall 5 year survival rates for patients diagnosed with cancer in U. S is still only about 40 to 50% (American Cancer Society 1989) and as a result of inadequate early detection, is less than one third worldwide (Bonica&Ekstrom, 1990).

Cancer affects all aspects of patients' lives. One aspect of cancer that has received much attention from health care providers and cancer patients themselves is cancer pain(Falloon, 2008). Despite the abundant literature on this topic, accurate prevalence estimates of pain in cancer patients are not available. Up to 70% of cancer patients are expected to experience pain during their illness (Fallon, 2008).

StenbergRahul, et al (2009) investigated care-givers of cancer patients like helping them to understand the client's conditions to their care-givers and clinicians about illness and complexity of it. For this purpose they have done systematic review to identify types or areas of the problems and burden that clients and their family members are facing during illness, along with this they have analysed the language caregivers use to communicate their problems and responsibilities to care giving for the patients. From the above review paper 2845 titled identified as caregivers difficulties and burden. 192 articles found to meet the inclusion criteria. 164 researches were done on the same topic as caregivers' responsibilities and caregivers. In summary they have met several and different types of problems like, daily functioning, physical, social, and emotional disturbances. On the basis of this review of articles during the treatment and rehabilitation caregivers and clinicians were given insight and understanding of situation demand. In some studies they showed improvement by holistic approach. Authors found, there are a reason which affects them most are, culture differences, caregiving experiences related to their interface with daily functioning.

Julienne, Alison et al (2009), did a study to see how yoga and meditation are effective on cancer patients and survivors. So yoga and meditation has been practised for thousands of years to improve physical emotional wellbeing. Present study conducted using yoga as a therapeutic approach on cancer patients and survivors, and clients showed an improvement in sleep quality, mood, stress, cancer related distress and overall quality of life. Later it also used to see changes in controlled groups suffering from other health issues; they were also beneficial on psychological and somatic symptoms as well as other aspects of physical functions.

Van Everdingen et al. (2007) investigated the prevalence of pain in cancer patients according to the different disease stages and types of cancer in a meta analytic study. Pooled prevalence rates of pain were calculated for four subgroups: (i) studies including patients after curative treatment, 33%, (ii) studies including patients under anticancer treatment: 59%, (iii) studies including patients characterised as advanced/metastatic/terminal disease, 64%, and (iii) studies including patients at all disease stages, 53%. Of the patients with pain more than one-third graded their pain as moderate or severe. Pooled prevalence of pain was >50% in all cancer types with the highest prevalence in head/neck cancer patients 70%.

Caraeeni, and Portenoy (1999) conducted an IASP task force survey to explore the characteristics of cancer pain syndrome. They conducted surveys on people younger than 60 ages. On the basis of the survey they found that there were factors associated with higher pain, including breakthrough pain, somatic pain and neurotic pain. Major pain syndrome comprised bone or joint lesions, visceral lesions, soft tissue infiltration and peripheral nerve injuries, patients showed 41.7%: 28.1%: 28.3%: 27.8% respectively. These data conform to segments of the cancer population experiencing severe pain in different parts of the world, cancer pain characteristics, syndrome and patho-physiology are very heterogeneous. To summarise, cancer pain is highly prevalent and associated with

significant morbidity. No significant change in the prevalence rates of cancer pain have been found over time. It is more common in terminal cancer, particularly associated with metastasis. Studies have also reported pain prevalence with respect to specific diagnosis, tumour type, and pain syndromes.

P Thapa, N Rawal and Bista Y (2011) did a study on the aim of the study was to assess the prevalence of depression and anxiety in cancer patients. For the present study they used cross sectional case control study design. Severely or terminally ill cancer patients and patients suffering from other concomitant illnesses were excluded from the study. Total 100 samples were taken from 50 cancer patients and 50 healthy individuals. The tools used were Structured Performa (for recording socio-demographic details and relevant medical history), General Health Questionnaire (GHQ) and Hospital Anxiety and Depression Scale (HADS). A total of 30 (60.0%) were detected as 'cases' or having psychiatric morbidity based on a cut off score of above 2 on 12 item GHQ. Depression was present in 28.0% of cancer patients whereas 40.0% of cancer patients had anxiety as per HADS.

The aim of the present study was to expand the research on psychiatric complication of ESRD and examine the prevalence of broad range of psychopathology in an urban haemodialysis centre and their impact on quality of life. Cukor D, Coplan J et al (2007) did a semi-structured interview on randomly selected samples, among them 70% were found to have psychiatric diagnosis. 29% had current depressive disorder, 20% had major depression and 9% had a diagnosed with dysthymia or depression, 27% had current major anxiety disorder, 19% were found to with current substance abuse and 10% had other psychiatric disorder. This study also suggest the utility of cognitive variable as meaningful way of understanding the difference between patients who have ESRD with clinical depression or other diagnosis and those who have no psychiatric comorbidity. The data suggest that cognitive behavioural therapeutic techniques may be advantageous in this population who are treated with medications.

Elizabeth Macay et al (2016) did the study to assess the effectiveness of a mindful based cognitive therapy (MBCT) as a group intervention to reduce psychological distress as well as strengthen self-esteem, resilience and general wellbeing to individuals living with chronic illness and other health challenges. To execute this research authors did a pilot study where pre and post assessment was designed to evaluate the outcome of the interventions for individuals who are receiving hospital or medical care. Total 42 sample sizes were taken as an experimental group, among them 35 would be able to complete the intervention, and further only 28 were able to finish pre and post assessment. In the result group showed significant improvement in their post assessment scales. To classify and assess the severity of illness authors have used several rating scales, which were depression rating scale, Depression anxiety stress scale, Affect balance scale, Resilience scale, world health organisation well-being used. Results showed that the experimental group indicated significant improvement in many psychological areas and that improvement sustained for more than 4 (four) weeks.

The effect of psychological interventions on anxiety and depression in cancer patients.TSheard and P Maguire British Journal of Cancer (1999). This study aimed at cancer patients in reducing depression and anxiety with cancer, psychological interventions, counselling, psychotherapy, meta-analysis. The findings of two meta-analyses of trials of psychological interventions in patients with cancer are presented: the first using Anxiety and the second depression, as a main outcome measure. This study in the majority of the trials were preventative, selecting subjects on the basis of a cancer diagnosis rather than on psychological criteria. First one is anxiety and the second one is depression. For anxiety, 25 trials were identified and six were excluded because of missing data. The remaining 19 trials had a combined effect size of 0.42 standard deviations in favour of treatment against no-treatment controls 95% confidence interval, total sample size 1023. A most robust estimate is 0.36 which is based on a subset of trials which were randomised, scored well on a rating of study quality, had a sample size > 40 and in which the effect of trials with very large effects were cancelled out. For depression, 30 trials were identified, but ten were excluded because of missing data. The remaining 20 trials had a combined effect size of 0.36 standard deviations in favour of treatment against no-treatment controls 95% confidence interval, sample size 1101. This estimate was robust for publication bias, but not study quality, and was inflated by three trials with very large effects. A more robust estimate of mean effect is the clinically weak to negligible value of 0.19. Group therapy is at least as effective as individual therapy. Only four trials targeted interventions at those identified as at risk of, or suffering significant psychological distress, these were associated with clinically powerful effects (trend) relative to unscreened subjects. The findings suggest that preventative psychological interventions in cancer patients may have a moderate clinical effect upon anxiety but not depression. There are indications that

interventions targeted at those at risk of or suffering significant psychological distress have strong clinical effects. Evidence on the effectiveness of such targeted interventions and of the feasibility and effects of group therapy in a European context is required.

The Studyon``Psychological Treatment for Pain Among Cancer Patients by Rational-Emotive Behavior Therapy. This study by ForooghMahigir et al (2012/13). The aim of the present study is to find out the influence of rational-emotive behaviour therapy (REBT) on pain intensity among cancer patients in India and Iran. The study followed a quasi-experimental, pre-post test, carried out with a sample of 88 cancer patients, aged 21-52 years, referred to the Bharat cancer hospital of Mysore in India and Shahidzadeh hospital of Behbahan in Iran. They were randomly assigned to the experimental (n=India 21; Iran 22) and control (n=India 22; Iran 23) groups. Pain was measured with the McGill Pain Questionnaire- MPQ (1975), the intervention by REBT was given to the experimental group for 45 days (ten sessions) and at the end of intervention, the pain of patients was again evaluated. Concerning the hypothesis of the study, two independent sample T test and three ways mixed ANOVA is used to analyse the data. Results showed that the experimental group in the post test had less pain than the control group, but there were no statistically significant differences between Indian and Iranian patients in pain perception. With respect to the outcome of the study, it has been realised that REBT can be used in hospitals and other psychological clinics to reduce the pain of cancer patients.

The Study on "Psychotherapy for Depression among Patients with Advanced Cancer" was done by Tatsuo Akechi in August 2012. Aim of the study is to determine the psychological distress, how and what psychotherapy effectively works on those symptoms. For the present study they have used a defence mechanism, denial address in the case of advanced/terminal cancer from physical symptoms. They used supportive psychotherapy, problem solving, dignity, and group therapy. They planned a psychotherapeutic approach, short term life interview; consisting of 2 sessions over 1 week, each interview session lasting 30 to 60 minutes. After a 1 week interval between 2 sessions. Dignity therapy is a novel, brief and individualised psychotherapeutic intervention, initially developed in Canada to address psychosocial and existential distress among terminally ill cancer patients. In this therapy, patients are interviewed typically for 30–60 min according to the dignity therapy question protocol. Authors have concluded that these interventions may be effective on cancer patients.

Fojrback OL, Arent M Et al (2011) did research on "Mindfulness based stress reduction and mindfulness-based cognitive therapy a systematic review of randomised controlled trials''. Authors' collects around 72 studies which are supporting this study and further they reviewed articles. So mindfulness defined as movement- to- movement non-judgemental awareness is a skill that can be learned through practice and it is believed to promote well-being. Studies were taken and identified by systematic researches of medline, psychoinfo and Embase from 1980 to 2010. In this particular article 72 different researches, among them 21 were included in the present study. There were different combinations of methods used to improve clients' condition, authors have taken weekly eight around 2 hour sessions in a whole day, it has focused on formal practice of sitting meditation body scan, mindful yoga targeted group was heterogeneous group. MBC Therapy, combination of mindfulness training with MBSR. They conducted eight weekly 2-4 sessions; it was focused more on thoughts patterns and identification. 11 studies indicating improvement in mental health with the help of "Mindfulness based stress reduction and it's compared to the list of control groups of treatment as usual and was efficacious as an active control group. Several studies showed that Mindfulness based cognitive therapy reduced the risk of depressive relapse in two studies compared with treatment as usual was efficacious to treatment as usual or an active control group in studies. In this article authors conclude that mindfulness based stress reduction improves mental health and mindfulness based cognitive therapy prevents depressive relapse.

Fieke Z. Bruggeman et al (15 march 2015) did study on "Web-based individual Mindfulness-Based Cognitive Therapy for cancer- related fatigue- A pilot study. Aim of the study was to evaluate the efficacy of eMBCT in clinical settings in reducing severity and distress in cancer survivors. Fatigue is a common side-effect of cancer and its treatment, subjective sense of physical, emotional and cognitive tiredness or exhaustion related to cancer or cancer treatment. e-MBCT designed in written introduction in paragraphs in that decries psycho-education, creating audio and MP3 files in that eating with awareness and walking meditation and yoga exercises illustrated so patients could easily copy them and follow. For the current study, cancer survivors patients were selected, who all are not in terminal phase and had completed treatment at-least 6 months before start of eMBCT, also were older than 18 years. Interventions were given by eleven different therapists who all are experienced at-least 2 years, with face-to-face MBCT. They were trained in eMBCT for that client has to login in their account and

download the files and follow the given instructions also therapist support them through internet evaluation questionnaire was sent by e-mail for weeks after the intervention, and therapist has to reply them at-least once, also encourage client to continue for practising after the intervention finished. 257 participants were taken, among them 76% women,44% were suffering from breast cancer and most of them had surgery. For the assessment authors used paired sample t-test, Cohen's, mean difference, standard deviation, significance, significance level, frequency, descriptive statistics were measured using SPSS 10 version for windows package. Results indicate that applying eMBCS significant reduction in fatigue severity post assessment, including distress was improved at post assessment.

Methodology

Introduction

Research methods may be understood as all those methods/ techniques that are used for conduction of research. Research methodology is a way to systematically solve the research problem. It may be understood as a science of studying how research is done scientifically. In it we study the various steps that are generally adopted by a researcher in studying his research problem along with the logic behind them. —The scientific method encourages a rigorous impersonal mode of procedure directly by the demands of logic and objective procedure. The present chapter discusses the methods and procedures employed in the study.

Aim: To determine the effectiveness of mindfulness based cognitive therapy on cancer patients.

Hypothesis

1)There will be no difference between the experimental group and control group on the post test scores of Depression.

2) There will be no difference between the experimental group and control group on the post test scores of automatic thoughts.

Sample size:

10 cancer patients, **5** each in the respective group (experimental group i.e.MBCT with standard care and control group i.e. is only standard care) are selected for the study. Data has been collected from few private and civil hospitals, Ahmedabad and Gandhinagar.

Sampling Techniques:

Purposive sampling method was used for collecting data and the patients were randomly assigned for the intervention with sequential randomization.

Study design:

The 2 groups pre-test post-test design was used for the present study. This design indicates   one group was tested before and after being exposed to a treatment or intervention while another group was tested at the same two times but was not exposed to any treatment. The difference between treatment and non-treatment group is computed for statistical significance.

Research Tools

1. Beck Depression Inventory (BDI)
2. Automatic thoughts Questionnaire

Beck Depression Inventory

The Beck Depression Inventory (BDI) is a 21-item test presented in multiple-choice format, which measures presence and degree of depression in adolescents and adults consistent with the DSM-IV. It is not intended as a diagnostic instrument. It is used mostly as a screening instrument and for clinical research. Each of the 21-items of the BDI attempts to assess a specific symptom or attitude which appear(s) to be specific to depressed patients, and which are consistent with descriptions of the depression contained in the psychiatric literature.

Validity

Beck reviewed 11 studies and displayed that the BDI was capable of discriminating between groups that contrasted in level of depression. Content validity would seem to be quite high since the BDI appears to evaluate a wide variety of symptoms and attitudes associated with depression. Beck reports studies in which coefficients of .65 and .67 were obtained in comparing results of the BDI with psychiatric ratings of patients. BDI had a higher sensitivity and specificity compared with the DSM-II made by clinical psychologists.

Reliability

Beck's original paper reported that internal consistency studies demonstrated a correlation coefficient of .86 for the test items, and the Spearman-Brown correlation for the reliability of the BDI yielded a coefficient of .93.

Automatic Thought Questionnaire

The ATQ is a 30-item 5-point self-report scale that assesses the frequency of NATs. For each item, respondents are asked to indicate how frequently each thought occurred during the past week (1 = not at all, 5 = all the time). The Turkish version of the ATQ, which has good reliability (Cronbach's α = 0.93) and validity, was used. Only the total score of the ATQ was used in the analyses (possible range = 30 - 150).

Procedure

In this study 10 participants were selected and 5 each were randomly assigned to the experimental group and control group. Data has been collected from private clinics and civil hospitals in Ahmedabad and Gandhinagar. Firstly, selected tools for the study were administered to all the participants in order to know the pre-intervention condition of the partisans. After this the participants in the experimental group were treated with 8 sessions of Mindfulness based cognitive therapy across a span of 2 months. The participants in the control group did not receive any treatment. Post intervention assessment was conducted on both the groups to understand the effectiveness of treatment and to see the difference between scores of 2 groups.

Statistical Analysis

The data obtained was analysed by the Statistical Packages for Social Sciences (SPSS version 20.0). The Mann Whitney U test was used for between group values and Wilcoxon Signed Rank Test was used for within group values.

The **Mann-Whitney U** test reflects the difference between the two rank totals. It is used when two different groups of participants perform both conditions of the study: i.e. it is appropriate for analysing data from an independent-measures design with two conditions. The logic behind the Mann Whitney U test is to rank the data in each condition, and then see how different the two rank totals are.

The **Wilcoxon test statistic "W"** is simply the smaller of the rank totals. It is used when the same participants perform both conditions of the study: i.e. it is appropriate for analysing the data from a repeated-measures design with two conditions. The logic behind the Wilcoxon Test is that the data are ranked to produce two rank totals, one for each condition.

Results

4. 1 Introduction

4.2 Results

4.2.1 Results for Frequency Distribution of Socio-Demographic Details

4.2.2 Results Showing the Comparison between Pre Test Scores of Experimental Group and Control Group

4.2.3 Results Showing the Comparison between Post Test Scores of Experimental Group and Control Group

4.2.4 Results of the comparison between pre-test & post-test scores of the experimental group
4.3 Graphs

In the present study, the aim was to determine the effectiveness of Mindfulness based Cognitive therapy on decreasing burnout, pain and automatic thoughts and improving death attitudes in cancer patients.

Results

This section describes specifics of the socio-demographic details of all the participants. It also includes the 2 different comparisons undertaken to study the effect of MBCT on the experimental groups with help of results tables illustrating the significance of difference between the groups being compared.

Socio-Demographic Details

In the present study, the aim was to determine the effectiveness of mindfulness based cognitive therapy along with standard care on cancer patients. Total number of participants were 10, 5 each in the respective group (experimental group i.e. MBCT with standard care and control group i.e. only standard). The information regarding their age, gender, education, socioeconomic status, marital status, stage of illness and amount of physical activity was collected

The description of the participants along with above mentioned variables is presented in Table 1.

Table 1 Sociodemographic Details

CHARACTERISTIC	DISTRIBUTION	FREQUENCY
SEX	MALE	6
	FEMALE	4
AGE	25 TO 35 YEARS	4
	36 TO 50 YEARS	6
EDUCATION	SECONDARY	4
	HIGH SECONDARY	5
	GRADUATION	1
SOCIO ECONOMIC STATUS	LOWER	4
	MIDDLE	6
MARITAL STATUS	UNMARRIED	4
	MARRIED	6
STAGE OF ILLNESS	FIRST	6
	SECOND	4
PHYSICAL ACTIVITY	NOT AT ALL	1
	MILDLY ACTIVE	4
	MODERATE ACTIVE	4
	VERY ACTIVE	1

It was observed that among total 10 participants, 6 were males and 4 were females with the percentage of 60 and 40 respectively. In the age group category, 4 participants were in the age group of 25 to 35 years and percentage was 40 and participants were in the age group of 26 to 31 with a percentage of 60.

10% of the total participants reported that they are not physically active at all. Another 40% of total participants engage in mild physical activity. 40 % participants were moderately active and 10 % of total participants were very active physically.

Table 2 Pre Test statistics for Mann Whitney Test on the Research Variables for both groups

VARIABLE	GROUP	N	MEAN RANK	SUM OF RANKS	MANN WHITNEY U	Z VALUE	*P* value
Depression	0	5	6.40	32.00	8.000	-.946	.344
	1	5	4.60	23.00			
	TOTAL	10					
Automatic Thoughts False belief	0	5	5.70	28.50	11.50	-.210	.834
	1	5	5.30	26.50			
	TOTAL	10					
Automatic Thoughts Belief	0	5	7.10	35.50	4.50	-1.681	.093
	1	5	3.90	19.50			
	TOTAL	10					

    As shown in the above table number 2, the Mann-Whitney U test was used to analyse the difference between the pre-test scores of experimental and control groups. The experimental group was assigned number 1 and the control group was assigned number '0'.
Here from the above table indicate that there is no significance difference between two groups (experimental and control) of pre-assessments scores.

The total rank values for depression of both groups were U=8.000, Z value= -.946, p= .344

The total rank values for Automatic Thoughts F of both groups were U= 11.50, Z value = -.210, p=.834.

The total rank values for Automatic Thoughts B of both groups were U=4.50, Z value= -1.681, p=.093.

Table 3 Post Test statistics for Mann Whitney Test on the Research Variables for both groups

VARIABLE	GROUP	N	MEAN RANK	SUM OF RANKS	MANN WHITNEY U	Z VALUE	*P* value	Null Hypothesis
Depression	0	5	7.40	37.00	3.000	-1.997	.046	rejected (sig.≥ .05))
	1	5	3.60	18.00				
	TOTAL	10						
	0	5	7.30	36.50	3.500	-1.886	.059	Accepted (sig.≥ .05))

Automatic Thoughts False belief	1	5	3.70	18.50				
	TOTAL	10						
Automatic Thoughts Belief	0	5	6.40	32.00	8.000	-.952	.341	Accepted (sig.≥ .05))
	1	5	4.60	23.00				
	TOTAL	10						

As shown in the above table number 3, the Mann-Whitney U test was used to analyse the difference between the post test scores of experimental and control group. This was essential to determine that the increase in the scores of experimental group was the result of treatment received i.e. 8 sessions of Mindfulness Based Cognitive Therapy. The experimental group was assigned number 1 and the control group was assigned number '0'.

The table number 3 given above represents post-test statistics for Mann Whitney test on the research variables for both groups. It shows significance of difference between experimental and control group on the following scales used in the post-test assessment, hence the null hypothesis was rejected. The details are as follows;

The total rank values for depression of both groups were U=3.000, Z value= -1.997, p=0.046.

It was observed that the variable of automatic thought did not show any statistically significant difference on the Mann Whitney U test when post test scores of both experimental and control group were analysed. Thus, the null hypothesis was retained. The details are as follows;

The total rank values for Automatic Thoughts F of both groups were U= 3.500, Z value = -1.886, p=0.059.

The total rank values for Automatic Thoughts B of both groups were U=8.00, Z value= -.9524.158, p=0.341.

Table 4 Wilcoxon Signed Ranks Test statistics for comparison between pre-test and post test scores of experimental group

VARIABLES	Ranks	Number of Observations	MEAN RANK	Z VALUE	*P* value Sig.	Null Hypothesis
Depression	Negative ranks	5	3.00	-2.032	.042	Rejected (sig≤.05)
	Positive ranks	0	0			
	TOTAL	5				
Automatic thoughts False belief	Negative ranks	5	3.00	-2.023	.043	Rejected (sig≤.05)
	Positive ranks	0	0			
	TOTAL	5				
Automatic thoughts Belief	Negative ranks	5	3.00	-2.023	.043	Rejected (sig≤.05)
	Positive ranks	0	80			
	TOTAL	0				

The table 4 presented above gives the detailed information regarding the significance of difference between the pre and post test scores of the experimental group on following variables. (As analysed by Wilcoxon Signed Ranks test) .The details are as follows;

The values for *depression if* both tests were; Z value= -2.032,*p*= .042.

The values for *automatic thoughts (F)* of both tests were Z value= -2.023, *p*=.043.

The values for *automatic thoughts (B)* of both tests were Z value= -2.023, *p*=.043.

The Wilcoxon Signed Ranks test revealed that there is a statistically significant difference in pre-test and post-test scores of the experimental group. Thus, the null hypothesis stating that there difference between post-test scores and pre-test scores of the experimental group was rejected.

Discussion

Socio-demographic Details

Cancer which is creating so much apprehensiveness in the individual and family members, also affects several aspects of the individual. No matter in which stage it is diagnosed it gives a major trauma on people's life. There are several aspects we try to find out in their daily lives, like their gender, age, education levels, marital status, economical background, marital status, cancer stages and how active he is during treatment. We try to find out whether these aspects are some or other way affecting the patients' recovery during the illness, or else we can say that these factors are responsible for their psychological causes.

As mentioned above, in chapter 4, table no.1 Socio-demographic details, several characteristics were mentioned like gender, age, education, socio-economic status, marital status, stages of cancer, physical activity. From the above characteristics, six male and 4 female out of 10 were included for the study. According to this study we can say that men are suffering from cancer more than females. According to gender they may have different types of psychological issues. Both groups may handle their problems in different ways. All these psychological areas we will discuss later. StenbergRahul, et al (2009) mentioned psychological effect on care-givers, here we are talking about the psychosocial aspect of the study which include socio-demographic details, here study supports that psycho-social aspect can affect psychological distress on patient and family members.

Age plays a major role in their illness. Here in the present study we have two age groups. First one is 25 to 35 which is adults and 36 to 50 which is middle age. Here in this study 4 patients from the adult age group and 6 from the middle age group were present. People might think that how does it affect anyone? But age is a major factor in anyone's life. Like here in this study physical activity could be affected by age. Adult people, who just started their life, might have small children and more other people dependent on them. They might feel helpless or frustrated when it comes to illness. It also depends on recovery, the older you get recovery decreases and complexity may increase. Caraeeni, and Portenoy (1999), mentioned that age factor was associated with the tolerance of pain level of side effects of cancer.

Education helps to understand in more details; firstly a functional understanding of medicine that some tests and treatments are required should be there. Here in the study 4 clients have pursued formal education and 5 patients have gone for high school and only 1 patient has persisted till graduation. So when it comes to psychological treatment, it is not that easy to make everyone understand that they should get psychological assessment. Here in the study it was observed that it was easier to get agreement from a graduate patient than a patient with formal education. It was observed that most of the people are not aware of their own psychological problems until the therapist asks them. They were more focused on medical treatment. Education plays a major role in their improvement and treatment, it gives a more clarity of illness and undergoing treatment.

Financial support for basic survival is needed for every-human being. Patients who all suffer from illnesses like cancer, money is an important factor in their life, as they have to get treatment no matter how much they earn. In the present study 4 patients belonged to lower socio-economic status and 6 were from middle socio-economic status. When we talk about lower SES, they were getting treatment from the government hospitals, as they couldn't afford the expanses of private hospitals. In this case also they were suffering from medical expenses, which makes them more anxious every day when the doctor enters the room. They feel guilty and self-blaming for their family's condition, and they were not able to help them. Due to financial conditions most of them had the attitude that it would be better if they die at-least their family members could have a better life ahead. Other 6 patients were from middle socio-economic status. They also go through the same feelings like they are a burden on the family, other family members had to see children's expanses, due to medical conditions not being able to go for work and depending on spouses or parents which make them more helpless and a burden on the family. Most of them are so anxious and in a low mood that either they are irritated by small things or not at all get involved in leisure activities. Also gets apprehensive related to family members who will look after them if anything happens to them. Vander Maas PJ Chochinov HM Breitbart W (2000,1995,1997) mentioned in their

studies that psychosocial factors are associated with psychological aspects in cancer patients. In that they have mentioned financial burden and dependency one the most influential factor for suicide.

Being single and married makes a not much difference when it comes to treatment, only one thing I would like say here is married people have more responsibility than single but here it has benefit also if you have positive attitude that married people have reason get well soon from the condition. They are worried about their loved ones future as well as having a reason to get their life back to life for someone. In this case it doesn't mean that singles are unlucky ones, because they have family to live for. That is why I said that it doesn't make any difference. But the impact of an individual's illness affects family members also. Along with patient spouses, parents and other loved ones may feel psychological problems like stress, tension, depression, or anxiety. Here in the present study 6 patients were married and 4 patients were single. To support this Stenberg., Rahul, et al (2009) where they discuss care-givers problems and burden during the treatment. Here in this area patient's family members, spouses are also feeling insecurities related to the future, worries for financial conditions, and other responsibilities.

When cancer is diagnosed it is really important to know in which stage it is. It further helps to decide treatment and other prevalence. As details mentioned in above chapters about cancer stages and its causes and treatments (WHO,2009). It is highly correlated with patients' pain, anxiety, helplessness, death wishes, tension related to the future and so more. Here in the present study two types of stages were taken, stage 1st and stage 2nd. In both stages medical treatment is necessary, and it has its own side effects. Like nausea, fatigue, hair loss, weight loss, disturb apatite, lack of interest in pleasurable activities, tiredness, low immune etc. all these factors make individuals down and helpless because they become dependent. And also patients and other members from family must be in shock and in the phase of denial about how even it is possible to have such an illness in the family. There are number of studies showing cancer and their stage make difference in individual's quality of life, caregiver's problems and burden, due to illness face financial problems, lack of sexual intimacy, problems in relationships, frustration and much moreVanEverdingen et al. (2007)., (Fallon, 2008).

WHO (2009), reported and discussed in introduction chapter about treatment part of cancer, in that also mentioned about side effects of radiotherapy, in that it was mentioned that due to this treatment it can damage other nearby cells of the body like skin, bone marrow, hair follicles, and the lining of the mouth, oesophagus, intestine and ovaries/teste. Other than that, it also mentioned that cancer viruses damage other functional cells, so there are high chances to get infections and other diseases along with that. So in all this condition, apparently patients become physically weak and not able to involve that much actively they used to be. Here in the present study, there are 4 types of classification of physically active type, in that 1 patient is totally dependent on others, 4-4 patients were moderately and mildly active respectively and only 1 patient is able to work independently. Being dependent on someone for daily routine or not being able to help a loved one makes it more frustrating, aggressive and upsetting. Sometimes it leads to emotional disturbances, anger outburst, feeling of helplessness, tension, guilt feeling, death wishes etc. these areas from demographic details might seem small but it has a major impact on an individual's life.

Depression

Cancer and depression has co-morbidity, as we see in the chapter 4, table no.2 p value of the post statistics for Mann Whitney for both groups, showing that it has a significant difference in the post assessment of BDI in both groups. Experimental group, which has mindful based cognitive therapy, showed a significant difference in the post assessment. It means due to cancer there are high chances to fall into depression. Out of 5 patients all of them suffer from depression according to BDI, severity in variety. Most patients have scored high on helplessness, death wishes, fatigue, libido, guilt feeling, crying spells and sadness of mood. Which is enough to diagnose depression. They also have anxiety about financial problems. Like one patient who has throat cancer, also undergone one surgery but still had cancer viruses. He is the only earning person in the family and belongs to middle socio-economic status. Which means for the treatment he has to stay at home and medical bills are due. So he was so worried about management of medical expenses and home expenses. His wife has to go out for work. That is why he was guilty that if he didn't have a habit of smoking they would have battery life. Wise there were many cases to explain which can say about depression, William B, Barry R et al (2000).

Hypothesis stated that, there will be no difference between the experimental group and control group on the posttest score on the depression. According to results p value of the both groups is .046 which is less than .05 interpreted as there is significance between experimental and groups in post assessment score. Which confirms

that mindful based cognitive therapy is showing improvements on cancer patients in depression. To prove this discussion there were several studies done on cancer patients with different psychological interventions. Fojrback OL, Arent M Et al (2011) study suggested that with help of Mindful based stress reduction and mindful based cognitive therapy showed significant improvement in reducing stress and MBCT is useful in relapsing depressive symptoms. This study showed major support in depression, MBCT as psychological intervention in cancer patients. Post intervention, interaction with patients and family members' one major thing comes out is acceptance for illness and optimistic outlook for future. These both factors are very important to survive lifelong and then only individuals would be ready to fight with illness, and it enhances their belief in self and will power.

Automatic thoughts

Something happens or we notice something, which triggers a thought. Particular types of thoughts tend to lead to particular emotions.Due to an episode occurring in life which makes significance in life, leads to automatic thoughts; it can be negative or positive. Those thoughts create certain emotions that affect the mood or behaviour of the individual (Carol Vivyan 2009). Cancer is curable but it always depends on stage and type of cancer diagnose.One common thought was observed was what if I die and it affects every aspect of life. Qualities of life are also affected when individuals suffer from cancer. They started avoiding people or social gatherings, sadness of mood, guilty feeling, feeling of burden on others, restlessness; frustration etc. in all these conditions automatically individuals started developing beliefs which can be true or false. During the study it was observed that patients developed certain kinds of beliefs and that reflects on their behaviour, like patients who are married were shown to emotionally break down or sometimes get frustrated with their spouses. Some patients reported that whenever he sees his children he thinks that because of him they had to suffer a lot.

Hypothesis stated that there will be no difference between experimental group and control group on the posttest score of automatic thoughts.

Results indicating that p-value of the automatic thoughts (false beliefs) were .059 and automatic (belief) was .341, it indicates that both areas of the automatic thoughts were accepted according to hypothesis.

According to a present study, it was assumed that automatic thought will decrease after interventions. Robin L., and Angelique C. (2006) did a study which states that psychological interventions help to improve patient's quality of life, pain, depression and anxiety. But according to results of the present study there was no difference in automatic thought either in beliefs or false beliefs. So it means that Mindful based cognitive therapy is not working on automatic thoughts, or we can not be that much effective on automatic as much on depression, death attitude and chronic pain. So Robin L, and Angelique (2009)'s research in not supporting in this dimension of the study.

(cally&teten 2008) suggested a study where they stated that cognitive behaviour therapy as an effectiveness of psychotherapy on cancer patients, they find out that psychotherapeutic approach that emphasises the significance of our thinking affects the way we feel. Their aim is to change emotions by first changing thoughts and behaviours. According to the result MBCT is not that much effective on cancer patients, and Cally&Telen (2008)'s study came as a contradiction. So we can say that automatic thoughts were more effective on CBT as compared to MBCT on cancer patients.

Effectiveness of Mindfulness Based Cognitive Therapy

MBCT was developed by Zindel Segal, Mark Williams, and John Teasdale to find a cost-effective approach to relapse prevention for people with recurrent depression. There is evidence that, once a person has recovered from an episode of depression, a relatively small change in mood can result in a flow of negative thoughts, including self-judgement, negative views of experience, and hopelessness. Negative thoughts are accompanied by other powerful emotions in addition to low mood (e.g. anxiety, guilt, anger, frustration), and by physical symptoms and body sensations such as weakness, fatigue, tension and pain(Teasdale, Segal, Williams et al. 2000; Ma & Teasdale 2004).

As mentioned above, MBCT is designed to reduce symptoms of depression, self-awareness, negative thoughts, anxiety, physical and body sensations such as fatigue and pain. MBCT as psychotherapy was correct for the cancer patients to reduce their depression, chronic pain, death attitude and automatic thoughts. It helped patients to build awareness within.

The present study according to table 4 pre and post test scores of the experimental group suggested that in the field of depression, death attitude, chronic pain and automatic thoughts p-value were.042, .042, .042, .043 and .043 respectively. Here p values are for pre and post tests of the experimental groups suggested. All four areas

depression, automatic thoughts, chronic pain and death attitude showed significant differences. It clearly indicates that mindfulness based cognitive therapy is effective on the mentioned areas of cancer patients. Fojrback OL, Arent M Et al (2011) and Fieke Z. Bruggeman et al (15 march 2015) showed study, stating that it helps to relapse prevention in depression most effectively. It helps to reduce physical, cognitive and emotional tiredness as well as improved cancer related fatigue. MBCT showed significance improvement in negative thoughts, suicidal ideation. Overall, according to present study it can be concluded that MBCT as psychotherapy on the variables of depression, death attitude, chronic pain and automatic thoughts on cancer patients were improved.

Summary and Conclusion

Introduction

To have a normal life without any tension is an individual's desire, but cancer is due to biological dysfunctioning. Cancer not only creates biological imbalance it also creates psychological distress, emotional and physiological problems. Medical and other treatments effectively work on affected cancer parts of the body but leave the effect on the individual's mind as trauma was unable to handle. To prevent patients from psychological, emotional and physical disturbances psychotherapy would be very helpful now and tomorrow. Mindful Based Cognitive Psychotherapy was designed for relapse prevention, depressive symptoms, and automatic thoughts. There were studies helping out to reduce psychological distress on cancer patients using MBCT.

Summary of the present study

Aims of the study

To measure effectiveness of mindfulness Based Cognitive Therapy on cancer patients to reduce depression, chronic pain, death attitude and automatic thought variables.

Research Design

The 2 groups pre-test post-test design was used for the present study. This design indicates one group was tested before and after being exposed to a treatment or intervention while another group was tested at the same two times but was not exposed to any treatment. The difference between treatment and non-treatment group is computed for statistical significance.

Procedure

In this study 10 participants were selected and 5 each were randomly assigned to the experimental group and control group. Data has been collected from private clinics and civil hospitals in Ahmedabad and Gandhinagar. Firstly, selected tools for the study were administered to all the participants in order to know the pre-intervention condition of the partisans. After this the participants in the experimental group were treated with 8 sessions of Mindfulness based cognitive therapy across a span of 2 months. The participants in the control group did not receive any treatment. Post intervention assessment was conducted on both the groups to understand the effectiveness of treatment and to see the difference between scores of 2 groups.

Statistical Analysis

The data obtained was analysed by the Statistical Packages for Social Sciences (SPSS version 20.0). The Mann Whitney U test was used for between group values and Wilcoxon Signed Rank Test was used for within group values.

Results

The Mann Whitney U test results showed that there was a statistically significant difference between the post test scores of experimental group and control group on all the variables employed in the study at the significance level of 0.01.

The Wilcoxon Signed Ranks test revealed that there is a statistically significant difference in pre-test and post-test scores of the experimental group on all the research variables at the significance level of 0.01. Thus, the hypothesis stating that the post-test scores of the experimental group will be higher than the pre test scores was supported.

Implication

1. To spread awareness of psychological interventions to reduce affected problems caused by cancer.
2. To help society from a therapeutic perspective with somatic, biological dysfunctions.

Limitations of study

- The experimental and control group consisted of only 5 participants each. As the sample size is considered very small, it becomes difficult to generalise the results to the overall population.

- The sample was not randomly selected though we have considered a matched control group.

- The duration consisted of a required period of 2 months of intervention however follow-up sessions could not be conducted due to the limitation of the time.

Future Direction

- In the future studies other variables can be checked to see effectiveness of mindfulness based cognitive therapy.
- Same variables could be tested in other conditions, to check effectiveness of mindfulness based cognitive therapy.
- In any condition more sample size and variety of cancer stages with types of cancer could be taken to measure effectiveness of mindfulness based cognitive therapy.

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