

The Trend and Severity of Depression among Patients with Advanced Cancer, in Nairobi Hospice, Kenya

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Abstract: Cancer is a disease which comes with psychological distress, such as depression. Patients with advanced cancer experience higher rate of depression compared to those at earlier stages. Despite the interventions employed so far in reducing depression among patients with advanced cancer, the problem of depression remains a serious concern. As a result of this, the present study investigated the effectiveness of acceptance and commitment therapy (ACT) in treating depression among patients with advanced cancer, in Nairobi Hospice, Kenya. This therapy was informed by the relational frame theory (RFT). The study set out to assess the trend and severity of depression among patients with advanced cancer. The study used quasi-experimental design, where a sample size of 60 patients with advanced cancer were selected and assigned to two groups. The treatment group was assigned 30 and the control group was also assigned 30 patients. The patients were sampled through a purposive sampling method. The Beck Depression Inventory–II (BDI-II) was used to classify the depression levels of the patients. In addition, a socio-demographic questionnaire was administered. The data were collected at baseline, midline and endline for the two groups. Furthermore, the treatment group received 5 sessions of the ACT intervention. The results showed that the prevalence of depression for the treated group decreased from 100% at baseline to 17% at endline. While that of the control group decreased from 100% to 88% at endline. Furthermore, the severity of depression in the experimental group decreased as we moved from baseline to endline. However, that of the control group increased during the same period. This study has the potential to offer a valuable alternative intervention for depression in patients with advanced cancer. Similarly, it can provide clinicians with a new tool and insight for psychotherapeutic interventions with this population. Moreover, the study can inform the development of improved policies for palliative care and support programs, benefiting general cancer patients and especially those with advanced cancer.

Keywords: depression, advanced cancer, prevalence, severity, hospice.

1. INTRODUCTION

In the words of Naseri and Taleghani (2018), depression can be viewed as a condition which comes with health concerns, and is quite common among patients with advanced cancer and cancer patients in general. The whole concept of depression can also be defined as low mood which affects the activities, thoughts, and feelings of one who is depressed (Yang et al., 2019). Depression as a concept can also be seen and defined as a severe psychiatric condition which leads to causes of disabilities as seen in the world today (Mitchell et al., 2021). Depression has also been seen to affect the quality of life and the functioning of those who suffer from it, which calls for urgent intervention in terms of treatment (Naseri & Taleghani, 2018).

In cancer settings, according to Yang et al. (2019), studies have shown that depression comes with low participation in treatment on the part of the patients. According to Gu et al. (2020), studies have shown that those with health conditions that are life-threatening, present more with depression. Furthermore, depression is a condition which comes with some level of sadness as well as tiredness and loss of interests and appetite, which affects the mood of the individual (Doktorchik et al., 2019).

This mood disorder which is associated with depressive symptoms has also been discovered to be common among patients with advanced cancer, as well as all those who suffer from chronic diseases (Gold et al., 2020).

In as much as no single individual can be credited with the discovery of depression, there are many renowned intellectuals whose ideas have contributed and continue to contribute to the growing knowledge of what is today known as depression (Schimelpfening, 2019). As a way of having a holistic view of how researchers and psychiatrists view this condition today, it will be helpful to look at the history of depression. The earliest connotation of depression was as melancholy, a term which represents some form of insanity and spiritual problems (Paykel, 2022). As a result of this impression, especially in the second millennium in Mesopotamia, it was treated with beating, physical restraints, and starvation (Schimelpfening, 2019).

The Greek physician Hippocrates, is considered the first physician to describe melancholy or depression as a clinical condition, with his theory of moods, which holds that the body contains four moods or humours, and each determine our temperaments (Michel, 2020). Hippocrates claimed the four humours of the body are black bile, blood, phlegm and yellow bile, and that depression is a state which results from the activity of black bile, (Pereira, 2018). As a result of the activities of the black bile, the melancholic person suffers from symptoms of fear, sadness, and delusions (Holst, 2021).

The Middle Ages continued with the notion of depression being rooted in the fact that one has fallen out of favor with the gods (Schimelpfening, 2019). However, the gods referred to here were those of Christianity. According to this author, this is different from the connotation of gods by the Greeks. In addition, as a result of this spiritual connotation of depression, it was treated with exorcism, drowning, and burning. In the Renaissance period, depression became more in use than melancholy (Holst, 2021). Some scholars in this period were of the opinion that depression was more of a natural, rather than a supernatural illness (Schimelpfening, 2019). However, during the 18th and 19th century, depression was perceived as a mood disorder, and the symptom of delusion associated with it was seen as a result of the abnormal mood (Kendler, 2020). One of the initial medications for depression was known as Tofranil, which was followed by a number of other medications grouped as tricyclic antidepressants (Schimelpfening, 2019). The DSM-5, according to Sbolli et al. (2020), is one of the primary tools used as a means of diagnosing depression. This can also be found in the DSM-5-TR (Rice et al., 2022).

Depression is also viewed as a global mental health issue which affects both men and women (Moeti et al., 2017). Depression at some point in the United Kingdom used to be viewed as having a genetic undertone until a study was conducted, which negated this believe (Border et al., 2019). According to Bailey et al. (2019), depression ranks among the most prevalent mental and emotional disorders in America which go undetected and undiagnosed, as well as untreated. These authors reported that African Americans are less likely to report psychological symptoms. In South Africa, it was believed that the major causes of depression are poverty and HIV, which result in diminished quality of life (Kuo et al., 2019). The World health organization has it that 3.8% suffer depression globally, with 5% prevalence among adults, and 5.7% among adults older than 60year (World Health Organization, 2023). This report also states that an approximate figure of 280 million people suffer from depression worldwide, where it was discovered that it is 50% more predominant in the female population than in men. Furthermore a systematic review which was based on meta-analysis revealed that the prevalence of depression among cancer patients under palliative care was 27% (Garcia et al., 2023).

In Ghana, efforts are on-going in improving policies on mental health, especially in the area of depression (Lloyd-Sherlock et al., 2019). The situation in Zimbabwe shows that women are more prone to depression, especially those adversely affected by socioeconomic factors (Machisa & Shamu, 2022). According to World Health Organization, the African continent records 5.4% of the global prevalence of depression (Gbadamosi et al., 2022). Additionally, a systematic review with meta-analysis revealed that the prevalence of depression among cancer patients under palliative care in the African continent was at 36% while that of Europe was at 25% (Garcia et al., 2023).

A study that was conducted in Kenya revealed that most cases of depression have an underlining past experiences of trauma (Mugambi & Gitonga, 2015). According to Assche et al. (2020), trauma experienced in childhood contributes a lot to depression in the victims because some of these traumatic experiences are not treated. In a study conducted to investigate the level to which depression is associated with level of stress as well as social support, it was discovered that a large number of Kenyans exhibited a strong relationship between depression and perceived stress as well as social support (Shah et al., 2021). Furthermore, as at 2017, the WHO ranked Kenya as fifth among countries living with elevated depression, with an approximate figure of 2 million people living with depression (Memiah et al., 2022).

In all, depression has been seen as a psychological concern that has plagued humanity for long. The causes of this psychological distress have also been attributed to different reasons over the course of history. One of the causes of depression has been seen as prolonged pain, especially in illnesses. One of such illnesses has been identified as cancer, especially advanced cancer. The present study is therefore focused on the trend and severity of the depressive symptoms in patients with advanced cancer.

Cancer can be seen as a form of disease which is categorized by the unusual multiplication of DNA (deoxyribonucleic acid) (Weru et al., 2020). This can further be described as a disease caused by uncontrolled cellular multiplication (Truskowski et al., 2023). This uncontrolled proliferation is facilitated by mutated genes which have the potentials to cause cancer (Liu et al., 2022). These mutated genes are known as oncogenes, which are referred to as proto-genes before they are mutated (Bhadra & Kaur, 2021). This modification of oncogenes is what leads to cancer cells (Kontomabolis et al., 2020).

The causes of cancer can be viewed from many dimensions. The first thing is the incidence, followed by a distribution of geographic conditions as well as behavior of definite types of cancer, which are related to a lot of factors which includes age, sex, genetic conditions, race, as well as the exposure one has to environmental factors (Chu & Sartorelli, 2018). According to these authors, the exposure one has to radiation has a significant effect on the occurrence of several cancers. This can be seen in the cases of leukemia, thyroid cancer, breast related cancer, those which can be found in lungs, those which affects tissue, as well as different cancers which affect the skin and other parts of the body. These authors are also of the opinion that factors like chemical substances, especially those related to tobacco which comes from smoking and aflatoxins and other chemicals can be very harmful and can be seen as a veritable means of generating cancer in the body.

It can also be said that cancer has been discovered all over the world in various forms, and researchers have made it a point of duty to identify different types and stages of cancer, and have made it known that several multiplication of genes brings about cancer (Hassanpour & Dehghani, 2017). The study of this varied and uncommon form of multiplication of genes is known as oncology (Mandal, 2019). Cancer has been discovered to be in existence for a long time and the oldest form and evidence of cancer has been seen as that which was discovered in mammals and the tissue found in various animals that were excavated as well as in human bones of a particular king in southern Siberia (Faguet, 2015). According to this author, history has it that one of the known earliest documented account is that which was documented in ancient Egyptian manuscripts. The disease can be seen to have been initially called cancer by Greek physician Hippocrates, who referred to cancer as *casinos*, and the multiplication activity of genes he called *carcinoma* (Mandal, 2019).

A good percentage of cancers have been found to be curable if they are detected early enough, and can provide for long survival rates in many patients as documented by many studies (Weru et al., 2020). Statistics have revealed that cancer is a chronic and deadly disease which has not been friendly to humanity in recent time (Krishnasamy et al., 2023). The most burdensome symptoms of cancer include tiredness, body aches, appetite loss, and other related symptoms (Economos et al., 2020). Furthermore, those who experience advanced cancer go through more severe symptoms as well as

psychological distress like depression and other psychological conditions associated with cancer that is at the advanced stage (Economos et al., 2020). This depression that is associated with advanced cancer was what this study set out to address.

From the records of the WHO, as at 2022, there was an estimation of 20 million cancer cases, which preceded an estimated 5 years statistics of 53.5 million diagnosed cancer cases (World Health Organization, 2024). This global report further revealed that one in every randomly chosen five people develop cancer in their lifetime, and that lung cancer is the highest globally occurring cancer, followed by breast cancer. Furthermore lung cancer has been discovered to be the leading cause of cancer deaths, and smoking has been identified as 85 to 90% cause of lung cancer (Alduais et al., 2023). In a study which used the Global Burden of Disease, the data revealed that the highest incidence of cancer among young women is cervical (Momenimovahed et al., 2023).

In Africa, breast cancer was found to be the highest occurring cancer, followed by cancer of the cervix, while the leading cancer in men has been observed to be prostate cancer (Bray et al., 2022). In another study aimed at checking the extent of breast cancer screening in Sub-Saharan Africa, breast cancer was seen to be the cancer with the highest prevalence among women in Sub-Saharan Africa (Ba et al., 2020). The fact of prostate being the leading cancer in men is supported by another study which revealed that prostate cancer has been observed to be the leading cancer in men (Seraphin et al., 2021).

In Kenya, the annual occurrence of cancer cases increased from 37,000 to a total of 47,887 between 2012 and 2018, and the number of fresh cases of cancer is estimated to rise in the next 20 years by more than 120% (Jani et al., 2024). This report also revealed that the most common cancer found in Kenya is breast, followed by cervical, prostate, esophageal, then colorectal. This report of breast cancer topping the five leading cancer cases in Kenya is supported by the Ministry of Health, with an emphasis on the fact that the probability of developing any form of cancer before the age of 75 in Kenya among women is 18% and 14.3% among men (Kenya Ministry of Health, 2023).

1.1. Trend of Depression among Patients of Advanced Cancer

Depression as a psychological distress sets in right from the moment of diagnosis (Kim et al., 2023). However, a good number of studies have revealed that the issue of prevalence of depression as a topic has been found to be more in those who suffer from cancer than in their caregivers. This is evident in a study carried out in America by Jacobs et al. (2017) with newly diagnosed incurable cancer patients. The outcome of the research showed that patients reported more depressive symptoms compared to caregivers. The result of the study further revealed that patients who were diagnosed with advanced cancer reported more depressive symptoms. This shows that there needs to be an urgent attention given to those who go through depression. Although the study reveals that the caregivers went through this same depression along with the patients, but the statistics showed that the patients presented more of the severity than the caregivers, making them the main focus of those to really give the helping hand.

A good number of cancer patients have been found to live in denial of the reality of cancer diagnosis. This has been seen to be a major contributor to the prevalence of depression in cancer patients. Purkayastha et al. (2017) conducted a cross-sectional study to check the prevalence of depression in 270 breast cancer patients undergoing active treatment within a tertiary care center. The study revealed that the presence of depression could be related to the issue that women diagnosed with breast related cancer found it difficult to come to terms with the diagnosis. This indicated that denial sets in at the point of diagnosis, and if not taken care of, it increases the chances of depression in cancer patients. In addition, the study makes it known that depression worsens when the issue of denial persists in those who go through depression, especially among cancer patients. This denial can also bring about high level of mortality.

Basically, cancer symptoms reported by advanced cancer patients have been seen to be more of psychological than physical. This is evident in a study conducted in America to investigate the physical as well as the psychological burden of symptoms among patient going through advanced cancer (Nipp et al., 2017). The outcome of the study revealed that 89.9% of consecutive patients reported depression and anxiety symptoms, respectively. These depressive symptoms were seen to be connected with prolonged length of stay in the hospital (LOS) and constant radiations. This shows that depression in cancer patients can be triggered and worsened by hospital conditions, especially pronged stay in the hospital. This study further shows that patients with advanced cancer should constantly be checked for their depression status constantly during their stay in the hospital . It also shows that the severity of depression can worsen along with their length of stay in the hospital. This also shows that the psychological attention given to patients of advanced cancer should be appropriate to their length of stay in the hospital. One would expect that the physical symptom in cancer patients would be higher than the psychological symptoms. However, this study made it known that the psychological symptoms outweighed the physical symptoms. If that is the case, the psychological symptoms like depression need to be given urgent attention so as to assist properly and adequately those who suffer from cancer. However, a given study revealed that one common physical symptom that has been discovered to be associated with advanced cancer patients is low quality of sleep (He et al., 2020). There are various symptoms that can be found in cancer patients who go through depression. However, this study shows that the fact that sleep can be compromised has been seen as a very significant symptom among cancer patients who go through depression. This indicates that in the treatment of depression in cancer patients, the issue of sleep should be given adequate attention, because it will go a long way in rectifying a good portion of the psychological functioning of the patient that must have been compromised.

In as much as cancer is a clinical and psychological concern, a more disturbing concern is the comorbidity of cancer with depression (Yennurajalingam et al., 2018). This is so because studies have shown that among patients with advanced cancer, those diagnosed with depression happen to die earlier than those not diagnosed with depression. To justify this claim, Rieke et al. (2017) conducted a study in America to investigate the five-year survival of cancer patients related to head and neck by depression status. The outcome of this research indicated that out of 3466 patients who were included in the study, 642 (18.5%) were diagnosed with depressive symptoms as at the time of the study. When this was compared to those who were seen to have received no depressive diagnosis, patients who were found to be with diagnosis of depressive symptoms were found to have higher risk of death from cancer. This further revealed that a combination of cancer and depression can be very devastating for cancer patients. Which goes to tell us that a good number of cancer patients have underlining issues of depression. If that is the case, there arises a need to constantly check those who go through cancer for the presence of depression, so that they can be adequately assisted.

A study was conducted to check the fear of reoccurrence in patients with advanced cancer and the relationship this has on socio-demographic and psychological factors (Calderon et al., 2024). The study recruited 1195 participants across 15 oncology department in Spain. The participants gave their demographic information and were assessed with cancer Worry scale as well as other scales. The result of the study revealed that high fear was associated with being female, being young, as well as increased depression. The mean age of the participants was found to be 66, and 56% were male.

Rieke et al. (2017) conducted a study which revealed that cancer patients who are diagnosed with depression die faster than those not diagnosis with depression. This shows that the treatment of depression should always go hand in hand with the treatment of cancer, so that the symptoms of depression do not remain in the patients undetected for as long as the cancer persists. Subsequently, Lin et al. (2018) carried out a research on the prevalence of depression in patience presenting with prostate cancer in Taiwan and the connection between mortality and depression in 1101 newly diagnosed patients. The outcome of the study revealed that the depression had a statistical significance

with high mortality among prostate cancer patients. This also revealed that depression has the capacity to facilitate high mortality rate in cancer patients. As a result of this, there arises a need to constantly give attention to those who suffer from cancer so that the issue of mortality as a result of depression in cancer patients can be highly reduced.

Subsequently, the prevalence of depression in patients with advanced cancer has propelled scholars to study different cancer cases in a single study (Yang et al., 2017). This is so because a good number of studies concentrate on particular types of cases for investigation. As a way of studying the prevalence depression in different types of cancer, there arose a need to study various cases of cancer in a single study. One of such studies was one conducted in Austria to assess the prevalence of depression in adult patients (Riedl & Schuessler, 2022). The outcome of the research established the fact that depression is a common psychological distress to all forms of cancer.

The need to reduce the depression score in cancer patients has been found out to be a global, regional, and local concern. This shows that depression in cancer patients cuts across all cultures and geographical locations (Mitchell et al., 2021). In Iran, Kouhestani et al. (2022) conducted a survey to summarize the global and regional prevalence of depression in those who present with gastric cancer. In this study, there was a consideration of publications on the prevalence of depression in patients of gastric cancer. The research showed that depression in gastric cancer patients did cut across all regions that were investigated in the study.

Subsequently, Pilevarzadeh et al. (2019) carried out a study in Iran with the aim of checking the global prevalence of depression in patients with breast cancer. This meta-analysis made use of three forms of electronic database from 1st January 2000 to 30th of March, in 2019. The result of the research revealed that the global prevalence of depression appeared to be high. In another study which looked at depression among women who suffer from breast cancer, depression was also discovered to be very prevalent at global, regional and local levels (Jafari et al., 2018).

The duration and the stage of cancer also have the capacity to determine the prevalence of depression in cancer patients. This is shown vividly in a research carried out in Pakistan, by Mushtaq et al. (2017) to determine the frequency of depression in cancer patients as well as the relationship it has with duration and cancer stages. The result of the research indicated that frequency of symptoms of depression was significantly high in stage III (80%) as compared to stage I and II (31% and 56%). This was an indication that depression was common among patients in advanced stages of cancer and in those surviving longer after diagnosis. The present study considered stages 3 and 4 in recruiting participants for the study, based on the trend of depression in these stages as shown in this study.

The fact that a cancer patient is an outpatient or inpatient does not eliminate the presence of depressive symptoms in the cancer patient. Khalil et al. (2016) justified this claim in a study conducted to check the prevalence of noticed anxiety as well as depression in patients going through cancer in a given hospital setting in Pakistan. In this cross-sectional study, a total of 300 hospital patients were taken through a series of interviews from both the outpatient as well as the inpatient units. The entire investigation revealed that depression was present in both the outpatient and the inpatient participants.

A study was conducted in Saudi Arabia to check the prevalence of depression and anxiety in cancer patients, as well as the risk factor related to the symptoms (Ghowinam et al., 2024). This cross-sectional study used a convenience sampling method, and it lasted from April 2023 to September 2023. The study recruited 92 patients with various diagnosis of cancer. Among the participants, 81 were married, and 11 were either single, divorced, or widowed. The outcome of the study showed that depression was significantly associated with marital status. This result differs from that of the present study, where marital status was found not to be associated with depression in the participants.

Cancer is projected to attain a 47% global increase between 2020 and 2040, especially in countries characterized by low and middle income (Farrant et al., 2022). Which also presupposes a global increase of depressive symptoms in cancer patients. To justify this claim, the authors of this study conducted a survey in South Africa, in which 343 participants were recruited. In the study, 229

(66.8%) were of stage 4 cancer. The result showed that $N = 66$ (19.3%) were at risk of mild depression, and $n = 27$ (7.9%) were at risk of major depression. From this study a prediction of the severity of cancer was made into the year 2040. This also implies a prediction of an increase in the prevalence of depression.

The prevalent of depression among cancer patients in Africa is also a thing of concern. Just as depression in cancer patients is a global issue, African is also struggling to deal with its prevalence, which is on a high rate. One of the studies that made this fact known was one conducted in Zambia to assess the prevalence of depression in cervical cancer patients (Paul et al., 2016). In the study, women with cervical cancer were sampled using systematic random sampling. The study revealed that BDI was used as a tool for assessment of depression, and the outcome of the study showed that 80% of the recruited patients presented with depressive symptoms.

One of the issues responsible for the increase of depression among cancer patients in Africa has been identified as social support. This was revealed in a cross-sectional study conducted to find out the level of depressive symptoms as well as how it relates to social support in patients going through cancer of the breast in Addis Ababa, in Ethiopia (Wondimagegnehu et al., 2019). The cross-sectional study revealed that social support has a lot to do with the increase in depression among patients of cancer of the breast in Africa. Another study in Ethiopia by Ayalew et al. (2022) further revealed how cancer has been on the rise in Africa. The research was carried out with a large population of those who have different types of cancer. The outcome of the study revealed that depressive symptoms in cancer patients were considerably high.

Geremew et al. (2024) carried out a meta-analysis and review to determine a range of determinants and prevalence of depression and anxiety of cancer patients in Ethiopia. Relevant literatures were consulted, and the data extracted were analyzed using STATA17 statistical software. The study considered 17 studies with 5592 participants for the review. The prevalence of depression among cancer patients in Ethiopia was discovered to be 42,96%. The study also revealed that level of education was significantly associated with depression, especially in those who had primary education and above.

Still considering the prevalence of depression on the African continent among cancer patients, a study was conducted in Nigeria with a special focus on outpatients receiving treatment for cancer. The study was conducted by Aruah and Eze (2021) to determine the prevalence of major depressive disorder among outpatients suffering from cancer at the Radiology and Oncology Center located in the National Hospital, Abuja, Nigeria. Participants of the study included a total of 177 randomly selected cancer outpatients. The study revealed that the prevalence of major depressive disorder was found to be very high in the cancer patients. Another study was conducted in Nigeria on depression in cancer patients, on outpatients as well, but with special focus on those attending the general surgery outpatient clinic (Opadola et al., 2022). The research showed that, of the 70 diagnosed with breast cancer, 34.3% had major depression. This resonates with the global trend on depression in cancer patients.

A study was conducted with inpatients in a hospice in Kenya, with the aim of understanding the symptoms presented by cancer patients (Tarus et al., 2022). This qualitative study checked the basic concerns of breast cancer patients in Western Kenya. The study indicated that approximately 50% voiced worry, depression, and stress, with less than 10% voicing spiritual distress. This further validates the fact that depressive symptoms are exhibited in every aspect of cancer care as well as in all forms of cancer. It also shows that the increase in depression in cancer patients can be seen as a global, regional, as well as local concern.

1.2. Severity of Depression among Advanced Cancer Patients

A very vital aspect of cancer care which most cancer patients must go through at some point during cancer treatment is chemotherapy. Studies have shown that chemotherapy has the capacity to dictate the severity of depression in cancer patients. This was validated in a study conducted to check factors that influence depression in patients of cervical cancer in Indonesia (Shinta et al., 2019). The analysis revealed that 200 cervical cancer patients were recruited using simple random sampling. Depression

got measured by the Inventory-11 (BDI-) of Beck questionnaire. The outcome of the study showed that severe depressive symptoms in cervical cancer patients were found to be directly related to chemotherapy. This study is indicative of the fact that chemotherapy is a very strong factor in determining the depressive state of cancer patients. This can be worse for the population with advanced cancer. This is because the pain and discomfort they go through is much severe. It also shows that the care for cancer patients should consider the depressive state of patients with advanced cancer when considering those going through chemotherapy.

A cross-sectional research was carried out to assess the severity of depression in cancer patients in Iraq with 100 cancer patients comprising of both gender in Nanakaly Hospital, Erbil city (Kareem et al., 2017). The outcome of this study revealed that the average age of the patients was 49.54 years, with both male and female representing 50% of the population each. The data showed that 75% of the participants were married, 40% with comfortable income, and 84% were from rural areas. Furthermore, 79% of the sample had moderate depression, while 21% presented with severe depression. The study in general indicated that majority of the cancer patients presented with depressive symptoms.

Subsequently, in a cross sectional study to detect the level of severity of depression found in cancer patients in a tertiary care hospital in Pakistan, a survey was conducted in a period of 6 months, on 179 patients (Kumar et al., 2021). Patients who fulfilled the inclusion criteria were checked for depression as well as the severity. From the 179 participants, 95 (53.1%) were male, and 84 (46.9%) were female. Those who presented with depressive symptoms were 86 (48%). From this figure, 3.2% had mild depression, 54.85% had moderate depression, 19.4% had moderately severe depression, and 22.6% had severe depression. This gives a clear picture of the various levels of severity of depression in the depressed participants.

Sadaqa et al. (2022) conducted a cross-sectional research to assess the severity of depressive symptoms in females with breast cancer diagnosis in various hospitals in Palestine. The research was carried out with a questionnaire that was previously developed, which also included patient health questionnaire-9 (PHQ-9). The investigation revealed that out of the 223 participants, 79 (35.4%) presented with moderate to severe depression. From the result of the study, it was observed that the chances of presenting with moderate to severe depression was higher with females who suffered from side-effects that are related to the treatment of breast cancer.

The intervening effect of gender on the severity of depression in cancer patients remains a significant factor. This was made evident in a research carried out in Turkey by Eren et al. (2019) to check the severity of depression as well as factors that have the capacity to lead to depression in cancer patients who are going through chemotherapy. The study recruited patients who were receiving chemotherapy in Diskapi Training and Research hospital. Beck Depression Inventory was used, which included socio-demographic data form. The outcome of the study revealed that female patients had higher scores of depression. Additionally, patients at the metastatic stage were among those with high depression scores.

The severity of cancer as well as the psychological distress that comes with it, such as depression, has been found to dispose cancer patients to high chances of disabilities and psychological distress. This was established in a cross-sectional study which looked into the psychological wellbeing and the social functioning of patients who have various stages of cancer (Ndetei et al., 2018). The result indicated that as much as the severity of cancer increases in patients, they tend to be exposed to increased chances of disabilities and psychological distress. Also, the severity was higher among older respondents. These researchers further indicated that this may be attributed to their immune system being weakened and other factors as a result of their age. The study also revealed the fact that depression was associated with increase in stages of cancer.

Many factors can be considered as being responsible for the severity of cancer as well as the depression that comes with it, globally, regionally, as well as locally. In the African setting, especially in Kenya, these factors can be peculiar to the culture and the worldview of the people. To explore this, a study was conducted in Kenya to check for the lay perceptions around the symptoms of breast cancer, as well as the causes and severity (Naanyu, 2015). The study was conducted with men as well

as women (18 years and older), while the study sites were health facilities and households. The survey included socio-demographics, opinions concerning causes, symptoms, severity, as well as treatment of breast cancer. From the respondents' view of the causes of breast cancer, 12.3% held on to genetic factors, 11.9% identified type of food consumed as being responsible, 6.9% blamed it on witchcraft, 3.6% held on to family planning methods, while 2.9% claimed alcohol and tobacco are responsible. Furthermore, when participants were asked what their opinions were about the severity of breast cancer, the response that was most common was "it is a killer disease", a deadly condition which has little or no solution. The lay perception of depression of these participants can also be inferred from their perception of cancer.

2. METHODOLOGY

This study was guided by the positivist epistemology philosophical underpinning. This is a philosophical approach used in discovering knowledge through an objective means, which further adopts the quantitative approach in research (Handema et al., 2023). The philosophical underpinning of a research determines whether the research is quantitative or qualitative (Creswell, 2014). According to Scotland (2012), the positivist are of the opinion that the researcher and the researched are independent realities, where the truth resides in the researched, and it is the duty of the researcher to go out there and discover this truth with an unbiased mindset.

The study employed quantitative research design where it used the quasi-experimental research design. A quasi-experimental study is a quantitative research design in which participants are assigned into a treatment group for the purpose of testing the effectiveness of an intervention (Maciejewski, 2020). Quasi-experimental design mimics experimental situations where some participants are given treatment and others do not go through the treatment (Gopalan et al., 2020). The quasi-experimental research aims to establish causal relationship between variables. Therefore, the quasi-experiment in the present study aimed at evaluating the effectiveness of ACT intervention on depression among patients with advanced cancer.

The type of quasi-experimental design used in the present study was the combination design which combines the elements of both nonequivalent design and pre-test post-test design (Price et al., 2015). According to these authors, the combination design involves having an experimental group and a control group. Both groups receive a pretest and a posttest. However, the experimental group receives the intervention, while the control group does not receive the intervention. The nonequivalent group has an experimental group and treatment group that may not be necessarily the same. In this study, the researcher aimed to create as much resemblance with the true experimental design as possible by randomizing participants into experimental and control groups which in turn made the groups equivalent. This was done to ensure that the internal threats to the validity of the research which are inherent in a non-equivalent group are accounted for in this study. The pretest posttest design tested the dependent variable (depression score) of the experimental group and control group before and after the intervention was given. The aim of conducting a pretest was to determine a base that could be used as a point of comparison. The combination design was used to help the study to determine the extent of the improvement in depression scores between the experimental and control groups. Similarly, in addition to the combination design, a series of measurements were conducted at given intervals after the intervention was given. This was done to allow the study to observe the consistency of the results. In addition, it allows the study to verify whether the ACT intervention has been truly effective as reflected by the changes in the measurements made on the depression scores.

At the baseline, the participants were assessed for severity of depression. Due to the singular fact that this group is known for high attrition rate and for the vulnerable nature of the study population, the experimental group was administered the ACT intervention for 5 weeks. This was done for 45 minutes for each participant. The control group only received their routine cancer management. A midline assessment was done after the 5 weeks intervention. This was repeated at the endline, which was 3 weeks after the completion of the treatment. The experimental group was also assessed for psychological flexibility at baseline, midline and at endline.

The sample size for the present study was derived from the average number of patients with advanced cancer in NH. The number of advanced cancer patients seen in the year 2023 are shown in Table 1

Table1. Number of Advanced Cancer Patients at Nairobi Hospice from January to April 2023

Month	January	February	March	April	Total	Average
Number of patients	72	58	73	65	268	67

Table 1 shows that the average number of patients seen at NH from January to April 2023 was 67. To arrive at the sample size for the present study, Yamane sample size determination formula with the confidence level at 95%, and the margin of error at 5% was adopted from a study by Nyamai (2021). A study was conducted in Pakistan, by Mushtaq et al. (2017), to determine the frequency of depression among cancer patients and its relationship with duration and stage of cancer. The result of the study revealed that the frequency of depression was significantly high in stage III (80%) as compared to stage I and II (31% and 56%). This was an indication that depression was common among patients in advanced stages of cancer. From this study, incidence rate of depression among patients with advanced cancer was 80%. With a target population of 67 patients with advanced cancer in NH, the population of those with depression is estimated at 80% of 67, which gives 53.6. Thus, the target population (N) of those with depression at NH is approximated at 54. A sample size of 48 was derived from this target population (54), using the Yamane sample size determination formula.

Attrition of 25%, which is 12, was added to the sample size, which brought the total sample size to 60. The attrition rate ensures that the sample size is not compromised, because there could be a probability of some of the participants dropping out of the study along the way. This percentage of attrition was derived from a randomized control trial in Canada to check the effectiveness of managing cancer and living meaningfully in patients with advanced cancer, where the attrition rate was 25% (Lo et al., 2019). With a sample size of 48, and attrition rate estimation of 25% which results in 12, the sample size then became $48 + 12 = 60$. From the sample size, and randomizing the participants into equal proportions, 30 participants were assigned to the experimental group and 30 were assigned to the control group. This was possible because as at the time of the study, there were enough patients with advanced cancer who met the inclusion criteria for the study to recruit 60 for the study.

3. RESULTS

Distribution of Participants at Baseline, Midline, and Endline

Table2. Response Rate

	Experimental	Control	Total
Baseline	30 (100%)	30 (100.00%)	60 (100.00%)
Midline	26 (86.67%)	28 (93.33%)	54 (90.00%)
Endline	24 (80.00%)	25 (83.33%)	49 (81.67%)

From the sample size, the participants for the study were assigned into experimental and control groups, with each group having a total of 30 participants each at baseline as seen in Table 2. At midline, 26 (86.67%) participants completed the study in the experimental group with an attrition of 4 (13.33%) participants, while 28 (93.33%) completed the study in the control group with an attrition of 2 (6.67%) participants, which means that a total of 54 (90.00%) from both the experimental and the control group completed the study at midline with a total attrition of 6 (10.00%) participants. At endline, 24 (80.00%) participants completed the study in the experimental group with an attrition of 6 (20.00%) participants, while 25 (83.33%) completed the study in the control group with an attrition of 5 (16.67%) participants, which means that a total of 49 (81.67%) from both the experimental and the control group completed the study at endline with a total attrition of 11 (18.33%) participants. The study encountered 16 types of cancer cases at base line. From the 60 participants, the distribution revealed that the highest recorded types of cancer were breast (21) and cervical (15), while the others ranged between 1 and 3.

Trend of Depression among Patients with advanced cancer in Nairobi Hospice, Kenya

Table3. *Trend of Depression*

	Experimental			Control		
	%	95% CI	N	%	95% CI	N
Baseline	100	-	30	100	-	30
Midline	19	.066 - .039	26	86	.673 - .960	28
Endline	17	.050 - .388	23	88	.688 - .975	25

The BDI-II scores were used to classify the levels of depression where the cutoffs were defined as follows: those with a BDI-II score of less or equal to 13 was categorized as minimal depression; a score of 14-19 was mild depression; a score of 20-28 was moderate depression; and a score of 29 and above was severe depression. In the eligibility criteria of this study, participants had to have a positive level of depression. This implies that participants who enrolled for the study had a score of 14 and above. The study further define depression as participants who have a score of 14 and above while a score of 13 and below implies no depression. Therefore, the prevalence of depression was defined as the proportion of individuals with a BDI-II score of 14 and above. As shown in Table 3, at baseline, the prevalence of depression for both groups was 100%. At midline, the prevalence of depression for the experimental group was 19% (CI: .066 - .039) while that of the control group was 86% (CI: .673 - .960). In addition, at endline, depression prevalence for the experimental group had decreased to 17% (CI: .050 - .388) while that of the control group had increased to 88% (CI: .688 - .975). Overall, the results show that over time, the prevalence of depression decreased in the experimental group while that in the control group increased.

Table4. *Trend of Depression by Socio-demographic Characteristics*

Variable	Experimental		Control	
	Depression	CI (95%)	Depression	CI (95%)
BDI-II score	≥14		≥14	
Age group (years)				
25-34	0		100	
35-49	23.10	6.7 - 55.7	90.9	49.1 - 99
50-64	16.7	3.5 - 52.4	85.7	53.5 - 96.9
65 and above	-			
Sex				
Male	-		66,7	1 - 99,7
Female	21.7	8.9 - 44.2	88	67.3 - 96.3
Education level				
None			100	
Primary	40	5 - 89,4	75	30,3 - 95,4
Secondary	15	4,5 - 39,6	94,4	66 - 99,3
Tertiary	0		0	
Type of cancer				
Breast	10	1 - 54,7	90,9	49,1 - 99
Cervical	20	1,1 - 84,8	100	
Other	27,3	62,9 - 92,3	70	32,9 - 91,7
Time since first diagnosis				
>1 month &<6 months	-		100	
>6 months &<1year	20	1,1 - 84,8	80	15,2 - 98,9
> 1year	19	6,9 - 42,9	86,4	36,5 - 95,8
Marital status				
Single	30	8,3 - 67,1	85,7	29,9 - 98,8
Married	18,2	3,7 - 55,9	72,7	37,1 - 92,3
Separated	-		100	
Widow	-		100	

Religion				
Catholic	25	4.6 - 69.7	100	
Protestant	15.4	3.3 - 49.3	78.9	53.5 – 92.4
Muslim	-		100	
SDA	50	0 - 100	0	
Other	-		100	
Source of Income				
Full -time employment	0		100	
Part -time employment	0		66.7	1 – 99.7
Self-employment	18.2	3.7 -55.9	72.7	37.1 – 92.3
Remittances/gifts/ pension	25	7.1 – 59.1	100	

Note: Breast and cervical cancer constitute 60% of the sample

As noted earlier, the prevalence of depression at baseline was 100% due to the eligibility criteria. Therefore, Table 4 shows the trend of depression in the experimental and control groups by various socio-demographic characteristics at midline. The results show that the prevalence of depression in the age group 25-24 of the experimental group was zero (0) while that of the control group was 100%. Similarly, that of ages 35-49 was 23.1% (CI 6.7 -55.7) in the experimental group and 90.9% (CI 49.1 – 99) in the control group. For the ages 50 -64, the prevalence of depression in the experimental group was 16.7% (CI 3.5 – 52.4) while for the control group was 85.7% (CI 49.1 – 99). These results show that the prevalence of depression was highest among the age group 35-49 for both groups. Prevalence of depression amongst the types of cancer was highest in participants with other types of cancer (27.3% (CI 62.9 – 92.3)) while in the control group, prevalence was highest amongst those with cervical cancer (100%).

In terms of marital status, those that were single in the experimental group had a higher prevalence of depression (30% (CI 8.3 – 67.1)) compared to those that were married (18.2% (3.7 – 55.9) in the same group. Similarly for the control group, those that were single had a higher prevalence of depression (85.7% (CI 29.9 – 98.8)) compared to those that were married (72.7 (CI 37.1 – 92.3)). In terms of prevalence of depression by education level, we see that those who had no education and were in the control group had 100% prevalence of depression, while those who had tertiary education in both the experimental and control group had no depression. Additionally, those in the experimental group and had primary level of education had a depression prevalence of 40% (CI 5 -89.4) while those in the control group had 75% (CI 30.3 -95.4) prevalence. For those who had some level of secondary education, those in the experimental group had 15% (CI 4.5 – 39.6) depression prevalence and those in the control group had 94.4% (CI 66 – 99.3). Looking at the marital status of participants, those in the experimental group and were single had a prevalence of 30% (CI 8,3 – 67.1) while that of those in the control group was 85.7% (CI 29.9 -98.8). Similarly, those who were married and were in the experimental group had a lower prevalence 18.2% (CI 3,7 - 55,9) than those in the control group 72.7% (CI 37,1 - 92,3). Those who were either separated or divorced and were in the control group had 100% prevalence in depression while those in the experimental group had zero.

In terms of those who had been diagnosed with cancer in less than 6 months, those in the control group had 100% depression prevalence while those in the experimental group had zero. For those who had been diagnosed after 6 months and less than 1 year, and they were in the experimental group, their prevalence rate was 20% (CI 1.1 – 84.8) while that of those in the control group was 80% (CI 15.2 – 98.9). The prevalence of those in the experimental group and had received their cancer diagnosis more than a year, their prevalence of depression was 19% (CI 6.9 – 42.9) while for those in the control group the prevalence was (CI 36.5 – 95.8). In terms of religion, those who were Catholics and were in the experimental group had a prevalence of 25% (CI 4.6 - 69.7) while those in the control

had 100% prevalence. Those who were Protestants and were in the experimental group had 15.4% (CI 3.3 - 49.3) prevalence and those in the control had 78.9% (CI 53.5 – 92.4) prevalence. Muslims and other religions who were in the control group had 100% prevalence whereas SDAs in the experimental group had 50% (CI 0-100) depression prevalence. Those who had full-time employment and were in the control group had 100% prevalence of depression while those in part-time employment had 67.6% (CI 1 – 99.7) prevalence. Those who reported to be self-employed and were in the experimental group had a prevalence of 18.2% (CI 3.7 -55.9) while those in the control had a prevalence of 72.7% (CI 37.1 – 92.3). Finally, those who relied on remittances, gifts, or pension as their main source of income and were in the experimental group had a prevalence rate of 25% (CI 7.1 – 59.1), while those in the control had a 100% prevalence rate. Severity of Depression among Patients with advanced cancer in Nairobi Hospice, Kenya

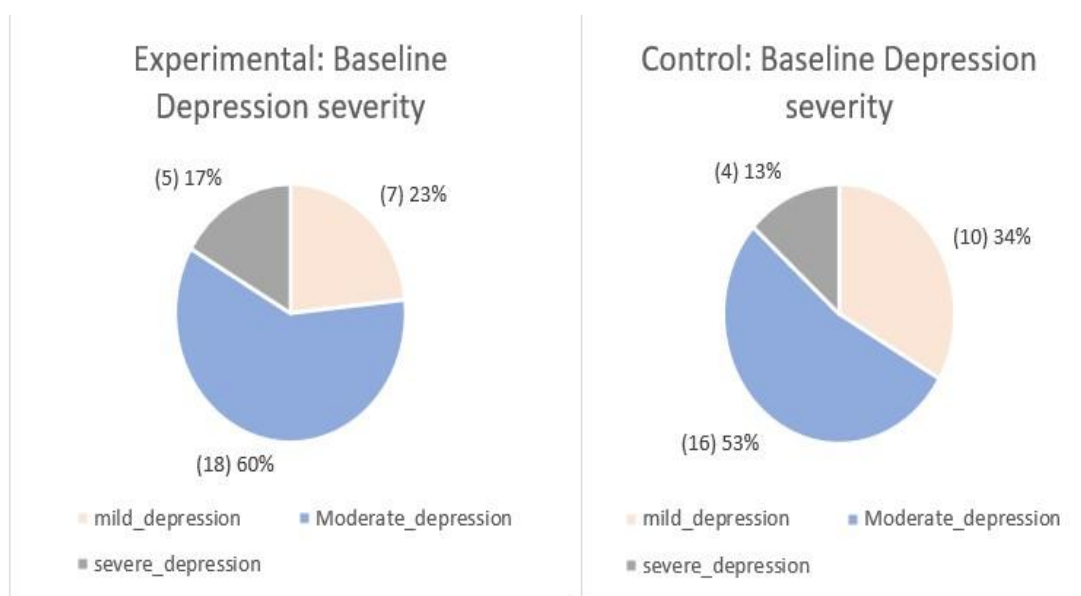


Figure1. Severity of Depression for Experimental and Control Groups at Baseline

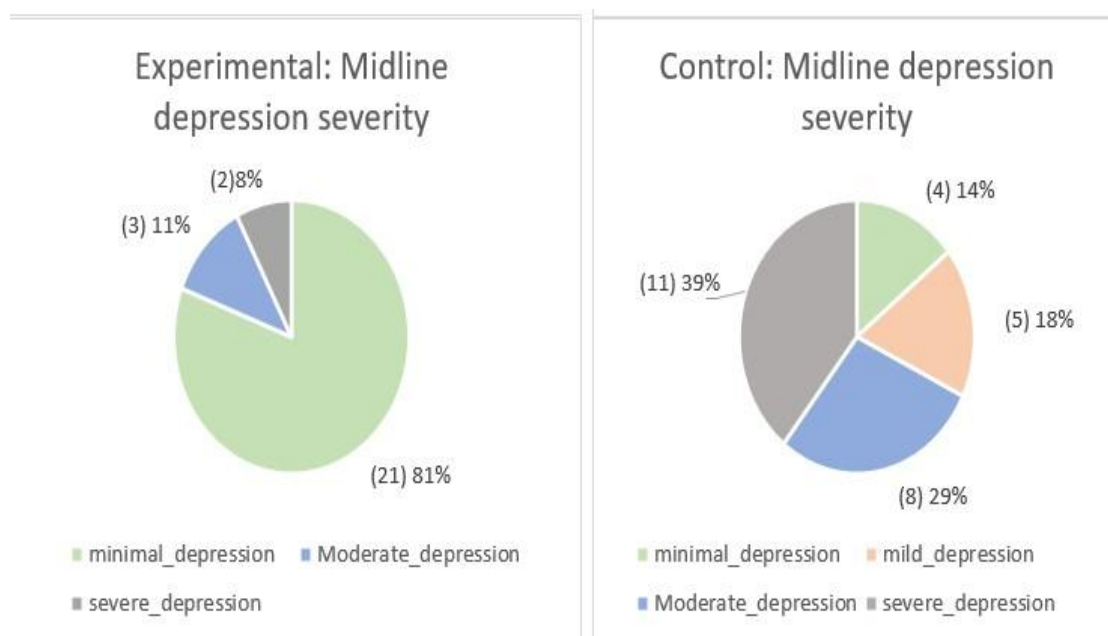


Figure2. Severity of Depression for Experimental and Control Groups at Midline

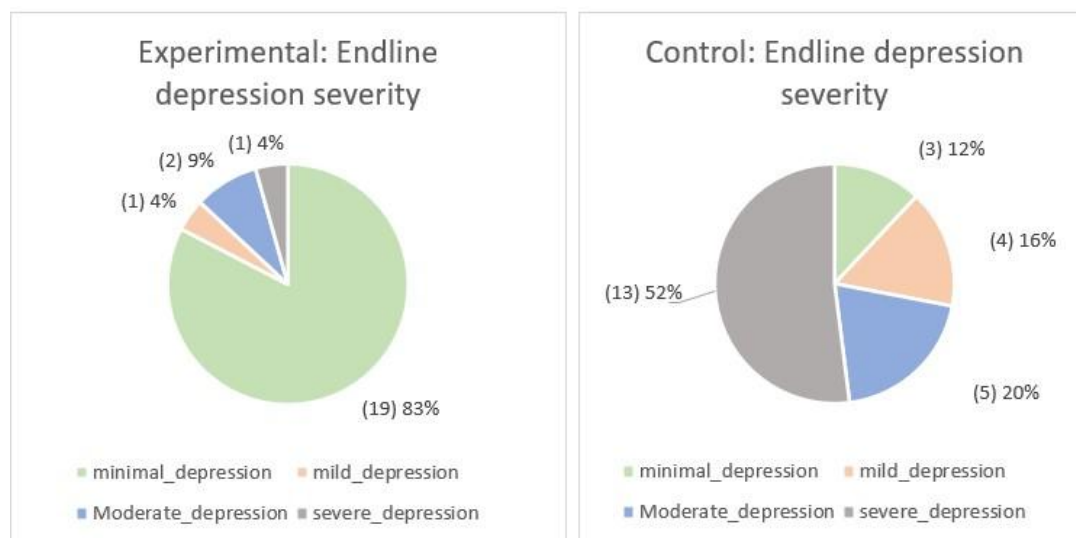


Figure3. Severity of Depression for Experimental and Control Groups at Endline

In measuring the severity of depression, the study used the BDI-II score with four cutoffs which are, less or equal to 13 was categorized as minimal depression; a score of 14-19 was mild depression; a score of 20-28 was Moderate depression; and a score of 29 and above was severe depression. Figures 1,2 and 3 show how the severity of depression changed as we move from the baseline to midline and endline. Figure 1 shows that at baseline, the participants in the experimental group had 23% mild depression, 60% moderate depression and 17% severe depression.

On the other hand, at baseline, the control group had depression levels of 34% for mild depression, 53% for moderate depressions, and 13% for severe depression. At midline, figure 2 shows the severity of depression among participants in the experimental group was 81% had minimal depression, 11% moderate depression, and 8% severe depression while participants in the control group had 14% minimal depression, 18% mild depression, 29% moderate depression, and 14% severe depression. At endline, figure 3 shows that the participants in the experimental group had 83% minimal depression, 4% mild depression, 9% moderate depressions, and 4% severe depression. In the control group, participants had 12% minimal depression, 16% mild depression, 20% moderate depression, and 52% severe depression. The results in figures 1, 2, and 3 show that the severity of depression in the experimental group decreased as we moved from baseline to endline. However, that of the control group increased during the same period.

4. DISCUSSIONS

4.1. Trend of Depression among Patients with Advanced Cancer

This study reinforces the notion that depression can affect both inpatients and outpatients with cancer. All participants in this study met the criteria for depression at baseline. This finding aligns with research by Khalil et al. (2016) in Pakistan, who conducted a cross-sectional study to assess depression prevalence among hospitalized cancer patients (n=300). Their findings revealed that depression was present in both inpatients and outpatients, highlighting that treatment location does not necessarily influence depression risk.

This study recruited outpatients with advanced cancer, and all participants in both the experimental and control groups initially met depression criteria. This finding suggests that depression is prevalent among outpatients with advanced cancer, potentially extending beyond geographical limitations. Similar results were reported by Aruah and Eze (2021) in Nigeria, where they investigated the prevalence of major depressive disorder among outpatients receiving cancer treatment (n=177) from

the Radiology and Oncology Center located in the National Hospital, Abuja, Nigeria. They found a very high prevalence of depression in this outpatient population, supporting the concept that depression is a concern for outpatients with advanced cancer.

The results of the present study show that the prevalence of depression in the age group 25-24 of the experimental group was zero (0) while that of the control group was 100%. Although, that of ages 35-49 was 23.1% (CI 6.7 -55.7) in the experimental group and 90.9% (CI 49.1 – 99) in the control group. For the ages 50 -64, the prevalence of depression in the experimental group was 16.7% (CI 3.5 – 52.4) while for the control group was 85.7% (CI 49.1 – 99). These results show that the prevalence of depression was highest among the age group 35-49 for both groups. It is important to note that these findings may not be generalizable to all populations. For instance, a study by Calderon et al. (2024) in Spain investigated fear of recurrence in patients with advanced cancer (n=1195). Their participants had a mean age of 66, with a higher prevalence of depression among younger patients and females. This variation in depression prevalence by age may be due to differences in sample demographics and cultural factors

This study explored the association between depression and education level. In the experimental group, participants with primary education or higher showed a depression prevalence of 40% (CI 5-89.4), compared to 75% (CI 30.3-95.4) in the control group. Similarly, for those with some secondary education, the prevalence was 15% (CI 4.5-39.6) in the experimental group and 94.4% (CI 66-99.3) in the control group. These findings suggest that education level may be a factor influencing depression risk. This aligns with a recent meta-analysis by Geremew et al. (2024) examining depression and anxiety in Ethiopian cancer patients (n=5592). They found an overall depression prevalence of 42.96% and identified a significant association between depression and higher education levels (primary and above).

The present study investigated the relationship between marital status and depression. While no significant association was found, the prevalence of depression did vary across marital groups. In the experimental group, single participants showed a 30% depression prevalence (CI 8.3-67.1) compared to 85.7% (CI 29.9-98.8) in the control group. Similarly, married participants in the experimental group had a lower prevalence (18.2%, CI 3.7-55.9) compared to controls (72.7%, CI 37.1-92.3). Interestingly, all separated/divorced participants in the control group had 100% prevalence in depression, while none in the experimental group did. These findings differ from those of Ghowinam et al. (2024) in Saudi Arabia, who using a convenience sampling method in a cross-sectional study, identified a significant association between depression and marital status in a sample of 92 cancer patients. Further research is needed to explore these potential cultural or methodological variations.

In terms of those who had been diagnosed with cancer in less than 6 months, those in the control group had 100% depression prevalence while those in the experimental group had zero. For those who had been diagnosed after 6 months and less than 1 year, and they were in the experimental group, their prevalence rate was 20% (CI 1.1 – 84.8) while that of those in the control group was 80% (CI 15.2 – 98.9). The prevalence of those in the experimental group and had received their cancer diagnosis more than a year, their prevalence of depression was 19% (CI 6.9 – 42.9) while for those in the control group the prevalence was 86.4% (CI 36.5 – 95.8). At the end of the day the result of the study showed that the length of time since the first cancer diagnosis did not show any statistical significance with depression. This means that, for this population of patients with advanced cancer, the prevalence of depression was independent of the length of time they must have suffered from cancer.

The result of this study revealed that at baseline, the prevalence of depression for both groups, experimental and control, was 100%. The study finds a 100% depression prevalence in both the experimental and control groups at baseline, supporting the notion that advanced cancer can significantly impact mental health. This collaborates with research by Mushtaq et al. (2017) in

Pakistani, who investigate the frequency of depression in patients of cancer as well as the relationship it has with duration and cancer stages. The result of the research indicated that symptoms of depression were significantly high in those of stage III (80%) as compared to stage I and II (31% and 56%). These findings suggest a link between advanced cancer stages and depression.

The results of this study find a very high prevalence of depression at baseline in both groups, highlighting the significant mental health burden faced by patients with advanced cancer. This finding aligns with research on depression in cancer populations across the globe, suggesting that depression is a common concern for patients with advanced cancer regardless of geographic location. For example, a study by Paul et al. (2016) in Zambia investigated depression in cervical cancer patients and found that 80% of the participants reported depressive symptoms. This finding emphasizes the need for comprehensive mental health care for cancer patients worldwide.

The high prevalence of depression in the present study at baseline for both the experimental group and control group also supports the claim that cancer is projected to attain a 47% global increase between 2020 and 2040, especially in countries characterized by low and middle income (Farrant et al., 2022). Which also presupposes a global increase of depressive symptoms in cancer patients. To justify this claim, the authors of this study conducted a survey in South Africa, in which 343 participants were recruited. In the study, 229 (66.8%) were of stage 4 cancer. The result showed that $N = 66$ (19.3%) were at risk of mild depression and $n = 27$ (7.9%) for major depression. From this study a prediction of the severity of cancer was made into the year 2040. This also implies a prediction of the prevalence of depression.

One of the issues responsible for the increase in depression among cancer cases in Africa has been identified as social support. This can be seen in the result of the present study where in terms of marital status, those that were single in the experimental group, who may not have as much social support as those of the married category in general, had a higher prevalence of depression (30% (CI 8.3 – 67.1)) compared to those that were married (18.2% (3.7 – 55.9) in the same group. Similarly for the control group, those that were single had a higher prevalence of depression (85.7% (CI 29.9 – 98.8)) compared to those that were married (72.7 (CI 37.1 – 92.3)). This agrees with a cross-sectional study conducted to find out the level of depressive symptoms as well as how it relates with social support in patients going through cancer of the breast in Addis Ababa, in Ethiopia (Wondimagegnehu et al., 2019). The study revealed that social support has a lot to do with the increase in depression among patients of breast cancer in Africa. Another study in Ethiopia conducted by Ayalew et al. (2022), further revealed how cancer has been on the rise in Africa. The research was carried out with a large population of patients with different types of cancer. The outcome of the study revealed that depressive symptoms among patients with cancer were considerably high.

From the records of the WHO, lung cancer is considered as the highest globally occurring cancer, followed by breast cancer (World Health Organization, 2024). Furthermore lung cancer has been discovered to be the leading cause of cancer deaths, and smoking has been identified as 85 to 90% of cancer cases (Alduais et al., 2023). In Africa, in both men and women, breast cancer is seen to be the highest occurring cancer, followed by cancer of the cervix, while the leading cancer in men has been observed to be prostate cancer (Bray et al., 2022). In Kenya, from 2012 to 2018, the annual occurrence of cancer increased from 37,000 to 47,887, and the number of fresh cancer cases is expected to rise by more than 120% in the next 2 decades (Jani et al., 2024). This report also revealed that the five most common cancer found in Kenya are breast, followed by cervical, prostate, esophageal, and colorectal. This report of breast cancer topping the five leading cancer cases in Kenya is supported by the Ministry of Health, with an emphasis on the fact that the probability of developing cancer before the age of 75 in Kenya among women is 18% and 14.3% among men (Kenya Ministry of Health, 2023). The result of the present study also resonates with the African and Kenyan report that breast cancer ranks as highest in occurrence among all cancers, and that the chances of increased depression was highest among those of cervical cancer.

The present study which looked at depression among patients with advanced cancer revealed that majority of the participant were women. This is supported by the report of the World health organization, that 3.8% suffer depression globally, and it is 50% more common in women than in men (World Health Organization, 2023). According to World Health Organization, the African continent records 5.4% in the global prevalence of depression (Gbadamosi et al., 2022). Additionally a systematic review with meta-analysis revealed that the prevalence of depression among cancer patients under palliative care revealed that the African continent recorded the highest (36%), with Europe having the lowest (25%) (Garcia et al., 2023). In Zimbabwe, studies show that women are more prone to depression (Machisa & Shamu, 2022). In a study conducted to check the adherence of cancer patients to chemotherapy in Kenyan cancer facilities, the result of the study showed that women were in the majority among the participants (Kiguhe et al., 2024).

4.2. Severity of Depression among Patients with Advanced Cancer

This study found varying levels of depression severity at baseline, with 23% of participants in the experimental group experiencing mild depression, 60% moderate depression, and 17% severe depression. The control group showed a similar distribution, with 34% mild depression, 53% moderate depression, and 13% severe depression. These findings differ from those of Kareem et al. (2017) in Iraq, who reported a higher prevalence of moderate to severe depression (79% moderate, 21% severe) in a sample of 100 cancer patients. Possible explanations for this discrepancy could be several. One factor might be sample composition. The present study may have included a younger patient population or one with different demographic characteristics compared to the Iraqi study. Additionally, methodological differences in depression assessment tools or study designs could also contribute to the observed variations.

Subsequently, in a study to detect the level of severity of depression found in cancer patients in a tertiary care hospital of Karachi, in Pakistan, a cross sectional research was conducted in a period of 6 months, on 179 patients (Kumar et al., 2021). Patients who fulfilled the inclusion criteria were checked for depression as well as the severity. The outcome of the study showed that from the 179 participants, 95 (53.1%) of them were male and the female participants were 84 (46.9%). Those who presented with depressive symptoms were 86 (48%). From this number, 3.2% had mild depression, 54.85% had moderate depression, 19.4% had moderately severe depression, and 22.6% had severe depression. This study supports the baseline result of the control group of the present study, where 53% had moderate depressions.

Furthermore, the severity findings from this study differ somewhat from those of Sadaqa et al. (2022) who investigated depression severity in women with breast cancer in Palestine. Their study, which included 223 participants and used the PHQ-9 assessment tool, found a combined prevalence of moderate to severe depression of 35.4%. It's important to note that Sadaqa et al. (2022) focused specifically on female breast cancer patients, whereas the present study included a broader cancer population. Additionally, their study explored the link between depression and breast cancer treatment side effects, which is a specific factor not examined in our research. These differences in sample characteristics and research focus may contribute to the observed variations in depression prevalence.

The intervening effect of gender on the severity of depression in cancer patients remains a significant factor. This was made evident in a research carried out in Turkey by Eren et al. (2019), to check the severity of depression as well as factors that have the capacity to lead to depression among cancer patients who are receiving chemotherapy. The study recruited patients who were receiving chemotherapy in Diskapi Training and Research hospital. Beck Depression Inventory was used, which included socio-demographic data form. The outcome of the study revealed that female patients presented more with depression. Additionally, patients at metastatic stage were among those with high depression scores. This assertion that patients with metastatic stage were among those with high depression agrees with the present study because at baseline, the participants in the experimental group had 17% severe depression, while the control group had 13% participants with severe

depression. However, at endline, the experimental group had 4% participants with severe depression, because they received treatment, but the control group had 52% participants with severe depression, because they did not receive any treatment.

The idea that the severity of depression in advanced cancer increases as patients advance in age, as shown in the present study is also supported by a cross-sectional study which looked into the psychological wellbeing and the social functioning of patients who have series of stages of cancer, in an adult dominated population (Ndetei et al., 2018). The result indicated that as much as severity in a cancer patient increases, they tend to be exposed to very increased chances of disabilities and psychological issues. Also, the severity was higher among older respondents. These researchers further indicated that this may be due to the weakened immune systems as a result of age, and it was found that as the stage of cancer increased, the severity of depression symptoms also increased.

5. CONCLUSION

From the sample size, the participants of this study were assigned into experimental and control groups, with each group having a total of 30 participants each at baseline. The study encountered 16 types of cancer cases at base line. From the 60 participants, the highest recorded type of cancer was breast cancer. In the total sample, the mean age was 49.65 years with the mean age of 48 (SD 7.53) in the experimental group and 51 (SD 9.77) in the control group. In addition, 90% of the sample were below the age of 60. Also, 90% were female in both the experimental and control group, with the mean years schooling being 10 years in the experimental group and 11 years in the control group. Overall, the results show that over time, the trend of depression decreased in the experimental group while that in the control group increased. Furthermore, the severity of depression in the experimental group decreased as we moved from baseline to endline, and that of the control group increased during the same period.

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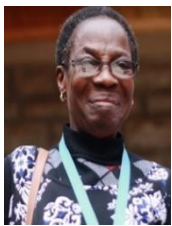
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