ADDIS ABABA UNIVERSITY

COLLEGE OF EDUCATION AND LANGUAGE STUDIES

SCHOOL OF PSYCHOLOGY

THE EFFECTIVENESS OF COGNITIVE BEHAVIORAL THERAPY ON ANXIETY AND DEPRESSION SYMPTOMS IN BREAST CANCER PATIENTS AT SAINT PAUL'S HOSPITAL MILLENNIUM MEDICAL COLLEGE

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Acronyms and Abbreviations

AAU……..……Addis Ababa University

BPS……Biopsychosocial Perspective

CBT…….……Cognitive Behavioral Therapy

CI……Confidence Interval

FCR…….Fear of Cancer Recurrence

HADS ……Hospital Anxiety and Depression Scale

LMICs ……Low and Medium Income Countries

QoL…….…… ……. Quality Of Life

RCT…….……Randomized Controlled Trial

SPHMMC……. Saint Paul Hospital Millennium Medical College

SPSS ……. Statistical Package for the Social Sciences

WHO …….……World Health Organization

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Abstract

Breast cancer remains a major public health challenge in Ethiopia, with women often experiencing significant levels of anxiety and depression that adversely affect their quality of life and treatment outcomes. Cognitive-behavioral therapy (CBT) has been recognized as a promising approach to address these psychological burdens. This study explored the effectiveness of CBT in reducing anxiety and depression among women with breast cancer at St. Paul's Hospital Millennium Medical College in Addis Ababa. A randomized controlled trial design was employed, comparing an intervention group that received CBT with a control group that received standard care. Baseline measures of anxiety and depression were collected, and post-intervention outcomes were analyzed using standardized instruments. The findings revealed that CBT led to a significant reduction in both anxiety and depression symptoms compared to standard care. Women in the intervention group showed greater improvement, with a mean reduction of -6.8 in depression scores versus -3.9 in the control group, and a decrease in anxiety scores of -4.3 compared to -2.8. The odds of high post-intervention anxiety were reduced by 52%, and depression was lowered by 8% in the intervention group, underscoring the cross-cultural applicability and effectiveness of CBT. These results highlight the feasibility and acceptability of integrating structured, culturally adapted CBT into oncology care in Ethiopia. The study recommends the inclusion of CBT as part of routine cancer treatment, supported by capacity building, policy integration, and further research to evaluate long-term outcomes and scalability in low-resource settings. ***Keywords:*** *Breast cancer, anxiety, depression, cognitive behavioral therapy, randomized control design, Ethiopia*

Introduction

1.1 Background

Breast cancer is the most commonly diagnosed cancer among women worldwide and a leading cause of cancer-related mortality (*World Health Organization Global Breast Cancer Initiative Implementation Framework:*, 2023). In low and middle income countries including Ethiopia, the burden of breast cancer is rising due to lifestyle changes, limited screening, and delayed diagnosis (Fentie et al., 2023). Beyond the physical suffering associated with the disease, breast cancer has profound psychological consequences (Graham, 2024). Many women diagnosed with breast cancer experience significant emotional distress, with anxiety and depression being the most prevalent mental health issues (Tao et al., 2023).

Anxiety and depression in breast cancer patients often stem from fears about death, body image changes, treatment side effects, and uncertainty about the future (Thakur et al., 2022). These psychological problems can interfere with treatment adherence, impair quality of life, and negatively influence clinical outcomes. As such, addressing the mental health needs of breast cancer patients is a vital component of comprehensive cancer care (Jeong & Kim, 2025).

From a theoretical standpoint, Beck's cognitive theory of depression and the cognitive model of anxiety explain that both conditions share elevated negative affect, while physiological hyperarousal characterizes anxiety and low positive affect characterizes depression. Within a biopsychosocial framework, breast cancer–related stressors such as diagnosis shock, treatment side effects, fear of recurrence, and changes in social and physical identity act together to increase vulnerability to psychological distress.

Empirical evidence strongly supports these theoretical perspectives. A global meta-analysis of cancer survivors found pooled prevalence rates of depression (33.2%) and anxiety (30.6%) three times higher than in the general population (BMC Psychiatry, 2025). Country

specific studies show similar patterns: 38.2% of Greek women with breast cancer experienced depression and 32.2% anxiety (Tsaras et al., 2018), while Iranian data reported 46.6% depression and 56.9% anxiety (Dadheech et al., 2023). African studies also indicate high distress levels; for example, 40–50% of women undergoing chemotherapy reported clinically significant depressive or anxiety symptoms (WAOCP Journal, 2023).

Multiple socio-demographic and clinical factors contribute to this high prevalence, including younger age, lower income and education, unemployment, advanced cancer stage, mastectomy, and inadequate social support (Hussain et al., 2023; Ren et al., 2019). Despite this evidence, psychosocial interventions remain under-integrated into oncology care in Ethiopia, and little is known about structured psychotherapies tailored to this population.

Cognitive Behavioral Therapy was selected for this study because it offers one of the most robust and consistent evidence bases among psychological interventions for anxiety and depression in cancer populations. Meta-analyses indicate that CBT produces significantly greater reductions in depressive and anxiety symptoms compared with usual care and other active therapies (Zhang et al., 2022; Cuijpers et al., 2023). Moreover, its structured, time limited, manualized format enhances feasibility in resource limited oncology settings where psychological services are under integrated. In contrast, although therapies such as mindfulness based interventions and supportive counselling have shown promise, their effect sizes are generally smaller and evidence in breast cancer contexts is less extensive (Scott et al., 2023). Psychooncology guidelines further recommend CBT as a first-line psychotherapeutic approach for distress in cancer care (Dils et al., 2024). Thus, CBT is the optimal intervention choice for reducing anxiety and depression among women with breast cancer in Ethiopia.

Cognitive Behavioral Therapy have demonstrated effectiveness in reducing anxiety and depression among cancer patients in various settings (Osborn et al., 2006). CBT helps

people find and change harmful thought patterns and behaviors, which helps them control their emotions and deal with stress better (Saccaro et al., 2024). It is appropriate for a variety of healthcare settings because it is goal-oriented, structured, and flexible enough to work in both individual and group settings (Wong et al., 2024).

Despite being widely acknowledged as a successful treatment for depression and anxiety, cognitive behavioral therapy is still not widely used in Ethiopia (Yitbarek et al., 2021). Several systemic and cultural factors hinder its adoption. First, there is a severe shortage of trained mental health professionals, including clinical psychologists skilled in delivering CBT (Hanlon et al., 2017). Second, structured psychological services are rarely integrated into routine clinical care, including oncology services (*WHO, 2020).*Third, cultural beliefs that associate mental illness with spiritual causes, combined with stigma, reduce patient demand for psychological interventions (Abbo, 2011). Lastly, limited infrastructure and funding for mental health care prevent the scale-up of CBT within the public health system (Fekadu et al., 2014; Sorsdahl et al., 2009).

Although numerous international studies have demonstrated the effectiveness of Cognitive Behavioral Therapy (CBT) in reducing anxiety and depression among cancer patients (Ren et al., 2019; Hussain et al., 2023; Osborn et al., 2006), there is a notable lack of experimental research evaluating its impact in Ethiopia. Most existing local studies on breast cancer focus primarily on medical outcomes or general psychological distress using descriptive or cross-sectional designs. Few have examined structured psychotherapeutic interventions using standardized tools or experimental methodologies such as randomized controlled trials. Consequently, there remains limited empirical evidence to guide the integration of psychological care particularly CBT into oncology services within the Ethiopian context.

Moreover, cultural differences in beliefs, coping styles, and expressions of emotional distress may influence the acceptability and effectiveness of CBT in African populations. Western based CBT models may not fully account for culturally embedded attitudes toward illness, spirituality, and social support that shape psychological adjustment among Ethiopian women. Addressing these gaps, the present study provides a rigorous, randomized controlled evaluation of CBT among women with breast cancer at St. Paul's Hospital Millennium Medical College, thereby contributing culturally relevant evidence for integrating psychological interventions into oncologic care in Ethiopia.

This study proposes the implementation of a structured, time limited CBT intervention for women with breast cancer at St. Paul's Hospital Millennium Medical College. By evaluating its effectiveness in reducing anxiety and depression, the study aims to inform future integration of mental health services into oncology care in Ethiopia.

1.2 Statement of the Problem

Breast cancer is the most frequently diagnosed cancer among women globally, accounting for approximately 2.3 million new cases and over 685,000 deaths in 2020 alone (World Health Organization, 2021). Studies reveal that anxiety and depression are the two most common psychological disorders among women diagnosed with breast cancer, affecting 30–60% of patients at various stages of the illness (Tsaras et al., 2018; Dadheech et al., 2023). This psychological burden significantly interferes with adherence to medical treatment, diminishes quality of life, and can even influence disease progression and survival rates (Hinz et al., 2019). In Sub-Saharan Africa, where breast cancer incidence and mortality rates are rising, psychological comorbidities remain largely underdiagnosed and untreated due to health system limitations and stigma surrounding mental illness (Globocan, 2020).

In Ethiopia, breast cancer is the leading type of cancer among women, accounting for over 30% of female cancer cases (Federal Ministry of Health, 2020). Many women are

diagnosed at late stages and face both physical and emotional burdens in settings where oncology and mental health care are not well integrated. Studies conducted in Ethiopia indicate high levels of anxiety and depressive symptoms among women with breast cancer (Abate et al., 2021). However, access to structured psychosocial interventions remains extremely limited, particularly within public hospitals. Consequently, women often rely solely on pharmacological or spiritual coping mechanisms rather than evidence based psychological care.

Cognitive Behavioral Therapy is one of the most rigorously studied and empirically supported psychotherapeutic interventions for depression and anxiety (Beck, 2011). It is goal-oriented, short-term, and flexible enough to fit a range of demographics, including individuals with long term conditions like cancer. Cognitive Behavioral Therapy was selected for this study because it has one of the strongest and most consistent evidence bases for reducing anxiety and depression in cancer populations. Meta-analyses of randomized controlled trials show that CBT leads to significant reductions in both depressive (standardized mean difference ≈ 0.88, 95% CI 0.46-1.29, $p < 0.001$) and anxiety symptoms among cancer survivors (Jiang et al., 2023; Zhang et al., 2022). Other systematic reviews also found that CBT improves psychological well being and quality of life in individuals with cancer (Dils et al., 2024; Lin et al., 2022). Although other psychological therapies such as mindfulness based interventions and supportive counselling show some benefit, CBT remains the most rigorously studied and empirically supported approach in psycho-oncology. Given its structured, time-limited, and skills based format, CBT is particularly suitable for implementation in resource-limited clinical settings such as Ethiopian oncology units.

Despite its established efficacy, CBT remains underutilized in many low-resource settings like Ethiopia (Burgess et al., 2025). Most cancer treatment centers, including St. Paul's Hospital Millennium Medical College, focus primarily on biomedical care, with

limited integration of psychosocial support. Consequently, many women receiving treatment for breast cancer do so without access to evidencebased psychological care(Deressa et al., 2022).

There are several reasons for this implementation gap. First, mental health practitioners with specific expertise in cognitive behavioral therapy are severely lacking (Fekadu et al., 2017). Second, mental health services are poorly integrated into routine medical treatment, especially in oncology contexts. Third, the stigma and cultural attitudes around mental illness and psychological treatment prevent many people from using services (Abbo et al., 2013). According to Sorsdahl et al. (2012), the expansion of mental health therapies is impeded by resource limitations, which include insufficient finance, infrastructure, and political prioritizing.

Many Ethiopian women who have the disease feel the mental suffering and anxiety that come with receiving a breast cancer diagnosis and treatment, which frequently go untreated. A recent cross-sectional study conducted at Tikur Anbessa Specialized Hospital reported that 60.7 % of women exhibited clinically significant anxiety and 58.6 % experienced depression, with inadequate patient–provider communication and financial hardship identified as key predictors of poor mental health outcomes (Belay et al., 2022). Similar findings from other local studies indicate that a large proportion of women struggle with persistent fear of death, treatment related side effects, and changes in body image, which together exacerbate emotional distress (Asefa et al 2021; Gebremariam et al., 2020). Healthcare professionals believe that although psychological distress is widespread, there aren't many organized interventions available in cancer treatment settings. The true issue is the dearth of easily available, scientifically supported psychological treatments like cognitive behavioral therapy (CBT) that could reduce suffering and enhance clinical results.

The scope of this problem is enormous. Many women experience longer suffering, lower treatment adherence, and worse prognoses if they do not receive timely psychological assistance. Ethiopia's current situation is indicative of a healthcare system that places more emphasis on medical care while ignoring the psychological requirements of cancer patients. A growing disparity in complete cancer care poses a hazard in the future if this issue is not investigated and handled, which could result in higher medical expenses, psychological strain on families, and unfavorable long-term results for patients.

Regarding the suitability and adaption of Western developed therapies, such as cognitive behavioral therapy, in African contexts, there is significant debate in the area. While CBT is widely endorsed in Western psycho-oncology, its universal applicability remains contested in non Western settings. Scholars argue that core assumptions of CBT such as emphasis on cognitive restructuring and individualistic problem solving may not fully resonate in collective cultures or where spiritual and social frameworks shape illness experience (Rathod, Phiri, & Naeem, 2019; Naeem, Phiri, & Ayub, 2019). Reviews exploring the implementation of CBT among ethnic minorities and in low and middle income countries suggest that although the therapy is effective, its effect sizes may be reduced and engagement lower unless culturally adapted (Huey Jr & Polo, 2023). In Africa specifically, it has been observed that indigenous healing models, communal coping mechanisms, and differing illness conceptualizations challenge the direct transfer of Western CBT protocols (Letsôalo, 2024). Thus, the question of how CBT fits within Ethiopian sociocultural realities is both theoretically and practically significant. According to some, CBT can be successfully modified by culturally specific adjustments and administered by qualified lay professionals (Patel et al., 2011). These divergent opinions emphasize the pressing need for context-specific evidence to inform mental health integration strategies in standard oncology care.

Therefore, by assessing the efficacy of cognitive behavioral therapy for treating anxiety and depression in women with breast cancer at a major Ethiopian referral hospital, this study aims to close a significant gap in the literature and in practice.

1.3 Objectives of the Study

1.3.1 General Objective

To evaluate the effectiveness of Cognitive Behavioral Therapy in reducing anxiety and depression among women with breast cancer at St. Paul's Hospital Millennium Medical College.

1.3.2 Specific Objectives

- To assess baseline levels of anxiety among women with breast cancer before the intervention.
- To assess baseline levels of depression among women with breast cancer before the intervention.
- To evaluate the effectiveness of CBT in reducing anxiety symptoms after the intervention.
- To evaluate the effectiveness of CBT in reducing depression symptoms after the intervention.
- To examine the influence of socio-demographic and clinical factors (such as age, education level, and employment) on CBT outcomes.
- To compare changes in anxiety and depression levels between the intervention and control groups.

1.4 Research Questions

1. What are the baseline levels of anxiety among women diagnosed with breast cancer before receiving CBT?
2. What are the baseline levels of depression among women diagnosed with breast cancer before receiving CBT?
3. Does Cognitive Behavioral Therapy significantly reduce anxiety symptoms among breast cancer patients compared to standard care alone?
4. Does Cognitive Behavioral Therapy significantly reduce depression symptoms among breast cancer patients compared to standard care alone?
5. How do socio-demographic and clinical characteristics influence the effectiveness of CBT on anxiety and depression?
6. Is there a significant difference in post-intervention anxiety and depression scores between the CBT intervention group and the control group?

1.5 Significance of the Study

This study holds significant importance both theoretically and practically. Theoretically, this study contributes to the understanding of psychological models that explain anxiety and depression in the context of chronic illness, particularly breast cancer. Grounded in the principles of the cognitive-behavioral model (Beck, 2011), the study provides empirical evidence on how cognitive restructuring and behavioral activation mechanisms operate among Ethiopian women with breast cancer. The findings will help determine whether the theoretical assumptions underlying Cognitive Behavioral Therapy which emphasize the link between thoughts, emotions, and behavior are applicable in the Ethiopian sociocultural setting.

Practically, the study provides evidence-based guidance for integrating structured psychological interventions into oncology care in Ethiopia. Demonstrating the effectiveness

of CBT will offer mental-health professionals, oncology teams, and policymakers a practical, low cost, and scalable intervention model to address the psychological needs of cancer patients. This may encourage the inclusion of CBT based counseling programs in hospital oncology units and national cancer management guidelines.

Additionally, the findings may empower psychologists, counselors, and nurses to deliver culturally sensitive, structured psychotherapy that improves treatment adherence and quality of life among women with breast cancer. The results also have the potential to inspire further research and training programs focused on psycho-oncology, ultimately promoting holistic and compassionate cancer care in Ethiopia

1.6 Scope of the Study

This study is focused on evaluating the effectiveness of Cognitive Behavioral Therapy in reducing anxiety and depression symptoms among women diagnosed with breast cancer and receiving treatment at St. Paul's Hospital Millennium Medical College in Addis Ababa, Ethiopia which is one of the country's leading tertiary and teaching hospitals that provides both oncological and psychological services. The research focused specifically on women diagnosed with breast cancer aged 18 and above, who are medically stable and able to participate in a 12 week structured CBT program and who are receiving follow up care in the hospital's oncology department.

The primary purpose of this study was to evaluate the effectiveness of Cognitive Behavioral Therapy (CBT) in reducing anxiety and depression among women with breast cancer. To achieve this objective, a randomized controlled trial (RCT) design was employed, involving an intervention group that received CBT and a control group that received standard medical care.

The Hospital Anxiety and Depression Scale (HADS) was used as the principal data collection instrument to assess psychological symptoms before and after the intervention. The

Amharic version of HADS, validated for Ethiopian populations (Tesfaye et al., 2010), was utilized to ensure contextual and linguistic appropriateness.

The study covered both psychological and sociodemographic variables, focusing on changes in anxiety and depression levels, as well as factors such as age, education, marital status, and employment. The findings of this research are therefore limited to women with breast cancer within the SPHMMC oncology setting and reflect short term psychological outcomes following the CBT intervention.

1.7. Limitations Of the Study

Although this study provides important evidence on the effectiveness of Cognitive Behavioral Therapy (CBT) for women with breast cancer in Ethiopia, several limitations should be acknowledged. First, the study was conducted in a single hospital setting (St. Paul's Hospital Millennium Medical College), which may not fully represent women with breast cancer in other regions or healthcare institutions. This limits the generalizability of the findings to the wider Ethiopian population. Additionally, the study excludes those with severe psychiatric conditions, cognitive impairments, or other comorbid chronic illnesses that could interfere with participation in the CBT sessions.

Second, the sample size was relatively small due to logistical and time constraints, which may have reduced the statistical power to detect smaller effects or subgroup variations. A larger sample in future studies would strengthen the validity of the conclusions.

Third, the follow up period was short, focusing on post intervention outcomes immediately after the 12 week therapy sessions. Therefore, the study did not assess the long term sustainability of CBT's effects on anxiety and depression among breast cancer patients.

Fourth, the self-report nature of the HADS instrument may have introduced response bias, as participants could have over or under reported their symptoms. Moreover, the study did not include objective clinical assessments to complement the psychological measures.

Finally, although participants were randomly assigned to the CBT and control groups, complete blinding was not feasible, as both therapists and participants were aware of the intervention being delivered, which may have introduced some expectation bias.

These limitations, however, do not undermine the value of the findings. Instead, they highlight areas for improvement and suggest that future research should employ larger, multi center samples, include long term follow up assessments, and consider mixed methods approaches to generate more comprehensive evidence.

1.8. Operational Definitions of Key Terms

Anxiety: Anxiety is defined as a psychological condition characterized by excessive fear, worry, or nervousness that can interfere with daily functioning (American Psychiatric Association, 2013). In this study, anxiety will be measured using the Hospital Anxiety and Depression Scale – Anxiety subscale (HADS-A). Scores range from 0 to 21 and will be categorized as follows:

- 0–7: Normal (no clinically significant anxiety)
- 8–10: Borderline abnormal (mild anxiety)
- 11–21: Abnormal (clinically significant anxiety) (Zigmond & Snaith, 1983).

Depression: Depression is a mood disorder marked by persistent sadness, loss of interest or pleasure, and cognitive and physical symptoms that impair functioning (American Psychiatric Association, 2013). In this study, it will be assessed using the Hospital Anxiety and Depression Scale – Depression subscale (HADS-D). Scores range from 0 to 21 and will be categorized as:

- 0–7: Normal (no clinically significant depression)
- 8–10: Borderline abnormal (mild depression)

- 11–21: Abnormal (clinically significant depression) (Zigmond & Snaith, 1983).

Cognitive Behavioral Therapy (CBT): CBT is a structured, short-term psychotherapy that focuses on identifying and modifying negative thought patterns and behaviors to improve emotional regulation and coping strategies (Beck, 2011). In this study, CBT will be delivered in twelve weekly sessions tailored to the cultural context of Ethiopian breast cancer patients.

Breast Cancer Patient: A breast cancer patient, in this study, refers to a woman aged 18 years or older who has been clinically diagnosed with breast cancer at any stage and is currently receiving treatment at St. Paul's Hospital Millennium Medical College (World Health Organization, 2023).

Effectiveness: Effectiveness refers to the degree to which the CBT intervention produces a measurable improvement in psychological outcomes, specifically a statistically significant reduction in anxiety and depression scores from pre-test to post-test in the intervention group compared to the control group (Kendall & Beidas, 2007).

Standard Oncology Care: Refers to the routine medical treatment and follow-up provided to breast cancer patients, including surgery, chemotherapy, radiotherapy, and pharmacological management, without additional structured psychological intervention (National Cancer Institute, 2023).

Intervention group: The intervention group refers to participants who will receive the CBT intervention in addition to standard oncology care. This group is designed to measure the effect of the therapeutic intervention on anxiety and depression levels (Polit & Beck, 2021).

Control group: The control group includes participants who will receive only the standard oncology care, serving as a baseline comparison to determine the impact of CBT (Sibbald & Roland, 1998).

Pre-test: The pre-test is an initial baseline assessment conducted before the CBT intervention begins. It evaluates participants' anxiety and depression levels and serves as a reference point for measuring changes post-intervention (Creswell & Creswell, 2018).

Post-test: The post-test is the assessment conducted after the completion of the 12 week CBT program to determine whether the intervention produced a significant change in participants' anxiety and depression levels (Creswell & Creswell, 2018).

2. Review Of Related Literature

2.1 Introduction

Breast cancer represents a significant global health challenge, affecting women in almost every country and standing as the most frequently diagnosed cancer in women worldwide. In 2022, an estimated 2.3 million women were newly diagnosed with breast cancer globally, with approximately 670,000 deaths attributed to the disease (World Health Organization, 2022). Although incidence rates tend to be higher in women from high development nations, mortality remains disproportionately high in low and middle income countries due to later detection and limited access to treatment (Tang et al., 2023). In Ethiopia, breast cancer has emerged as the leading type of cancer among women, with hospital based studies indicating a prevalence ranging from 15.2 % to 26 % of all cancers and from 29 % to 37 % of female cancers (Adane et al., 2024). These trends underscore the urgent need to address not only the biomedical burden of breast cancer but also its broad psychosocial consequences.

Women with breast cancer experience significantly higher levels of anxiety and depression than women without cancer, as demonstrated by large scale cohort and metaanalytic research (Martinez et al., 2022; Smith & Jones, 2021). A global meta-analysis found that among female breast cancer patients, approximately 52% experienced clinically significant psychological distress (Frontiers in Psychiatry, 2024). This indicates that mental-health issues are not incidental but central to comprehensive care for breast cancer patients.

Another evidence suggests that nearly 58.85% of breast cancer survivors experience clinically significant psychological problems, with Fear of Cancer Recurrence (FCR) being the most commonly reported concern (Danner et al., 2024). Furthermore, a considerable proportion roughly one third develop new onset mental health disorders following therapy, primarily anxiety and depression (Akkol et al,2023). Particularly at risk are

younger patients or those with a history of psychological disorders (Cotchett et al, 2023). Moreover, poor mental health is strongly associated with poorer Quality Of Life (QOL), weakened immunity, noncompliance with therapy, and decreased survival are all closely linked to mental health. Reduced quality of life has been found to be significantly predicted by depression and a reported lack of social support (Žikić et al., 2024).

Although the global burden of breast cancer and its psychological consequences are well established (World Health Organization, 2023; Kedida et al., 2024), research from African countries remains relatively limited. Most studies conducted in Ethiopia have focused on the medical and epidemiological aspects of breast cancer, rather than evaluating evidence-based psychological interventions (Belay et al., 2022; Wondimagegnehu et al., 2023). The scarcity of experimental research examining therapies such as Cognitive Behavioral Therapy in Ethiopian oncology settings highlights a significant gap in the literature. Addressing this gap is critical for developing culturally responsive, empirically supported mental-health interventions that align with local clinical realities and resource constraints.

2.2 Theoretical Framework

Beck's Cognitive Theory of Depression, The Cognitive Model of Anxiety and the Biopsychosocial Model are three interconnected frameworks that are used in this study to explain the mechanisms of anxiety and depression in women with breast cancer and support the use of Cognitive Behavioral Therapy as a treatment. Each provides a conceptual basis for understanding psychological distress in cancer and supports the rationale for Cognitive Behavioral Therapy as a structured intervention.

2.2.1 Beck's Cognitive Theory of Depression

Beck's Cognitive Theory of Depression, first introduced in 1967, provides a comprehensive explanation for how maladaptive thought processes generate emotional disturbances such as anxiety and depression. The theory proposes that individuals develop

cognitive schemas mental structures that shape how they interpret experiences. When these schemas are negative or distorted, they predispose individuals to perceive themselves, the world, and the future in pessimistic ways (Beck, 1967; Beck, 1976). These recurring patterns of negative thinking form what Beck described as the cognitive triad, consisting of negative views about the self ("I am inadequate"), the world ("Life is unfair"), and the future ("Nothing will ever get better") (Beck et al., 1979).

Beck also identified a set of cognitive distortions or "thinking errors" that sustain emotional distress, including overgeneralization, catastrophizing, and selective abstraction (Beck & Dozois, 2011). Such distortions cause individuals to interpret neutral or positive events as evidence of failure or threat, reinforcing feelings of hopelessness. Over time, this distorted information processing contributes to the onset and persistence of depression and anxiety (Clark & Beck, 2010). Implications for Breast Cancer Patients: Women diagnosed with breast cancer are highly vulnerable to developing depressive symptoms due to the physical, emotional, and social challenges associated with the illness. These may include fears of death, body image disturbances after mastectomy, role changes in family/work, and loss of control over their health. Such experiences often trigger cognitive distortions like "I am no longer whole," or "My life is over."

Implications for Breast Cancer Patients: When applied to the context of breast cancer diagnosis and treatment, Beck's theory helps explain the cognitive mechanisms underlying psychological distress. A diagnosis of cancer constitutes a major life stressor that can activate latent maladaptive schemas, leading to automatic negative thoughts and maladaptive emotional reactions. Women may develop distorted beliefs such as "I am no longer complete," "My family will not accept me," or "I will die soon." These cognitive interpretations intensify emotional suffering, producing elevated anxiety and depressive symptoms (Brandão et al., 2017; Groarke et al., 2020).

According to Beck's framework, the emotional impact of illness is therefore not solely a direct consequence of the physical disease but largely a result of how the patient cognitively appraises and interprets it (Fennell, 1989). When individuals perceive their condition as uncontrollable and catastrophic, their negative thoughts reinforce despair, avoidance, and physiological stress responses. Conversely, adaptive cognitions such as perceiving treatment as a source of hope or focusing on achievable coping goals are associated with lower distress and better adjustment (Clark & Beck, 2010). This theoretical understanding provides a sound psychological rationale for interventions that target maladaptive thinking among breast-cancer patients.

Application in Cognitive Behavioral Therapy: Cognitive Behavioral Therapy operationalizes Beck's theoretical model by translating its principles into structured, goal-oriented treatment techniques. CBT posits that modifying maladaptive cognitions leads to corresponding changes in emotional state and behavior (Beck, 2011). Through techniques such as cognitive restructuring, behavioral activation, and guided discovery, individuals learn to identify negative automatic thoughts, evaluate their validity, and replace them with balanced, evidence based alternatives (Beck & Haigh, 2014).

In psycho-oncology, CBT provides a framework for addressing the emotional challenges associated with cancer by helping patients reframe catastrophic thoughts, enhance coping skills, and increase engagement in meaningful activities. Empirical studies have consistently shown that CBT significantly reduces anxiety and depression in cancer populations, supporting its theoretical foundation (Hofmann et al., 2012; Kazantzis et al., 2018).

In the present study, Beck's cognitive theory guided both the design and interpretation of the CBT intervention. The therapy aimed to interrupt maladaptive cognitive cycles activated by breast-cancer stressors and to promote healthier, adaptive interpretations of the

illness experience. The observed reductions in anxiety and depressive symptoms among women who received CBT therefore provide empirical validation for Beck's theoretical propositions within an Ethiopian oncology context.

2.2.2 Cognitive Model of Anxiety

Beck's Cognitive Model of Anxiety extends his earlier work on depression to explain the psychological mechanisms underlying anxiety disorders. According to Beck and Clark (1997), anxiety results primarily from biased cognitive processing an individual's tendency to overestimate potential danger while underestimating their ability to cope. This bias triggers excessive fear, physiological arousal, and avoidance behaviors that perpetuate anxiety over time. The model highlights three interrelated cognitive structures: automatic thoughts, underlying beliefs (schemas), and information processing biases, all of which interact dynamically to maintain anxiety (Beck & Emery, 1985; Clark & Beck, 2010).

In Beck's formulation, the anxious individual exhibits selective attention to threat cues and distorted interpretations of ambiguous information. Neutral or benign situations are often misinterpreted as threatening a phenomenon known as catastrophic misinterpretation (Mathews & MacLeod, 2005). This pattern activates an "anxious mode," characterized by hypervigilance, exaggerated threat perception, and physiological tension (Beck & Clark, 1997). Once this mode is triggered, negative automatic thoughts such as "something terrible will happen" or "I won't be able to handle it" reinforce avoidance and safety seeking behaviors that prevent disconfirmation of feared outcomes (Beck et al., 1985).Cognitive distortions commonly observed in anxiety include fortune telling (predicting negative outcomes without evidence), mind reading (assuming others are judging or criticizing), and magnification (exaggerating the severity of potential threats). These distorted thinking patterns perpetuate maladaptive emotional and behavioral responses, making anxiety self-sustaining (Clark & Beck, 2010; Hofmann et al., 2012).

Implications for Breast Cancer Patients: In the context of breast cancer, the cognitive model of anxiety provides valuable insight into the psychological reactions that accompany diagnosis and treatment. Cancer patients frequently face uncertainties regarding prognosis, treatment side effects, and recurrence. These stressors can activate maladaptive schemas involving fear of death, helplessness, or loss of control (Hulbert Williams et al., 2018). When such schemas are triggered, patients may interpret normal physical sensations like fatigue or mild pain as signs of disease progression, leading to persistent anxiety (Peters et al., 2013).

Beck's model suggests that this anxiety is not solely a direct response to cancer but is mediated by cognitive appraisals of threat and vulnerability (Beck & Clark, 1997). For instance, a patient who believes "cancer always returns" or "chemotherapy will destroy my body" experiences intensified fear even in the absence of medical evidence supporting those beliefs. Over time, this cognitive bias leads to avoidance behaviors (e.g., skipping follow-ups, withdrawing socially) that worsen emotional distress and impede recovery (Fawzy et al., 1995).

Empirical research supports these theoretical assumptions. Hulbert-Williams et al. (2018) found that cancer-related anxiety is strongly linked to maladaptive beliefs and catastrophic thinking about illness. Similarly, Tatrow and Montgomery (2006) demonstrated that cognitive interventions targeting distorted threat appraisals significantly reduced anxiety and improved quality of life among breast cancer patients.

Application of CBT: Cognitive Behavioral Therapy applies Beck's anxiety model by helping individuals identify, challenge, and modify their threat based cognitions. The therapeutic process involves recognizing automatic anxious thoughts, evaluating their accuracy, and generating more balanced interpretations (Beck & Emery, 1985; Beck, 2011). Behavioral components such as exposure and relaxation training complement these cognitive techniques by reducing avoidance behaviors and physiological hyperarousal.

Within oncology settings, CBT has been shown to effectively decrease cancer related anxiety by promoting adaptive coping and increasing perceived control (Hoffman et al., 2012). Techniques like cognitive restructuring enable patients to reinterpret ambiguous bodily sensations as manageable, rather than catastrophic, while behavioral activation encourages engagement in life affirming activities. These processes ultimately restore emotional balance and resilience (Tatrow & Montgomery, 2006; Hofmann et al., 2012).

In the current study, the Cognitive Model of Anxiety provided the theoretical foundation for the CBT intervention used to alleviate anxiety symptoms among women with breast cancer. The therapy aimed to disrupt maladaptive cognitive cycles, correct distorted perceptions of threat, and foster realistic coping strategies. Consequently, the model explains how changes in cognition through CBT directly lead to reductions in anxiety and improvements in emotional wellbeing.

2.2.3 Biopsychosocial Perspective

The biopsychosocial (BPS) model posits that health and illness arise from the dynamic interplay of biological, psychological, and social factors rather than biology alone (Engel, 1977, 1980). In oncology, this framework underpins psycho-oncology, emphasizing how stress appraisals, mood, coping, and social context influence symptom burden, treatment engagement, and recovery (Holland & Alici, 2010; Stanton, 2012). Psychophysiological research shows that chronic stress and threat appraisals can dysregulate the HPA axis and sympathetic adrenomedullary systems and alter inflammation/immune parameters relevant to cancer care (Antoni, 2013; Lutgendorf & Andersen, 2015). Social resources especially perceived support and relationship quality consistently buffer distress and predict better adjustment and health behaviors (Helgeson & Cohen, 1996; Pinquart & Duberstein, 2010). Thus, the BPS perspective provides a comprehensive lens for understanding psychological

distress and guiding multimodal intervention in cancer settings (Andersen, 1994; Stanton, 2012).

Implications for Breast Cancer Patients: Applied to breast cancer, the BPS perspective explains high rates of anxiety and depression as products of interacting disease stressors (diagnosis shock, treatment side-effects, endocrine therapy, body-image change), threat appraisals (fear of recurrence), and contextual factors (family support, finances, employment) (Brandão et al., 2017; Simard et al., 2013; Tsaras et al., 2018). Distress is clinically important because it relates to poorer adherence to treatment and follow-up (DiMatteo et al., 2000), higher symptom burden (fatigue, pain), and reduced quality of life (Hulbert-Williams et al., 2018; Stanton, 2012). In Ethiopia, hospital based studies document substantial psychological morbidity among women with breast cancer ~60% anxiety and ~59% depression with communication quality and financial hardship as salient social predictors (Belay et al., 2022). Social ties matter as stronger support networks and adaptive coping predict better adjustment, whereas socioeconomic disadvantage and low education are linked to greater distress (Helgeson & Cohen, 1996; Pinquart & Duberstein, 2010; Belay et al., 2022).

Relevance to the Study: By using structured psychotherapy therapies to address the psychological and social effects of cancer, CBT is consistent with the biopsychosocial approach. It acknowledges how social functioning, emotional wellness, and cognitive processes are intertwined in affecting overall health results.

Application to Cognitive Behavioral Therapy (CBT): Within the BPS framework, CBT targets the psychological and social mechanisms that maintain distress while supporting health behaviors. CBT reduces catastrophic appraisals, modifies maladaptive beliefs about illness, and builds coping/behavioral activation skills; these changes translate into decreased anxiety/depression and better engagement with medical care (Beck, 2011; Beck & Haigh, 2014; Hofmann et al., 2012). In breast cancer populations, randomized and controlled studies

show that CBT and related stress management protocols improve mood, coping, and treatment related outcomes; some trials also report favorable changes in stress biology (e.g., cortisol, inflammatory markers) and immune indices consistent with BPS pathways (Antoni et al., 2009; Tatrow & Montgomery, 2006; Andersen et al., 2004). Meta-analyses in oncology confirm significant reductions in anxiety and depression with CBT relative to usual care/active controls, supporting its inclusion in comprehensive cancer care (Faller et al., 2013; Zhang et al., 2022). Major practice guidelines in psycho-oncology recommend evidence based, skills focused interventions (including CBT) for patients who screen positive for distress aligning with the BPS imperative to integrate psychological care into routine oncology services (Holland & Alici, 2010).

In conclusion, Beck's Cognitive Theory of Depression, the Cognitive Model of Anxiety, and the Biopsychosocial Perspective provide the theoretical foundation for this study. While Beck's models explain how maladaptive thinking patterns trigger and sustain anxiety and depression, the biopsychosocial perspective broadens this understanding by recognizing that biological, psychological, and social factors jointly shape mental health outcomes. Integrating these models justifies the use of Cognitive Behavioral Therapy (CBT) as an intervention that targets negative cognitions, promotes adaptive coping, and strengthens psychosocial adjustment among women with breast cancer ultimately reducing anxiety and depression within a holistic framework (Beck & Clark m, 1997; Engel, 1977; Stanton, 2012).

2.3 Implementation and application of the theoretical framework

The theoretical models described above were integrated throughout the design and implementation of the present study. Beck's Cognitive Theory of Depression and the Cognitive Model of Anxiety guided the development of the CBT intervention manual by emphasizing the identification and modification of maladaptive thoughts contributing to emotional distress. The session structure and cognitive behavioral techniques such as

cognitive restructuring, thought monitoring, and behavioral activation were directly drawn from these models.

The Biopsychosocial Perspective informed the holistic approach of the study by recognizing that biological, psychological, and social factors interact to influence anxiety and depression in breast cancer patients. Consequently, the intervention addressed not only maladaptive cognitions but also coping strategies, social support, and emotional expression within the participants' cultural context.

Finally, during data analysis and discussion, the theoretical frameworks were used to interpret the observed reductions in anxiety and depression. Improvements were attributed to cognitive and behavioral changes predicted by Beck's models and the psychosocial mechanisms highlighted by the Biopsychosocial perspective.

2.4 Effectiveness of CBT in Reducing Anxiety and Depression in Breast Cancer Patients

Following the theoretical integration described above, this section reviews empirical evidence demonstrating the effectiveness of Cognitive Behavioral Therapy (CBT) in reducing psychological distress among breast cancer patients. Grounded in Beck's cognitive principles and the biopsychosocial framework, numerous clinical and meta-analytic studies have established CBT as one of the most effective psychological interventions for managing anxiety and depression across medical populations (Hofmann et al., 2012; Faller et al., 2013; Tatrow & Montgomery, 2006)

2.4.1 Effectiveness of CBT on Anxiety

Cognitive Behavioral Therapy has consistently demonstrated efficacy in reducing anxiety across medical and non-medical populations. Meta-analyses show CBT produces moderate-to-large effect sizes for anxiety disorders (Hofmann et al., 2012; Olatunji et al., 2010). In oncology, randomized trials have found significant decreases in anxiety symptoms

among women with breast cancer following structured CBT programs (Tatrow & Montgomery, 2006; Faller et al., 2013). For instance, Andersen et al. (2004) reported improved mood and coping after a 10-week CBT-based stress-management intervention. Mechanistically, these reductions occur through cognitive restructuring of threat appraisals and enhanced coping skills (Clark & Beck, 2010; Antoni et al., 2009).

2.4.2 Effectiveness of CBT on depression

CBT is also a well established treatment for depressive symptoms in both psychiatric and medical contexts. Meta-analytic evidence confirms robust reductions in depressive severity across diverse populations (Beck & Dozois, 2011; Cuijpers et al., 2013). Within breast cancer cohorts, CBT has been shown to alleviate depressive mood, improve adjustment, and increase treatment adherence (Antoni et al., 2001; Osborn et al., 2006). Brandão et al. (2017) concluded from longitudinal data that psychosocial interventions grounded in CBT principles lead to sustained improvements in psychological wellbeing. These findings collectively support the theoretical rationale for using CBT in the current study to target depression arising from maladaptive illness cognitions.

2.4.3 Global Evidence

Globally, Cognitive Behavioral Therapy (CBT) has been extensively studied and validated as an effective psychological intervention for managing anxiety and depression among patients with chronic and life threatening illnesses, including cancer. A meta-analysis by Hofmann et al. (2012) reviewed 106 outcome studies and found large effect sizes for CBT in treating both anxiety and depressive disorders across clinical populations. Similarly, Cuijpers et al. (2013) confirmed that CBT remains one of the most empirically supported treatments for depression, with consistent outcomes across countries and settings.

In oncology, Tatrow and Montgomery (2006) demonstrated through a meta-analysis that CBT based interventions significantly reduced distress, pain, and anxiety in breast cancer

patients. A comprehensive systematic review by Faller et al. (2013) involving 198 randomized trials further showed that psychooncologic interventions particularly CBT produced significant improvements in both anxiety and depression, with sustained benefits in emotional well-being and quality of life.

Recent studies from various cultural contexts have reaffirmed these findings. A quasi-experimental study from Iran reported that structured CBT sessions significantly reduced depression, anxiety, and hopelessness among women undergoing chemotherapy (Mousavi et al., 2022). Likewise, Hussain et al. (2023) found that a 10-week CBT intervention produced substantial declines in Hospital Anxiety and Depression Scale (HADS) scores and improved adjustment among breast-cancer patients. In the United States, Antoni et al. (2009) observed that cognitive behavioral stress management improved cortisol regulation and coping responses among early stage breast cancer patients. Similarly, Chien et al. (2021) in Hong Kong and Galán et al. (2022) in Spain documented parallel reductions in psychological distress and improved quality of life, emphasizing CBT's adaptability across cultural contexts.

Together, these global findings reinforce CBT's strong empirical credibility and justify its application in the current study to address anxiety and depression among Ethiopian women with breast cancer.

2.4.4 Regional Evidence

Across Africa, studies consistently document a high psychological burden among women with breast cancer, with clinically meaningful levels of anxiety and depression reported in hospital cohorts and survivorship samples. Two recent Africa-focused meta-analyses estimate pooled prevalence for depression and anxiety in cancer populations at roughly the 40–55% range, with especially elevated distress in sub-Saharan settings; commonly reported correlates include pain and symptom burden, advanced disease stage,

disrupted functioning, financial strain, and limited social support (Mohammed et al., 2024; Nakie et al., 2024). Regionally, reviews also note that distress is not confined to the diagnostic phase: it persists across treatment and follow up, and is associated with poorer adherence and quality of life indicators underscoring a continuing need for psychosocial care in oncology services (Nakie et al., 2024).

Evidence on CBT based approaches within African oncology, while more limited than in high income settings, indicates promising reductions in anxiety and depressive symptoms when structured cognitivebehavioral components (psychoeducation, cognitive restructuring, coping skills training, behavioral activation, relaxation) are delivered within routine care or group programs. Africa-wide syntheses highlight small but growing numbers of controlled and quasi-experimental evaluations in West and Southern Africa showing meaningful symptom improvements and better emotional adjustment relative to usual care or non CBT supports, while also emphasizing the need for culturally responsive delivery (Mohammed et al., 2024; Nakie et al., 2024). Importantly, these reviews converge on the conclusion that psychosocial intervention trials remain scarce on the continent, with gaps in randomized evaluation, follow up durability, and reporting of implementation details precisely the evidence gap your RCT begins to address.

Taken together, African data paint a consistent picture: distress is common, multideterminant, and clinically significant, and CBT informed interventions are feasible and potentially effective when adapted to local contexts. The literature therefore supports integrating structured psychological care into oncology pathways across African settings, while calling for more rigorous randomized trials including culturally attuned CBT to establish effect sizes, moderators, and sustainability (Mohammed et al., 2024; Nakie et al., 2024).

Though there are comparatively fewer of these research, evidence from the Middle East and Africa also supports the effectiveness of CBT in oncology care. A randomized controlled trial carried out in Nigeria by Onyedibe et al. (2020) showed that patients with breast cancer who received cognitive behavioral therapy (CBT) saw notable decreases in anxiety and depression, with the effects lasting for three months. The study highlighted how CBT may be used in low resource environments and how, with the right modifications, it can be culturally relevant.

2.4.5 National Evidence

Within Ethiopia, a growing body of research has documented the high psychological burden experienced by women with breast cancer and other malignancies. Cross-sectional studies consistently show elevated levels of anxiety and depression, often linked to pain, poor social support, treatment side effects, and socioeconomic hardship. For example, Belay et al. (2022) found that 54.6 % of breast cancer patients in central Ethiopia had clinically significant anxiety, while 40.4 % met criteria for depression. Predictors of distress included younger age, lower educational status, and current bleeding. Similarly, Wondimagegnehu et al. (2019) reported that one in four women with breast cancer met diagnostic thresholds for depressive disorders, with perceived social support emerging as a key protective factor.

Another hospital based study by Asnake et al. (2022) at Tikur Anbessa Specialized Hospital confirmed that emotional distress remains prevalent during active treatment, with nearly half of the participants screening positive for either depression or anxiety. Consistent findings were noted by Tigeneh et al. (2023), who observed that patients receiving chemotherapy reported heightened psychological distress compared with those on hormonal therapy. Across these investigations, the most commonly identified correlates of distress include advanced disease stage, pain, low income, and limited social or spousal support

factors that mirror global trends but appear magnified by Ethiopia's limited psychosocial oncology services.

Intervention research in Ethiopia, though limited, has begun to address these challenges. Getu et al. (2022) piloted a Cognitive Behavioral Therapy integrated with activity pacing (CBT-AP) program among breast cancer patients undergoing chemotherapy at St Paul's Hospital Millennium Medical College. The intervention demonstrated acceptability, feasibility, and promising reductions in anxiety, depression, and fatigue, supporting CBT's adaptability to local cultural and healthcare contexts. Another quasi-experimental project by Teshome et al. (2021) involving group psychosocial sessions incorporating cognitive-behavioral elements also reported improvements in mood and coping strategies. These pioneering local studies reveal both the magnitude of psychological morbidity and the potential of structured, evidence based approaches such as CBT to alleviate distress among Ethiopian oncology patients.

Collectively, national evidence underscores a clear need for integrating psychological care into cancer management in Ethiopia. The high prevalence of anxiety and depression across multiple institutions, coupled with limited routine screening and minimal access to structured therapy, highlights a significant service gap. The present study directly responds to this gap by evaluating the effectiveness of a structured CBT program designed to reduce anxiety and depression among Ethiopian women with breast cancer providing one of the few randomized controlled contributions to this emerging field.

Despite the growing recognition of the psychological impact of breast cancer in Ethiopia, formal psychosocial services remain largely absent from oncology care. Most cancer treatment centers focus primarily on biomedical management, with minimal attention to mental health screening or structured psychological interventions (Belay et al., 2022; Wondimagegnehu et al., 2019). The few available psychosocial supports are often informal

delivered through nurses or social workers without specialized training in evidence based therapy. To date, Cognitive Behavioral Therapy (CBT) and similar structured approaches have not been systematically integrated into Ethiopian oncology units. Existing intervention efforts, such as those by Getu et al. (2022) and Teshome et al. (2021), remain small-scale and primarily exploratory, highlighting the urgent need for randomized controlled trials that can establish both effectiveness and feasibility within local hospital settings.

In conclusion, both international and local literature have extensively proven the efficacy of cognitive behavioral therapy (CBT) in lowering anxiety and depression in patients with breast cancer. Nevertheless, there aren't many empirical research evaluating its application in cancer settings in Ethiopia. Given the high burden of psychological distress among Ethiopian breast cancer patients and the absence of non pharmacological interventions in cancer care, this study seeks to address a significant gap by evaluating the impact of CBT on anxiety and depression in this vulnerable population.

2.5 Gaps in the Literature

Despite the growing global recognition of the psychological burden experienced by women with breast cancer, substantial gaps remain in both research and clinical practice, particularly in low resource settings such as Ethiopia. One of the most pressing gaps is the limited availability of intervention based research within the Ethiopian context. Ethiopian research has mostly documented the prevalence and correlates of psychological distress rather than assessing structured psychological interventions, despite the fact that many studies worldwide have shown the effectiveness of Cognitive Behavioral Therapy (CBT) in lowering anxiety and depression among breast cancer patients. Moreover, there is a lack of culturally adapted CBT protocols tailored specifically for Ethiopian patients, despite clear evidence suggesting that interventions developed in Western settings may not be directly applicable

due to cultural differences in beliefs, language, stigma, health literacy, and social support systems.

Additionally, there is a notable under representation of Ethiopian women particularly those from rural or underserved backgrounds in psycho-social oncology research. Given the persistent gender based inequities in healthcare access and utilization in Ethiopia, this omission is particularly important. The lack of integrated mental health services in cancer treatment frameworks represents another important need. Ethiopian cancer care systems mainly ignore the significance of psycho-social support, despite worldwide studies showing the benefits of integrating cognitive behavioral therapy (CBT) into standard oncology treatment to enhance psychological and medical outcomes.

Furthermore, there aren't many longitudinal designs examining the long-term effects of CBT on emotional health and quality of life; instead, the majority of research that now evaluate CBT outcomes use short term measures. The knowledge of CBT's long term advantages is limited by the paucity of follow up studies, particularly in low income environments where continuity of care is frequently jeopardized. Last but not least, although the majority of CBT interventions still prioritize symptom reduction, little attention is paid to multifaceted outcomes like resilience, treatment adherence, coping mechanisms, and social reintegration all of which are equally critical to promoting the general wellbeing of breast cancer survivors.

In conclusion, despite CBT's extensive international validation in cancer populations, Ethiopia has yet to fully investigate its applicability, viability, and efficacy. In order to provide culturally appropriate, empirically supported psychological therapies that can enhance the mental well being and treatment results of Ethiopian women with breast cancer, these research gaps must be filled.

2.6 Conceptual Framework

This study's conceptual framework integrates Beck's Cognitive Theory of Depression, the Cognitive Model of Anxiety, and the Biopsychosocial Model to explain the psychological distress experienced by women with breast cancer and to guide the use of Cognitive Behavioral Therapy (CBT) as an intervention.

According to Beck's Cognitive Theory (1976), emotional disturbances such as depression arise from distorted patterns of thinking and maladaptive beliefs. Individuals who hold negative views about themselves, their illness, and the future known as the cognitive triad are more prone to depressive symptoms. Similarly, the Cognitive Model of Anxiety (Beck & Clark, 1997) proposes that anxiety is maintained through selective attention to threat related stimuli and catastrophic interpretations of life events. In the case of breast cancer, these cognitive distortions often manifest as fear of death, disfigurement, or social rejection, intensifying both anxiety and depression.

CBT intervenes by targeting these dysfunctional cognitions through cognitive restructuring and behavioral activation, leading to improved coping skills, emotional regulation, and adaptive problem solving. In this framework, CBT (the independent variable) exerts its effect on anxiety and depression (the dependent variables) through two primary mechanisms:

1. Cognitive pathway : by helping participants identify, challenge, and replace maladaptive thoughts with balanced, realistic interpretations; and

2. Behavioral pathway : by encouraging engagement in positive, goal-directed behaviors that restore a sense of control and self efficacy.

To understand these processes more holistically, the framework incorporates the Biopsychosocial Model (Engel, 1977), which posits that health outcomes result from the dynamic interaction of biological, psychological, and social factors. Biological factors such

as cancer stage and treatment side effects, psychological factors like coping style and cognitive appraisal, and social factors such as support networks and socioeconomic status all influence patients' emotional wellbeing.

Within this integrated framework, CBT the independent variable acts by modifying maladaptive thoughts and behaviors, thereby improving emotional regulation and reducing psychological distress. The dependent variables are anxiety and depression, which are expected to decrease following the intervention. The biological and social dimensions of the BPS model (such as disease stage, type of therapy, income, and social support) are treated as moderating or confounding variables that may influence the strength of CBT's effect on psychological outcomes.

Thus, the conceptual model posits that the interaction of cognitive and biopsychosocial processes contributes to emotional distress among breast cancer patients, and that participation in CBT helps alleviate this distress by promoting adaptive thinking, emotional resilience, and better coping skills.

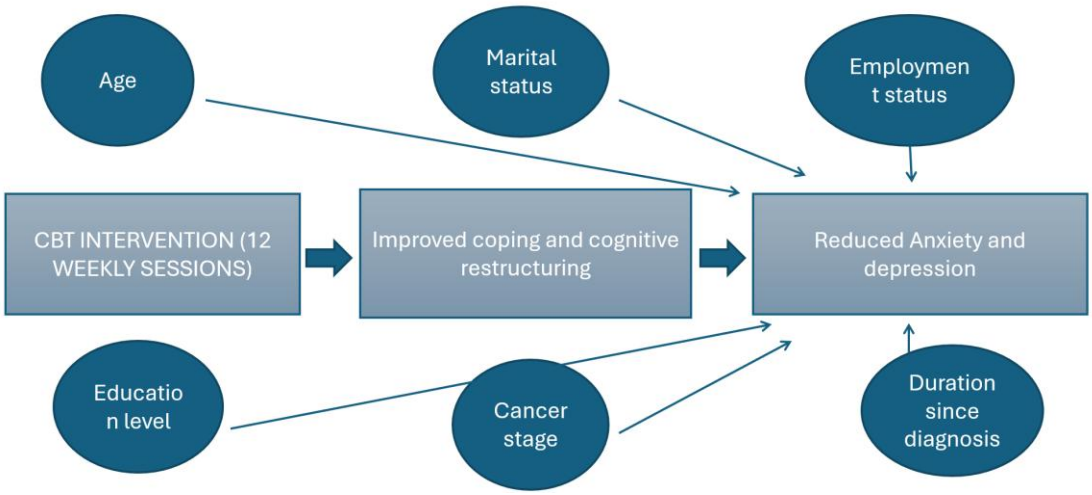

Figure 1; Conceptual Framework Showing the Hypothesized Effect of CBT on Anxiety and Depression Among Women with Breast Cancer

3. Methodology

3.1 Study Design

A Randomized Controlled Trial (RCT) was used in this study to assess how well Cognitive Behavioral Therapy (CBT) works to lower anxiety and depression in women with breast cancer. Because random allocation reduces selection bias and enables more robust conclusions on cause and effect linkages, the RCT was selected as the gold standard for intervention research.

Individuals who fulfilled the requirements were assigned at random to one of two groups: the intervention group, who had regular treatment plus Cognitive Behavioral Therapy (CBT)oncology care, and the control group, which received only the standard oncology care. An impartial researcher employed a computer generated sequence for randomization to maintain objectivity and fairness throughout the process. This method also lessened the impact of variables like age, cancer stage, or preexisting psychological state on the study's findings.

Before randomization, baseline (pre-test) evaluations were performed using the Hospital Anxiety and Depression Scale (HADS). Changes in mental health outcomes were assessed using post-test evaluations after the twelve week CBT session. This length of time balances treatment viability within the Ethiopian healthcare context and is consistent with known CBT regimens for cancer patients (Ren et al., 2019). The external validity and relevance of the results were improved by conducting the trial at St. Paul's Hospital Millennium Medical College in a real world clinical setting.

3.2 Study Setting and Period

The study was conducted at the capital of Ethiopia, Addis Ababa, at St. Paul's Hospital Millennium Medical College (SPHMMC). Being one of the biggest and most extensive public teaching hospitals in the nation, SPHMMC is a significant referral hub for

patients all throughout the country. The hospital has a reputable oncology section that provides cancer patients with interdisciplinary care.

Patients with breast cancer presented at different phases of the disease, and the oncology unit at SPHMMC handled a large number of these cases. It made radiation therapy, surgery, chemotherapy, and supportive care services accessible. Notably, SPHMMC had started incorporating psychosocial care into its oncology offerings after realizing how urgently cancer patients needed mental health treatments.

The study's findings were more broadly applicable because Addis Ababa, Ethiopia's capital and largest city, offered a heterogeneous patient group with a range of socioeconomic backgrounds. The study's realistic assessment of CBT's efficacy in a real world clinical setting was made possible by the setting, which also yielded insightful information for possible scale up and incorporation into standard cancer care throughout Ethiopia.

The CBT sessions were organized over a 12 week period from June 2025 to August 2025 aligning with standard short term CBT protocols commonly applied in psycho-oncology research and clinical practice. A 12 week duration was chosen because it strikes an optimal balance between treatment efficacy and practicality long enough for participants to acquire and apply cognitive and behavioral skills, yet short enough to maintain engagement and minimize attrition (Beck, 2011; Hofmann et al., 2012). Studies have shown that 8 to 12 week CBT programs achieve comparable symptom reduction to longer protocols while offering greater feasibility in hospital settings (Zhou et al., 2022; Yuppa & Meyer, 2017). Additionally, the 12 week schedule aligns with the typical chemotherapy and follow up cycles at SPHMMC, making it convenient for participants to attend sessions alongside their regular treatment appointments.

3.3 Target Population

The target population included all women diagnosed with breast cancer and who are currently receiving treatment in Ethiopia.

3.4. Participants of the Study

Women who met the eligibility requirements and willingly consented to participate in the study were selected from the source population. Participants were selected according to the following criteria:

3.5 Eligibility Criteria

To ensure the recruitment of suitable participants, this study applied clearly defined inclusion and exclusion criteria.

3.5.1 Inclusion Criteria

Participants were eligible for the study if they met all of the following criteria:

- Female patients with a histologically confirmed diagnosis of breast cancer.
- Aged 18 years or older.
- Exhibited clinically significant symptoms of anxiety and/or depression, indicated by a score of 8 or higher on either the anxiety or depression subscale of the Hospital Anxiety and Depression Scale (HADS).
- Were able and willing to provide informed consent to participate in the study.
- Able to communicate in Amharic or English.

3.5.2 Exclusion Criteria

The study excluded participants who met one or more of the following conditions.

- Had a diagnosis of severe psychiatric disorders unrelated to cancer (e.g., schizophrenia, bipolar disorder, or major neurocognitive disorders).

- Currently receiving another form of structured psychotherapy or psychiatric treatment specifically targeting anxiety and depression.
- Had cognitive impairments or physical disabilities that would prevent participation in CBT sessions or completion of study questionnaires.
- Who couldn't or wouldn't give informed consent.

3.6 Sample and Sampling Technique

3.6.1. Sample

The sample size for this study was chosen to enable enough statistical power to identify a significant effect of Cognitive Behavioral Therapy (CBT) on anxiety and depression reduction in breast cancer patients. The computation was done with G*Power software. Previous trials of CBT therapies in cancer patients have revealed an impact size (Cohen's d) of around 0.65 for anxiety and depression decreases (Ren et al., 2019; Onyedibe et al., 2020). Based on this effect size, a power of 80% ($\beta = 0.20$) and a two tailed significance threshold of 5% ($\alpha = 0.05$), a minimum sample size of 52 individuals was computed, with 26 assigned to each group. To account for anticipated attrition or loss to follow up, an extra 15-20% will be added, yielding a final target sample size of around 60 participants (30 in the intervention group and 30 in the control group).

3.6.2 Sampling Technique and Procedure

This study recruited participants through a structured recruitment process at St. Paul's Hospital's cancer department, which included record and referral identification, eligibility screening, and HADS assessments, as well as informed consent. After eligible participants were identified, they were selected using a simple random sampling technique to ensure equal chance of allocation and minimize selection bias. Participants were then randomly assigned to either an intervention group receiving 12 weekly CBT sessions or a control group receiving standard oncology care. The CBT sessions, conducted weekly by trained

psychologists in Amharic, focused on addressing emotional impacts, negative thoughts, behavioral activation, stress management, body image, support, and relapse prevention. The control group continued routine cancer treatments during the study period. In line with ethical considerations, participants in the control group were informed that they would be offered CBT sessions after the study. Attendance, session quality, and adverse reactions were monitored regularly to ensure adherence, participant safety, and fidelity to the intervention.

3.7 Study Variables

3.7.1 Independent variable

- Cognitive Behavioral Therapy (CBT)

3.7.2 Dependent variables

- Levels of anxiety and depression among women with breast cancer, measured using the Hospital Anxiety and Depression Scale (HADS) before and after the intervention.

3.7.3 Confounding variables

- Sociodemographic and clinical characteristics such as age, marital status, education level, employment status, cancer stage, treatment type, and duration since diagnosis.

3.8 Data Collection Tools

This study utilized three main data collection instruments in this study. A socio demographic questionnaire, the Hospital Anxiety and Depression Scale (HADS) and a CBT adherence and attendance checklist.

3.8.1 Socio demographic Questionnaire

Sociodemographic and clinical background variables were obtained through a structured questionnaire, which included data on age, marital status, education level, employment status, income, stage of cancer, time since diagnosis, and treatment history.

These variables were included to describe the sample characteristics and were also considered potential moderating or confounding factors that might influence the relationship between CBT and levels of anxiety and depression. To explore their influence, these variables were examined using multivariable logistic regression analysis to assess their association with post-intervention anxiety and depression levels (Fekadu et al., 2017; Tesfaye et al., 2020). A pre test involving ten women from Zewditu Memorial Hospital was conducted to ensure clarity and comprehensibility, and minor wording revisions were made accordingly.

3.8.2 Hospital Anxiety and Depression Scale (HADS)

The Hospital Anxiety and Depression Scale (HADS) is a 14 item self report questionnaire designed to assess anxiety (7 items) and depression (7 items) in individuals with physical health conditions, including cancer. Each item is rated on a 4 point Likert scale (0–3), giving subscale scores that range from 0 to 21. The following cut off points were applied: 0–7 (normal), 8–10 (mild), 11–14 (moderate), and 15–21 (severe) (Bjelland et al., 2002). The HADS is widely used in oncology settings due to its sensitivity and specificity in distinguishing psychological symptoms from somatic complaints related to illness. Its reliability coefficients (Cronbach's alpha) typically exceed 0.80 for both subscales. In this study, the HADS will be administered at baseline (pre-test) and post intervention (post-test) to evaluate treatment effectiveness. The Amharic version validated among Ethiopian patients with chronic illnesses showed good internal consistency (Cronbach's $\alpha = 0.78$ for anxiety and 0.76 for depression) (Tesfaye et al., 2010). Because of its strong psychometric properties and cultural relevance, this version was adopted for the present study (Zigmond & Snaith, 1983).

3.8.3 Cognitive Behavioral Therapy (CBT) Session Rating Scale

Using the CBT Session Rating Scale, the fidelity and quality of the CBT intervention were evaluated. Therapists and supervisors can use this tool to assess each session based on

- Participant engagement and understanding,

- Quality of therapeutic alliance,
- Goal clarity and progress.

The Cognitive Behavioral Therapy Session Rating Scale was used to assess the fidelity and quality of CBT delivery throughout the 12 week intervention period. The scale was adapted from Beck et al. (2011) and consisted of structured items that rated therapist adherence to CBT principles, including goal setting, cognitive restructuring, behavioral activation, and session pacing.

Therapy fidelity was ensured through the use of this scale in combination with weekly supervision meetings. Two senior clinical psychologists reviewed randomly selected session notes and rating forms to evaluate adherence and quality. Deviations from the manualized CBT structure were addressed through immediate feedback and discussion with the therapist.

This process ensured that all sessions followed the intended CBT framework and that participants across different groups received the intervention with consistency and integrity (Beck et al., 2011; Kazantzis et al., 2018). It also protects the integrity of the intervention and aids in identifying areas that require improvement.

3.9 Data Collection Procedures

Data collection was carried out over a period of 12 weeks, from June 2025 to August 2025, following ethical clearance and official permission from St. Paul's Hospital Millennium Medical College. After receiving approval, eligible participants were identified through the oncology outpatient unit and screened according to the established inclusion and exclusion criteria.

Once eligibility was confirmed, informed consent was obtained from each participant. Baseline (pre-test) data were collected using self administered questionnaires. Participants independently completed the Amharic version of the Hospital Anxiety and Depression Scale (HADS) and the sociodemographic questionnaire. Data collectors were present only to clarify

questions when needed. After the 12 week intervention, the same instruments were administered again to both the intervention and control groups to obtain post test data.

Participants assigned to the intervention group received 12 weekly CBT sessions, each lasting approximately 60–90 minutes. The sessions were conducted in small groups of five to six participants and facilitated by trained clinical psychologists who followed a standardized CBT manual adapted from Beck et al. (2011). Attendance was recorded for each session, and therapy fidelity was monitored using the CBT Session Rating Scale.

The control group continued to receive routine oncologic care during the study period. All completed questionnaires were reviewed by the principal investigator to ensure accuracy, completeness, and consistency. Supervision was also provided to ensure adherence to ethical standards and to monitor data quality throughout the study period.

3.10 Data Quality Control

To ensure the accuracy and consistency of the data, several quality control measures were implemented. Before data collection, all data collectors attended a one day training session covering the study objectives, ethical procedures, and correct use of the instruments. Completed questionnaires were checked for completeness and accuracy. All completed questionnaires were assigned unique identification codes. Data were entered into a secure, password protected database by two independent data entry clerks to ensure accuracy. Personal identifiers were stored separately from the data to maintain confidentiality. Only the principal investigator and designated research team members had access to the data. The validated Amharic version of the HADS also helped maintain reliability and cultural clarity (Tesfaye et al., 2010).

To minimize the influence of confounding variables such as cancer stage, type of treatment, marital status, and employment status, random assignment was used to create comparable groups. These variables were also examined through multivariable logistic

regression to explore their independent associations with post intervention anxiety and depression (Fekadu et al., 2017; Tesfaye et al., 2020). This helped strengthen the internal validity of the findings.

3.11 Data Analysis

The collected data were analyzed using SPSS version 26.0. The data were meticulously cleansed and inspected for accuracy, completeness, and outliers before to analysis. The sociodemographic and clinical features of the subjects were compiled using descriptive statistics such as means, standard deviations, percentages, and frequencies. Baseline comparability between the intervention and control groups was examined using independent samples t-tests for continuous variables and chi-square tests for categorical variables. Paired samples t-tests were then applied to compare pre-test and post-test mean scores of anxiety and depression within each group, while independent samples t-tests assessed mean differences between the CBT and control groups after the intervention. To further identify predictors of post intervention anxiety and depression, ordinal logistic regression analysis was conducted with post-test scores as dependent variables, adjusting for potential confounding factors such as age, cancer stage, and treatment type. Statistical significance was determined at $p < 0.05$, and 95% confidence intervals were reported for precision and interpretability of results.

3.12 Ethical Considerations

The Declaration of Helsinki's ethical guidelines were followed in this investigation. Ethical approval was obtained from the Institutional Review Boards (IRBs) of Addis Ababa University and St. Paul's Hospital. All participants provided informed consent after receiving detailed information about the study, including potential risks and benefits, measures to ensure confidentiality, and their right to withdraw at any time.

Data was anonymized, securely stored, and accessed only by the research team to maintain privacy. Psychologists, ensuring emotional safety, held CBT sessions in private settings. Control group participants will be offered the CBT intervention after the study. Participants experiencing severe psychological distress were referred for specialized care. All materials were culturally and linguistically appropriate, translated into Amharic language with back translation to English for ensuring accuracy.

3.13. Dissemination of findings

The findings of this study will be submitted as a thesis to the Department of Counseling Psychology, Addis Ababa University, in partial fulfillment of the requirements for the Master's degree in Counseling Psychology. A copy of the final report will also be shared with SPHMMC, and the Ministry of Health relevant national and international oncology and counseling associations, and other stakeholders who may benefit from the findings.

Efforts will be made to present the results at national and international scientific conferences and publish the study in peer reviewed journals to contribute to the body of knowledge in the fields of counseling psychology and oncology care.

4.Results

4.1 Background characteristics of participants

The mean age of participants was 45.45 ± 7.86 years. There was a proportion (51.67%) of married women and only 28.33% of women had university degree. Most (53.33%) of the women had stage II cancer at the diagnosis and 58.33% of the women had Invasive ductal carcinoma (IDC) type of cancer. Among total participants, 35% of the women had other medical history and 56.67% of the patient's family had breast cancer.

Table 1 Sociodemographic Characterstics of Study Participants (Part 1)

VARIABLES	FREQUENCY	PERCENTAGE
Age		
Mean± SD	45.45± 7.86	
Marital Status		
Married	31	51.67
Divorced	13	21.67
Widowed	16	26.67
Educational Level		
No Formal Education	4	6.67
Primary	13	21.67
Secondary	26	43.33
University Degree	17	28.33
Occupational Status		
Full Time	26	43.33
Unemployed	34	56.67

Table 2. Sociodemographic Characterstics of Study Participants (Part 2)

VARIABLE	FREQUENCY	PERCENTAGE
Cancer Stage at Diagnosis		
Stage I	12	20
Stage II	32	53.33
Stage III	16	26.67
Types Of Cancer		
Ductal Carcinoma In Situ (DCIS)	25	41.67
Invasive Ductal Carcinoma (IDC)	35	58.33
Current Cancer Treatment		
Surgery	39	65
Chemotherapy	21	35
Other Medical History		
Yes	21	35
No	39	65
Have You Ever Diagnosed Depression		
Yes	18	30
No	42	70
Anxiety Disorder		
Yes	0	0
No	60	100
Family History Of Breast Cancer		
Yes	34	56.67
No	26	43.33

4.2 Test of Homogeneity Between Groups

For all the variables tested in the table, the p-values are 0.101 or greater, meaning none of the variables showed a statistically significant difference between the Control group and the Intervention group at the typical $\alpha=0.05$ significance level. The lack of significant

differences suggests the two groups were well matched in terms of their baseline characteristics, which is an important quality for a randomized controlled trial (Table2).

Table 3 Baseline Sociodemographic Homogeneity Between Control and Intervention Groups (Part 1)

Variables	Control group (n=30)%	Intervention group (n=30)%	*Chi-square value (p-value)*
Marital status			
Married	14(45.2)	17(54.8)	0.98(0.612)
Divorced	8(61.5)	5(38.5)	
Widowed	8(50.0)	8(50.0)	
Educational status			
No formal education	2 (50.0)	2(50.0)	2.32(0.509)
Primary	8(61.5)	5(38.5)	
Secondary	14(53.9)	12(46.1)	
University degree	6(35.3)	11(64.7)	
Employment status			
Full time	11(42.3)	15(57.7)	1.086(0.297)
Unemployed	18(55.9)	15(44.1)	

Table 4 Baseline Sociodemographic Homogeneity Between Control and Intervention Groups (Part 2)

Variables	Control group (n=30)%	Intervention group (n=30)%	*Chi-square value (p-value)*
Cancer stage at diagnosis			
Stage I	5(41.7)	7(58.3)	4.58(0.101)
Stage II	20(62.5)	12(36.8)	
Stage III	5(31.3)	11(68.7)	
Type of cancer			
Ductal carcinoma	11(44)	14(56)	0.617(0.432)
Invasive carcinoma	19(54.3)	16(45.7)	
Current cancer treatment			
Surgery	17(43.6)	22(56.4)	1.83(0.176)
Chemotherapy	13(61.9)	8(38.1)	
other medical history			
yes	11(52.4)	10(47.6)	0.073(0.787)
no	19(48.7)	20(51.3)	

Table 5 Baseline Sociodemographic Homogeneity Between Control and Intervention Groups (Part 3)

Variables	Control group (n=30)%	Intervention group (n=30)%	*Chi-square value (p-value)*
Have you ever diagnosis depression			
Yes	8(44.4)	10(55.6)	0.3175(0.573)
No	22(52.4)	20(47.6)	
Anxiety disorder			
Yes	0	0	
No	30(50)	30(50)	
Family history of breast cancer			
Yes	17(50)	17(50)	0.0001(1.00)
No	13(50)	13(50)	

4.3 Baseline Anxiety Assessment

The mean scores of anxiety of the participant is 15.78 with standard deviation 1.04. This result showed that all participant women with breast cancer were classified under severe symptoms of anxiety levels. The majority 40 (66.67%) of participants always get a sudden feeling of panic and 66.67% of women with breast cancer frequently feel tense or wound up. Moreover, all of the participants frequently feel restless and get butterflies in their stomach

Table 6 Baseline Assessment of Anxiety level in the Participants

Items	*Not at all N(%)*	*Occasionally N (%)*	*Frequently N (%)*	*Almost always N (%)*
I get a sudden feeling of panic	0 (0)	0 (0)	20(33.33)	40(66.67)
I feel restless or fidgety	0 (0)	0 (0)	60 (100)	0 (0)
I get butterflies in my stomach	0 (0)	0 (0)	60 (100)	0 (0)
I feel tense or wound up	0 (0)	0 (0)	40 (66.67)	20(33.33)
I feel frightened	0 (0)	0 (0)	27 (45)	33(55)
I feel nervous or anxious	0 (0)	0 (0)	30 (50)	30 (50)
I feel like I am losing control	0 (0)	16 (26.67)	44 (73.33)	0 (0)

4.4 Baseline Depression Assessment

The mean scores of depression of the participant is 17.93 with standard deviation 1.35. This result showed that all participant women with breast cancer were classified under severe symptoms of depression levels. More than half (53.33%) which is 32 participants frequently feel low in spirits and 68.33% of women with breast cancer always feel sad. Moreover, all of the participants always feel that life is a burden.

Table 7 Baseline Assessment of Depression level in the Participants

Items	*Not at all N(%)*	*Occasionally N (%)*	*Frequently N (%)*	*Almost always N (%)*
I feel low in spirits	0 (0)	0 (0)	32(53.33)	28(46.67)
I feel sad	0 (0)	0 (0)	19 (31.67)	41 (68.33)
I have lost interest in my appearance	0 (0)	0 (0)	16 (26.67)	44 (73.33)
I feel that I am not worthwhile anymore	0 (0)	0 (0)	36 (60)	24(40)
I feel like I am not enjoying anything.	0 (0)	0 (0)	21 (35)	39 (65)
I feel that life is a burden	0 (0)	0 (0)	0 (0)	60 (100)
I feel that I am not able to cope	0 (0)	0 (0)	60 (100)	0 (0)

4.5 Post test of Depression Level

After the intervention, the majority 62.5% of women in the CBT group were classified as having mild levels of depression, indicating substantial improvement from baseline. In contrast, 55.56% of women in the control group remained in the severe depression category.

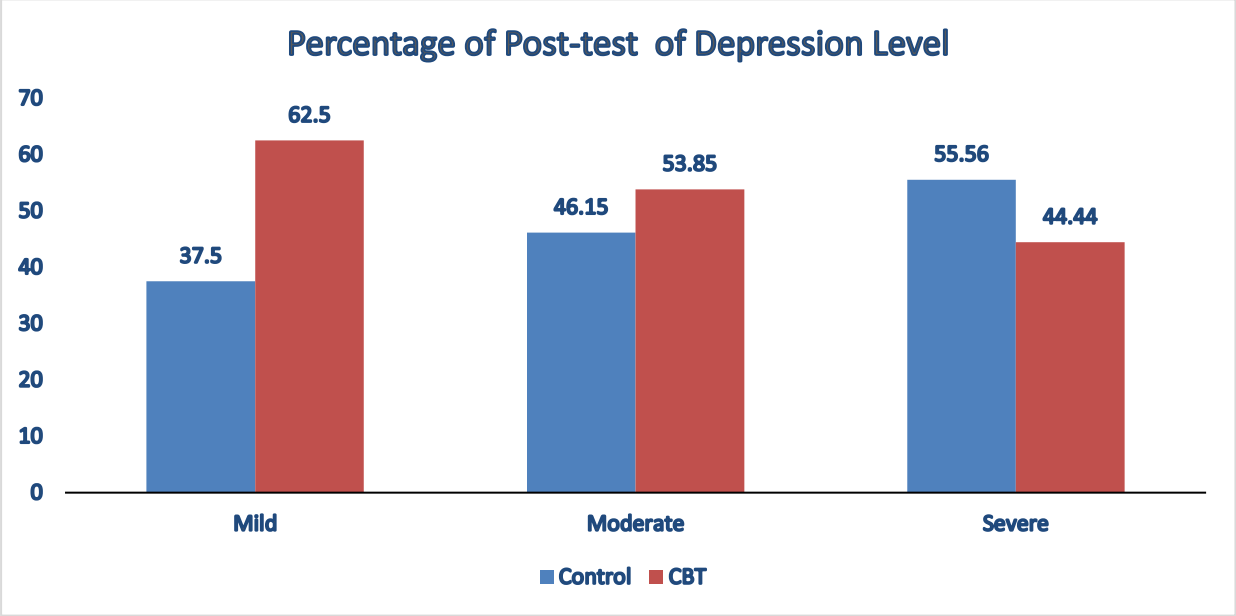

Figure 2: Percentage of Post-test Depression Level

4.4 Post test of Anxiety Level

In the post intervention of anxiety, the majority 75% of the women would be mild level of anxiety. Among controlled women, 65% were in severe level of anxiety.

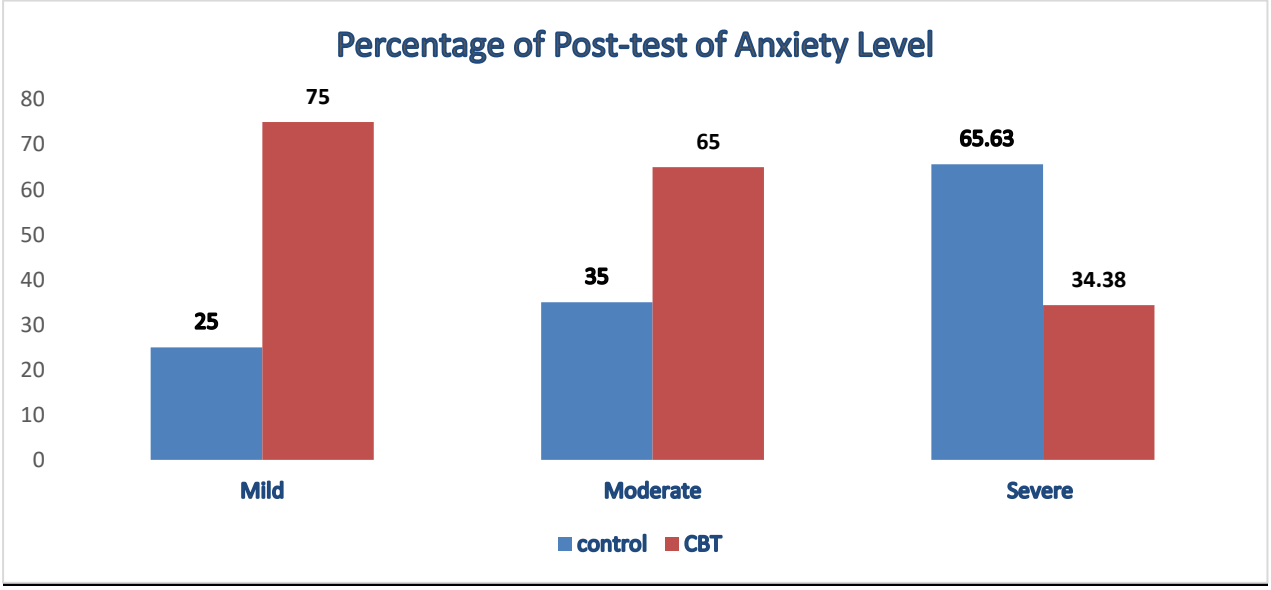

Figure 3; Percentage of Post-test Anxiety Level

Participants in the CBT group showed a greater reduction in depression symptoms (mean change = -6.8) compared to the control group (mean change = -3.9), t-value = 3.5, p = 0.0009. Similarly, anxiety symptoms significantly declined more in the CBT group (mean change= -4.3, p = 0.0491, t-test= 2.68).

Table 8 Comparison of Mean Group Changes in Depression and Anxiety Scores Between Groups

Outcomes	*Group*	*Mean change*	*SD*	*P-value(t-test)*
Depression	Intervention (CBT)	-6.8	3.5	0.0009
	Control	-3.9	3.49 (3.5)	
Anxiety	Intervention (CBT)	-4.3	2.51	0.0491
	Control	-2.8	4.07 (2.68)	

4.7 Predictors of Post Intervention Anxiety and Depression

After adjusting for baseline anxiety, women in the CBT group had significantly lower post intervention anxiety levels compared to the control group. Ordinal logistic regression analysis was employed because both anxiety and depression were measured on ordinal scales (mild, moderate, severe), allowing for estimation of odds ratios across ordered outcome categories. Participants in the CBT group had 52% lower odds of reporting higher anxiety levels post intervention (OR = 0.48, 95% CI: 0.29–0.79, p = 0.004). This suggests that CBT was effective in reducing anxiety symptoms.

The finding revealed that CBT significantly reduced depression symptoms compared to the control group after adjusting for baseline levels. Participants in the CBT group had 8%

lower odds of reporting higher depression levels post intervention (OR = 0.92, 95% CI: 0.54–0.99, $p = 0.045$).

Table 9 Ordinal logistic regression Analysis of Post Intervention Anxiety and Depression Among Participants

DV: Posttest anxiety level		*Odds ratio*	*95%CI*	*P-value*
	Pretest anxiety level	0.48	0.29-0.79	0.004
	Intervention (CBT)	1.36	0.52-3.56	0.533
	DV:posttest depression level			
	Pretest depression level	0.92	0.54-0.99	0.045
	Intervention (CBT)	1.65	0.64-4.27	0.299

5.Discussion

This randomized controlled trial (RCT) studied how effective Cognitive Behavioral Therapy (CBT) is in reducing anxiety and depression in women with breast cancer at St. Paul's Hospital Millennium Medical College in Addis Ababa, Ethiopia. To our knowledge, this is the first RCT in Ethiopia to evaluate the use of CBT in cancer care. It addresses a significant gap in psychosocial oncology research in the country. The findings showed that CBT led to significant reductions in symptoms of both depression and anxiety when compared to standard oncology care alone. This provides evidence that CBT can be practical, acceptable, and culturally relevant in a low resource setting.

At the start of the study, participants in both the intervention and control groups reported severe anxiety and depression, as measured by the Hospital Anxiety and Depression Scale (HADS). This aligns with previous studies in Ethiopia that documented a high level of psychological distress among breast cancer patients (Abate et al., 2021; Sebro et al., 2024). The elevated scores reflect the serious psychological impact of cancer in situations where diagnoses often occur at advanced stages. Financial pressures are high, and access to psychosocial support is limited. These findings highlight the urgent need for structured psychological support within oncology services.

After the intervention, women who received CBT showed a greater reduction in depression (mean change = -6.8) and anxiety (mean change = -4.3) compared to the control group (mean change = -3.9 for depression; -2.8 for anxiety). Logistic regression analyses showed that those receiving CBT had 52% lower odds of reporting high anxiety levels and 8% lower odds of reporting high depression levels after the intervention. While both conditions improved, the change was more significant for depression than for anxiety. This pattern aligns with Beck's cognitive theory, which suggests that depressive symptoms are

often kept alive by negative thought patterns that can be directly addressed through therapy. In contrast, anxiety may need a mix of cognitive restructuring and exposure techniques, requiring a longer treatment period.

The findings are consistent with global evidence showing CBT's effectiveness in cancer patients. For example, studies in China (Ren et al., 2019) and Pakistan (Husain et al., 2023) reported similar improvements in depression and anxiety after structured CBT programs for breast cancer patients. An RCT in Nigeria (Onyedibe et al., 2020) also found lasting improvements in anxiety and depression over a three month follow up, suggesting that CBT works well in African contexts. This study adds to the growing evidence supporting CBT's cross cultural relevance. Importantly, it confirms earlier Ethiopian mental health studies outside oncology that have shown CBT's effectiveness in treating depression and other mental health issues (Tesfaye et al., 2020; Fekadu et al., 2017). However, it expands the evidence by applying CBT specifically to breast cancer patients, showing both its practicality and acceptability in a hospital's oncology unit. This is crucial because, until now, Ethiopian oncology services have not systematically included psychological interventions, which leaves a gap in complete cancer care.

The slightly larger reduction in depression compared to anxiety in this study echoes findings from meta analyses (Wieland et al., 2024; Osborn et al., 2006) that suggest depressive thoughts may respond better to shorter CBT interventions. This suggests a potential need for modified or extended CBT protocols in oncology to improve anxiety results.

The results support the application of Beck's Cognitive Theory of Depression and the Cognitive Model of Anxiety in Ethiopian oncology care. Participants' high starting scores and their improvements validate the role of negative thoughts, such as feelings of hopelessness, worthlessness, or exaggerated fears of recurrence, in maintaining psychological

distress among cancer patients. CBT's structured techniques, such as cognitive restructuring, behavioral activation, and problem solving, proved effective in breaking these patterns and reducing distress.

Additionally, the findings match the biopsychosocial model (Engel, 1977), highlighting that cancer treatment outcomes depend not just on medical interventions but also on psychological and social factors. The significant decreases in anxiety and depression seen in this study suggest that addressing mental well being may indirectly improve treatment adherence, coping skills, and quality of life important elements for enhancing survival and recovery in low resource settings.

A key strength of this study is its use of a culturally adapted CBT protocol delivered in Amharic by trained psychologists. This adaptation made it more relevant by using local metaphors, addressing spiritual and family concerns, and focusing on collective coping strategies that align with Ethiopian traditions. This likely contributed to the high retention and completion rates in the intervention group. These results support arguments from Patel et al. (2011) and Yitbarek et al. (2021) that psychological interventions can be effectively adjusted to low and middle income countries (LMICs) when they are tailored to local cultural contexts.

The feasibility of the intervention was further shown by its implementation within a resource limited public hospital. Despite restrictions in infrastructure and staffing, the program achieved results comparable to those seen in high income settings, highlighting the practicality of integrating CBT into cancer care in Ethiopia.

5.1 Strength of The Study

This study clearly shows that CBT is both effective and acceptable in a low resource oncology setting. The 100% retention rate, high session completion, and measurable clinical improvement suggest that CBT, even when delivered in resource constrained settings like

Ethiopia, can yield outcomes comparable to those in high income countries. Moreover, the intervention was delivered in local languages, enhancing its cultural resonance a key factor emphasized by (Patel et al., 2011) in their work on culturally adapted mental health interventions in LMICs.

6.Conclusion and Recommendation

6.1 Conclusion

This study found that a structured 12 session CBT program effectively reduced anxiety and depression symptoms in women with breast cancer at St. Paul's Hospital. The findings showed that CBT is a practical and helpful psychosocial intervention in this Ethiopian clinical scenario, which is consistent with global evidence supporting its efficacy in cancer populations.

6.2 Recommendations

Several recommendations follow logically from the findings of this study.

For clinical practice, the study found that CBT can effectively reduce anxiety and depression in women with breast cancer. This suggests that psychological assistance should be included in cancer patients' care, rather than merely medical treatment. Psychologists in oncology units should be encouraged to run structured CBT programs. In addition, oncology nurses and social workers could be trained in the basic skills of CBT so that the service can reach more patients.

For health policy; at a bigger level, the Ministry of Health and hospital leaders need to pay more attention to the mental health needs of cancer patients. Usually, the focus is only on surgery, chemotherapy, and medication, but patients are also suffering emotionally. Since there are not enough trained mental health professionals in Ethiopia, a task sharing approach would be very helpful. This means training other health workers, such as oncology nurses or lay counselors, to provide simple CBT based support within hospitals.

For future research; this study only looked at the short term results of CBT. More research is needed to see if the benefits last in the long run, for example after six months or

one year. It would also be useful to study whether adding CBT is cost effective for hospitals, especially in low resource settings. Finally, future research should also ask patients directly about their experiences and perspectives, because this can help make CBT even more suitable for Ethiopian culture.

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Appendices

CONSENT FORM FOR PARTICIPATION IN RESEARCH STUDY

Title: The Effectiveness of Cognitive Behavioral Therapy on Anxiety and Depression Symptoms in Breast Cancer Patients at St. Paul's Hospital Millennium Medical College , A randomized control trial study

Principal Investigator: Bezawit Girma

Institution: St. Paul's Hospital Millennium Medical College

Contact Information: +251939789074/ bezawitgirmat@gmail.com

Introduction

You are invited to participate in a research study that aims to assess the effectiveness of Cognitive Behavioral Therapy for treating anxiety and depression in Women with Breast Cancer at St. Paul's Hospital Millennium Medical College. This study will involve a demographic and clinical questionnaire and the Hospital Anxiety and Depression Scale (HADS) questionnaire.

Purpose of the Study

The aim of this study is to explore the effectiveness of CBT for anxiety and depression in women with breast cancer at St.Paul Hospital Millennium Medical College, Addis Ababa, Ethiopia.

Procedures

You will be asked to complete a demographic questionnaire, which includes questions about your age, marital status, education level, occupation and clinical questionnaire which includes questions about cancer diagnosis, treatment history, and mental health background.

You will also complete the HADS questionnaire, which assesses levels of anxiety and depression.

Voluntary Participation

Participation in this study is entirely voluntary. You may choose not to participate or to withdraw at any time without any consequences.

Confidentiality

Your responses will be kept strictly confidential. No identifying information will be collected, and all data will be stored securely. Only the research team will have access to the data.

Potential Risks and Benefits

There are no physical risks involved in this study. However, some questions may cause emotional discomfort. If you feel distressed, you may choose not to answer specific questions or withdraw from the study. While there may be no direct benefits to you, your participation will contribute to a better understanding of mental health challenges in women with breast cancer.

Questions and Contact Information

If you have any questions about the study, you may contact the researcher at 0939789074.

Consent Statement

By signing below, you confirm that:

You have read and understood the information provided.

You voluntarily agree to participate in this study.

You understand that you may withdraw at any time without penalty.

Participant's Name: _____ Signature: _____ Date: _____

Researcher's Name: _____ Signature: _____ Date: _____

Sociodemographic Questionnaire

Part 1 - Demographic information

Personal Information

Age: _____ years Address: _____

Marital Status

☐ Single ☐ Married ☐ Divorced ☐ Widowed

☐ Separated ☐ In a relationship (not married)

Education Level

☐ No formal education ☐ Primary school ☐ Secondary school

☐ Vocational training ☐ University degree ☐ Postgraduate degree

Highest education level completed: _____

Occupation

Current occupation: _____

Employment status

☐ Full-time ☐ Part-time ☐ Unemployed

☐ Retired ☐ Student

Part 2 – Clinical Information

Date of diagnosis: //_____ (DD/MM/YYYY)

Cancer stage at diagnosis:

☐ Stage 0 (DCIS/ LCIS) ☐ Stage I ☐ Stage II

☐ Stage III ☐ Stage IV ☐ Unknown

Type of breast cancer

☐ Ductal carcinoma in situ (DCIS) ☐ Invasive ductal carcinoma (IDC)

☐ Invasive lobular carcinoma (ILC) ☐ Other (please specify):

_____

Current Cancer Treatment

(Check all that apply)

☐ Surgery (Type: _____) ☐ Chemotherapy ☐ Radiation therapy

☐ Hormonal therapy ☐ Targeted therapy ☐ Immunotherapy

☐ No current treatment ☐ Other (please specify):

_____

Previous treatments received

☐ Surgery (Date: _____)

☐ Chemotherapy (Dates: _____)

☐ Radiation therapy (Dates: _____)

☐ Other (please specify): _____

Other Medical History

Do you have any other medical conditions? ☐Yes ☐ No

If yes, please list: _____

Have you ever been diagnosed with

Depression? ☐ Yes ☐ No

Anxiety disorder? ☐ Yes ☐ No

Other mental health conditions? ☐Yes ☐ No

If yes, please specify: _____

Current Medications

Please list all current medications (including for cancer treatment and other conditions):

_____

_____

Family history of breast cancer? ☐ Yes ☐ No

If yes, relationship to you: _____

Family history of mental health conditions? ☐ Yes ☐ No

If yes, please specify: _____

Part 3 - Anxiety and Depression Assessments

Hospital Anxiety and Depression Scale (HADS)

Instructions:

Please read each of the following statements and select the response that best describes how you have been feeling over the last week. Respond according to the severity of your symptoms during this time.

D	A		D	A	
		I feel tense or 'wound up':			**I feel as if I am slowed down:**
	3	Most of the time	3		Nearly all the time
	2	A lot of the time	2		Very often
	1	From time to time, occasionally	1		Sometimes
	0	Not at all	0		Not at all
		I still enjoy the things I used to enjoy:			**I get a sort of frightened feeling like 'butterflies' in the stomach:**
0		Definitely as much		0	Not at all
1		Not quite so much		1	Occasionally
2		Only a little		2	Quite Often
3		Hardly at all		3	Very Often
		I get a sort of frightened feeling as if something awful is about to happen:			**I have lost interest in my appearance:**
	3	Very definitely and quite badly	3		Definitely
	2	Yes, but not too badly	2		I don't take as much care as I should
	1	A little, but it doesn't worry me	1		I may not take quite as much care
	0	Not at all	0		I take just as much care as ever
		I can laugh and see the funny side of things:			**I feel restless as I have to be on the move:**
0		As much as I always could		3	Very much indeed
1		Not quite so much now		2	Quite a lot
2		Definitely not so much now		1	Not very much
3		Not at all		0	Not at all
		Worrying thoughts go through my mind:			**I look forward with enjoyment to things:**
	3	A great deal of the time	0		As much as I ever did
	2	A lot of the time	1		Rather less than I used to
	1	From time to time, but not too often	2		Definitely less than I used to
	0	Only occasionally	3		Hardly at all
		I feel cheerful:			**I get sudden feelings of panic:**
3		Not at all		3	Very often indeed
2		Not often		2	Quite often
1		Sometimes		1	Not very often
0		Most of the time		0	Not at all
		I can sit at ease and feel relaxed:			**I can enjoy a good book or radio or TV program:**
	0	Definitely	0		Often
	1	Usually	1		Sometimes
	2	Not Often	2		Not often
	3	Not at all	3		Very seldom

Please check you have answered all the questions

Cognitive Behavioral Therapy (CBT) Protocol for Reducing Anxiety and Depression symptoms in Women with Breast Cancer

Overview

The aim of this CBT protocol is to address and reduce symptoms of anxiety and depression in women diagnosed with breast cancer. CBT will focus on modifying negative

thought patterns, improving coping strategies, and promoting behavioral changes to enhance emotional well-being and quality of life.

Session 1: Introduction and Rapport Building

Welcome and establish therapeutic alliance

Psychoeducation about CBT: link between thoughts, feelings, behaviors

Discuss confidentiality and set expectations

Assign homework: Keep a thought diary for the week

Session 2: Understanding the Emotional Impact of Cancer

Explore emotional responses to diagnosis and treatment

Normalize common reactions (fear, sadness, hopelessness)

Introduce automatic thoughts

Homework: Continue thought diary with a focus on cancer-related thoughts

Session 3: Identifying Negative Automatic Thoughts (NATs)

Review thought diary

Teach how to recognize NATs

Introduce the ABC model (Activating event, Beliefs, Consequences)

Homework: Use ABC worksheet for distressing situations

Session 4: Challenging Unhelpful Thoughts

Teach cognitive restructuring techniques

Introduce thought-challenging questions ("What evidence supports this thought?")

Practice cognitive restructuring in-session

Homework: Restructure at least 2 NATs each day

Session 5: Behavioral Activation I

Explain the connection between inactivity and depression

Identify enjoyable and meaningful activities

Begin activity scheduling

Homework: Engage in one meaningful activity and reflect on mood

Session 6: Building Momentum Through Meaningful Activities

Review progress with activities

Address avoidance and increase value-based action

Plan for consistent activity engagement

Homework: Schedule and complete 3 activities during the week

Session 7: Managing Health-Related Anxiety

Identify and differentiate types of worry

Teach "worry time" and acceptance-based approaches

Practice mindfulness or grounding techniques

Homework: Practice worry time and relaxation daily

Session 8: Stress Management and Relaxation Techniques

Teach and practice deep breathing or progressive muscle relaxation

Discuss stress triggers and coping mechanisms

Homework: Practice relaxation technique daily and apply during stress

Session 9: Problem-Solving Skills

Introduce structured problem-solving steps

Practice applying steps to a personal issue

Homework: Apply the steps to one problem during the week

Session 10: Body Image and Self-Esteem

Discuss impact of physical changes on self-perception

Explore and reframe self-critical thoughts

Promote self-compassion

Homework: Write 3 positive self-statements each day

Session 11: Strengthening Support and Communication

Explore current support systems

Teach assertive communication and boundary-setting

Role-play asking for help or expressing needs

Homework: Practice assertive communication with a trusted person

Session 12: Review and Relapse Prevention

Review key skills learned and progress made

Identify early warning signs and coping strategies

Develop a relapse prevention plan

Celebrate therapy completion and plan follow-up support

COGNITIVE THERAPY RATING SCALE (CTRS)

Therapist: _____ Client: _____ Date: _____

Tape ID#: _____ Rater: _____ Date: _____

Session#: _____ □ Videotape □ Audiotape □ Transcript □ Live Observation

Directions: For each time, assess the therapist on a scale from 0 to 6, and record the rating on the line next to the item number. Descriptions are provided for even numbered scale points. If you believe the therapist falls between two of the descriptors, select the intervening odd number (1, 3, 5). For example, if the therapist set a very good agenda but did not establish priorities, assign a rating of a 5 rather than a 4 or 6.

If the descriptions for a given item occasionally do not seem to apply to the session you are rating, feel free to disregard them and use the more general scale below:

0 1 2 3 4 5 6

Poor Barely Adequate Mediocre Satisfactory Good Very Good Excellent

Please do not leave any item blank. For all items, focus on the skill of the therapist, taking into account how difficult the patient seems to be.

Part I. GENERAL THERAPEUTIC SKILLS

1. AGENDA

0 Therapist did not set agenda.

2 Therapist set agenda that was vague or incomplete.

4 Therapist worked with patient to set a mutually satisfactory agenda that included specific target problems (e.g., anxiety at work, dissatisfaction with marriage.)

6 Therapist worked with patient to set an appropriate agenda with target problems, suitable for the available time. Established priorities and then followed agenda.

2. FEEDBACK

0 Therapist did not ask for feedback to determine patient's understanding of, or response to, the session.

2 Therapist elicited some feedback from the patient, but did not ask enough questions to be sure the patient understood the therapist's line of reasoning during the session or to ascertain whether the patient was satisfied with the session.

4 Therapist asked enough questions to be sure that the patient understood the therapist's line of reasoning throughout the session and to determine the patient's reactions to the session. The therapist adjusted his/her behavior in response to the feedback, when appropriate.

6 Therapist was especially adept at eliciting and responding to verbal and nonverbal feedback throughout the session (e.g., elicited reactions to session, regularly checked for understanding, helped summarize main points at end of session.

3. UNDERSTANDING

0 Therapist repeatedly failed to understand what the patient explicitly said and thus consistently missed the point. Poor empathic skills.

2 Therapist was usually able to reflect or rephrase what the patient explicitly said, but repeatedly failed to respond to more subtle communication. Limited ability to listen and empathize.

4 Therapist generally seemed to grasp the patient's "internal reality" as reflected by both what the patient explicitly said and what the patient communicated in more subtle ways. Good ability to listen and empathize.

6 Therapist seemed to understand the patient's "internal reality" thoroughly and was adept at communicating this understanding through appropriate verbal and non-verbal responses to the patient (e.g., the tone of the therapist's response conveyed a sympathetic understanding of the client's "message"). Excellent listening and empathic skills.

4. INTERPERSONAL EFFECTIVENESS

0 Therapist had poor interpersonal skills. Seemed hostile, demeaning, or in some other way destructive to the patient.

2 Therapist did not seem destructive, but had significant interpersonal problems. At times, therapist appeared unnecessarily impatient, aloof, insincere or had difficulty conveying confidence and competence.

4 Therapist displayed a satisfactory degree of warmth, concern, confidence, genuineness, and professionalism. No significant interpersonal problems.

6 Therapist displayed optimal levels of warmth, concern, confidence, genuineness, and professionalism, appropriate for this particular patient in this session.

5. COLLABORATION

0 Therapist did not attempt to set up a collaboration with patient.

2 Therapist attempted to collaborate with patient, but had difficulty either defining a problem that the patient considered important or establishing rapport.

4 Therapist was able to collaborate with patient, focus on a problem that both patient and therapist considered important, and establish rapport.

6 Collaboration seemed excellent; therapist encouraged patient as much as possible to take an active role during the session (e.g., by offering choices) so they could function as a "team".

6. PACING AND EFFICIENT USE OF TIME

0 Therapist made no attempt to structure therapy time. Session seemed aimless.

2 Session had some direction, but the therapist had significant problems with structuring or pacing (e.g., too little structure, inflexible about structure, too slowly paced, too rapidly paced).

4 Therapist was reasonably successful at using time efficiently. Therapist maintained appropriate control over flow of discussion and pacing.

6 Therapist used time efficiently by tactfully limiting peripheral and unproductive discussion and by pacing the session as rapidly as was appropriate for the patient.

Part II. CONCEPTUALIZATION, STRATEGY, AND TECHNIQUE

7. GUIDED DISCOVERY

0 Therapist relied primarily on debate, persuasion, or "lecturing." Therapist seemed to be "cross-examining" patient, putting the patient on the defensive, or forcing his/her point of view on the patient.

2 Therapist relied too heavily on persuasion and debate, rather than guided discovery. However, therapist's style was supportive enough that patient did not seem to feel attacked or defensive.

4 Therapist, for the most part, helped patient see new perspectives through guided discovery (e.g., examining evidence, considering alternatives, weighing advantages and disadvantages) rather than through debate. Used questioning appropriately.

6 Therapist was especially adept at using guided discovery during the session to explore problems and help patient draw his/her own conclusions. Achieved an excellent balance between skillful questioning and other modes of intervention.

8. FOCUSING ON KEY COGNITIONS OR BEHAVIORS

0 Therapist did not attempt to elicit specific thoughts, assumptions, images, meanings, or behaviors.

2 Therapist used appropriate techniques to elicit cognitions or behaviors; however, therapist had difficulty finding a focus or focused on cognitions/behaviors that were irrelevant to the patient's key problems.

4 Therapist focused on specific cognitions or behaviors relevant to the target problem. However, therapist could have focused on more central cognitions or behaviors that offered greater promise for progress.

6 Therapist very skillfully focused on key thoughts, assumptions, behaviors, etc. that were most relevant to the problem area and offered considerable promise for progress.

9. STRATEGY FOR CHANGE

(Note: For this item, focus on the quality of the therapist's strategy for change, not on how effectively the strategy was implemented or whether change actually occurred.)

0 Therapist did not select cognitive-behavioral techniques.

2 Therapist selected cognitive-behavioral techniques; however, either the overall strategy for bringing about change seemed vague or did not seem promising in helping the patient

4 Therapist seemed to have a generally coherent strategy for change that showed reasonable promise and incorporated cognitive-behavioral techniques.

6 Therapist followed a consistent strategy for change that seemed very promising and incorporated the most appropriate cognitive-behavioral techniques.

10. APPLICATION OF COGNITIVE-BEHAVIORAL TECHNIQUES

(Note: For this item, focus on how skillfully the techniques were applied, not on how appropriate they were for the target problem or whether change actually occurred.)

0 Therapist did not apply any cognitive-behavioral techniques.

2 Therapist used cognitive-behavioral techniques, but there were significant flaws in the way they were applied.

4 Therapist applied cognitive-behavioral techniques with moderate skill.

6 Therapist very skillfully and resourcefully employed cognitive-behavioral techniques.

11. HOMEWORK

0 Therapist did not attempt to incorporate homework relevant to cognitive therapy.

2 Therapist had significant difficulties incorporating homework (e.g., did not review previous homework, did not explain homework in sufficient detail, assigned inappropriate homework).

4 Therapist reviewed previous homework and assigned “standard” cognitive therapy homework generally relevant to issues dealt with in session. Homework was explained in sufficient detail.

6 Therapist reviewed previous homework and carefully assigned homework drawn from cognitive therapy for the coming week. Assignment seemed "custom tailored" to help patient incorporate new perspectives, test hypotheses, experiment with new behaviors discussed during session, etc.

CTRS DETAILED SCORE REPORT

Tape ID# or Therapist: _____ Date of Rating: _____

Total Score: _____

Part I. GENERAL THERAPEUTIC SKILLS

1. Agenda
2. Feedback
3. Understanding
4. Interpersonal Effectiveness
5. Collaboration
6. Pacing and Efficient Use of Time

Part II. CONCEPTUALIZATION, STRATEGY, AND TECHNIQUE

7. Guided Discovery
8. Focusing on Key Cognitions or Behaviors
9. Strategy for Change
10. Application of Cognitive-Behavioral Techniques

11. Homework

_____ TOTAL SCORE

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የጥናት ተመራማሪ፡- ቤዛዊት ግርማ

ቦታ፡- ቅዱስ ጳውሎስ ሚሊኒየም የህክምና ኮሌጅ

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ኤሜል፡- bezawitgitmat@gmail.com

<u>መግቢያ</u>

እርሶ በዚህ ጥናታዊ ምርመራ ላይ እንዲሳተፉ ተጋብዘዋል፡፡ ይህ ጥናቱ 1 የግል መረጃ እና የሕክምና መረጃ ጥያቄ እና 1 ደግሞ የጭንቀት እና የቁዘማ መገምገሚያ ጥያቄ ያካትታል፡፡

<u>የጥናቱ ዓላማ</u>

የዚህ ጥናት ዓላማ ‘‘የአስተሳሰብ እና የባህሪይ ህክምና’’ በጭንቀት እና ድባቴ ውስጥ ለሚገኝ በቅዱስ ጳውሎስ ሆስፒታ ያሉ ሴት የጡት ካንሰር ታካሚዎች ላይ ያለውን ሚና ማወቅ ነው፡፡

<u>ቅደም ተከተል</u>

በዚህ ጥናት ላይ የግል መረጃ ከምሳሌ ስለ እድሜ የጋብቻ ሁኔታ የትምህርት ደረጃ ሥራ ይጠየቃሉ እንዲሁም የህክምና መረጃ ለምሳሌ ስለ ካንሰር በሽታው መች እንደተገኘ፣ ስለህክምናው እና ስለ አዕምሮ ጤናዎ ይጠየቃሉ፡፡

በተረፈ የጭንቀት ቀን እና ቁዘማ ጥያቄም ይጠየቃሉ፡፡ ይሄም ያሎትን የጭንቀት እና ድባቴ መጠን የሚለካ ነው፡፡

በተሳትፎ የሚያስፈልገው ጊዜ በአቅራቢ ከ15-30 ደቂቃዎች ነው፡፡

<u>የተሳትፎ ፈቃደኝነት</u>

በዚህ ጥናት መሳተፍ በሙሉ ፈቃደኝነት ላይ የተመሰረተ ነው፡፡ አለመሳተፍም ሆነ በማንኛውም ሰዓት ማቋረጥም ይቻላል፡፡

<u>የመረጃ ሚስጥራዊነት</u>

መልስዎ በሚስጥራዊነት ይያዛል፡፡ እርሶነትዎን የሚገልጽ መረጃ አይካተትም የተሰበሰበውም መረጃ ጥናቱን ከሚያካሂዱት ሰዎች ውጪ ሌላ ሰው ሊያገኝበት በማይችል ሁኔታ ይጠበቃል፡፡

<u>ጉዳት እና ጥቅም</u>

ይህ ጥናት ምንም ዓይነት አካላዊ ጉዳት አያደርስም፡፡ ነገር ግን አንዳድ ጥያቄዎች ስሜታዊ ጫና ሊያሳድሩ ይችላሉ፡፡ ጭንቀት ካስከተለ ያንን ጥያቄ አለመመለስ ይችላሉ እንዲሁም በማንኛውም ሰዓት ከጥናቱ እርስዎን ማግለል ይችላሉ፡፡

ይህ ጥናት ለእርሶ ቀጥተኛ ጥቅም ባይኖረውም ተሳትፎም ግን በጡት ካንሰር ህመምተኛ ሴቶች ላይ ስላለው የአዕምሮ ጤና የበለጠ መረዳት ይሰጠናል፡፡

<u>ጥያቄዎች እና ስልክ ቁጥር</u>

ማንኛውም ጥያቄ ጥናቱን በተመለከተ ካላችሁ በ0939789074 በመደወል የጥናቱን ተመራማሪ መጠየቅ ትችላላችሁ፡፡

<u>የስምምነት ውል</u>

ይህንን በመፈረም ለሚከተሉት ማረጋገጫነትን ይሰጣሉ፡፡

አንብበው እንደተረዱ በፈቃደኝነት እዚህ ጥናት ላይ ለመሳተፍ መስማማትዎን በማንኛውም ጊዜ ያለምንም ቅጣት ማቋረጥ እንደሚችሉ፡፡

የተሳታፊ ስም	የተመራማሪ ስማ
ፊርማ	ፊርማ
ቀን	ቀን

የግል መረጃ እና የህክምና መረጃ

ዕድሜ _____ (በዓመት) አድራሻ _____

የጋብቻ ሁኔታ

☐ ያላገባች ☐ ያገባች ☐ በፍቺ የተለያየች

☐ ባለቤቷ በሞት የተለያት ☐ የተለያየች

☐ በፍቅር ግንኙነት ውስጥ (ግን ያላገባች)

የትምህርት ደረጃ

☐ መደበኛ ትምህርት ያልተማረች ☐ የመጀመሪያ ደረጃ ትምህርት

☐ የሁለተኛ ደረጃ ትምህርት ☐ የተለያዩ ሥልጠናዎች

☐ የከፍተኛ ትምህርት ዲግሪ ☐ የድህረ ምረቃ ዲግሪ

ከፍተኛ የትምህርት ደረጃ _____

ሥራ

የሥራ ሁኔታ _____

☐ ሙሉ ጊዜ ☐ የትርፍ ሰዓት ☐ ሥራ አጥ

☐ ጡረተኛ ☐ ተማሪ

የጡት ካንሰር መረጃ

በሽታው የተገኘበት ቀን _____

የካንሰሩ ደረጃ

☐ ደረጃ 0 ☐ ደረጃ 1 ☐ ደረጃ 2 ☐ ደረጃ 3

☐ ደረጃ 4 ☐ አልታወቀም / አይታወቅም

የካንሰሩ ዓይነት

☐ የዳክታል ዓይነት የጡት ካንሰር በቦታው ላይ ያለ

☐ የዳክታል ዓይነት የጡት ካንሰር የተሰራጨ

☐ የሎቢዮላር ዓይነት ካንሰር የተሰራጨ

አሁን ላይ እየወሰዱ ያሉት የካንሰር ህክምና ዓይነት (ከ1 በላይ መምረጥ ይቻላል)

☐ ቀዶ ጥገና ☐ ኬሞቴራፒ ☐ የጨረር ህክምና

☐ ኢሚውኖቴራፒ ☐ የሆርሞን ህክምና ☐ ታርጌትድ ህክምና

<u>የህክምና ታሪክ</u>

የቀድሞ ህክምና

☐ ቀዶ ጥገና (ቀን) _____ ☐ ኬሞቴራፒ (ቀን)_____

☐ የጨረር ህክምና (ቀን) _____ ☐ ሌላ (እባክዎን ያብራሩ)_____

<u>ሌላ የህክምና ታሪክ</u>

ሌላ የጤና እክል አለቦት?

ካለቦት እባክዎ ይዘርዝሩ

- የታወቀ የድባቴ በሽታ ኖሮቦት ያውቃል?

  ☐ ያውቃል ☐ አያውቅም

- የታወቀ የሞንቀት በሽታ ኖሮቦት ያውቃል?

  ☐ ያውቃል ☐ አያውቅም

- ሌላ የአዕምሮና የሥነ ልቦና በሽታ አለብዎት?

  ☐ አለብኝ ☐ የለብኝም

- ካለብዎት እባክዎ ይዘርዝሩ

  _____

- አሁን ላይ እየወሰዱ ያሉትን ህክምና እባክዎ ሁሉንም ይዘርዝሩ (የካንሰር ህክምናዎችን እና ሌሎችንም ያካቱ)

  _____

የቤተሰብ ታሪክ፡-

ቤተሰብ ውስጥ የጡት ካንሰር አለ?

☐ አዎ ☐ የለም

ካለ ግንኙነታችሁን ያሳውቁ_____

ቤተሰብ ውስጥ የአዕምሮ /የሥነ-ልቦና በሽታ ያለበት ሰው አለ?

☐ አዎ ☐ የለም

ካለ እባክዎ ያብራሩ _____

_____

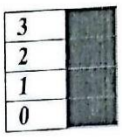
የጭንቀት እና የቁዘማ (ሀዘን) መገምገሚያ መጠይቅ

ስነልቦና ብዙ በሽተኞች ላይ የራሱ የሆነ ሚና እንዳለው ይታወቃል እናም ሀኪምዎ የሚሰማዎትን ስሜት ካወቁ በደንብ ሊረዱዎት ይችላሉ።

ባለፈው ሣምንት የተሰማዎን ትክክለኛ ስሜት መሠረት በማድረግ የጤና ባለሙያዉ ቀጥሎ ለሚጠይቁዎት ጥያቄ ተገቢውን መልስ ይስጡ።

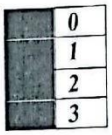
በተቻለ መጠን ሊመልሱ ብዙ ጊዜ አይዉሰዱ፣ ምናልባትም እንደተጠየቁ ወዲያውኑ የመጣልዎት መልስ ትክክለኛ ስሜትዎን ሊገልፅ ይችላል።

1 የመጨነቅ ወይም የመወጠር ስሜት ምን ያህል ይሰማዎታል?



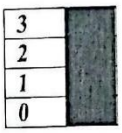
በጣም ብዙ ጊዜ
ብዙ ጊዜ
አልፎ አልፎ
ምንም አይሰማኝም

2 ቀደም ሲል ያስደስቱዎ የነበሩ ነገሮች አሁን ምን ያህል ያስደስቱዎታል?



አሁንም እንደድሮው ያስደስቱኛል
ከድሮው ትንሽ ቀንሷል
በጥቂቱ ያስደስቱኛል
ጭራሽ አያስደስቱኝም

3 አንድ መጥፎ ነገር ሊያጋጥምዎ የተቃረበ የሚመስል የፍርሀት ስሜት ይሰማዎተል?

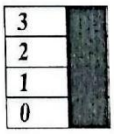


እጅግ በጣም ይሠማኛል
በጣም ይሠማኛል
በጥቂቱ ይሠማኛል
ምንም አይሠማኝም

4 መሳቅና የነገሮችን አስቂኝ ጎን ማየት ይችላሉ?

አብዛኛውን ጊዜ እችላለሁ
እንደድሮው ባይሆንም እችላለሁ
በጥቂቱ እችላለሁ
ምንም አልችልም

5 ጭንቀትን የሚያጭሩ ሀሳቦች በአእምሮዎ ምን ያህል ጊዜ ይመላለሳሉ?

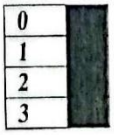


በጣም ብዙ ጊዜ
ብዙ ጊዜ
አብዛኛውን ጊዜ ባይሆንም አልፎ አልፎ
አንዳንዴ ብቻ

6 ደስተኛ ነዎት?

ምንም ደስተኛ አይደለሁም
ብዙ ጊዜ ደስተኛ አይደለሁም
ብዙም ባይሆን ደስተኛ ነኝ
አብዛኛውን ጊዜ ደስተኛ ነኝ

7 ተረጋግተው መቀመጥ እና ዘና ማለት ይችላሉ?



ሁሌም እችላለሁ
አብዛኛውን ጊዜ እችላለሁ
ብዙውን ጊዜ አልችልም
ምንም አልችልም

8 ስራዎን ሲያከናውኑ ወዘተ ፍጥነትዎ ምን ያህል የቀነሰ ይመስልዎታል?

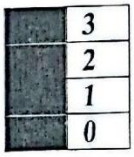
እጅግ በጣም ብዙ ጊዜ
በጣም ብዙ ጊዜ
አልፎ አልፎ
ምንም አልቀነሰም

9 ሆድ አካባቢ የሚሰማ የመደንገጥ ወይም የመሸበር ስሜት ይሰማዎታል?

ምንም አይሰማኝም
አልፎ አልፎ
ብዙ ጊዜ
በጣም ብዙ ጊዜ

10 ለአለባበስዎ ትኩረትን መስጠት አቁመዋል?

አዎን ምንም ትኩረት እየሠጠሁ አይደለም
የምፈልገውን ያህል ትኩረት እየሰጠሁ አይደለም
ድሮ ከምሰጠው ትኩረት በጥቂቱ ያነሰ ትኩረትን እሰጣለሁ
ሁሌም የምሰጠውን ትኩረት እሰጣለሁ

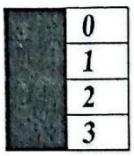


11 አንድ ቦታ መሄድ ያለብዎ ይመስል ተረጋግቶ መቀመጥ ይቸገርዎታል?

በጣም ብዙ ጊዜ ይቸግረኛል
ብዙ ጊዜ ይቸግረኛል
ብዙም አይቸግረኝም
ምንም አይቸግረኝም

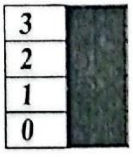
12 መጪ ነገሮችን በደስታ ይጠብቃሉ?

አዎ ሁሌም በተለመደው ወይም በድሮው መጠን እጠብቃለሁ
ከድሮው ወይም ከተለመደው በጥቂቱ ባነሰ መጠን እጠብቃለሁ
ከድሮው ወይመ ከተለመደዉ ባነሰ መጠን እጠብቃለሁ
ምንም በደስታ አልፎብቅም



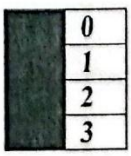
13 በድንገት የመደንገጥ ወይም የመሸበር ስሜት ይሰማዎታል?

በጣም ብዙ ጊዜ ይሰማኛል
ብዙ ጊዜ ይሰማኛል
አልፎ አልፎ ይሰማኛል
ምንም አይሰማኝም



14 በሬዲዮ ወይም የቴሌቪዥን ፕሮግራሞች ራስዎን ያስደስታሉ?

አዎን ብዙ ጊዜ
ብዙም ባይሆን አዎ
አልፎ አልፎ
በጣም አልፎ አልፎ



Kaayyoo qorannoo kana wal’aanamtoota dhibee kanseerii harma hospitalaa qulqulluu phawaloos kessaattii yaaddoo fi dhiphinaa kessaatii argamaniff Ilaalchi fi amalli yaali qabu beekuuf oola.

Duraa Duuba

Qorannoo kane kessatt kan qoofatomuu odffannoo dhunfee faxxenyaat wae’ee unirii gaaeelo, sadarkaa baruumsaa fi hoojiidha akkasumes odeffannoo waldhoonsa tokkenyaaf maa’ee kaanjarii dhukkubni yoomakka argame, maa’ee merdhaanse isoo fi maa’een fayyaa samuu kemiyyuu ni gaafatame dabalataanis gaafiin dhiphinaafi mukaa h/yaaddauni gaafatamo. Kunis dhiphinaafi yaaddoo qabdan kanmadaaluudha.

Himaannaaf yeroon barbaachiss doqiqaa 15-zodha

Heyyame hirmaannaa

Qo,annoo kane irratti hirmaachuun heyyame gustuu kan hundoo, adha. Hirmaachuu dhisuunis ta’ee yeroo barbaadon adda munuun ni dandama.

Ddeefannoo illitiin

Deebiin kesson iccitiin qabama odeeffanaoon enyuunmoo kessan ibsu kesse hin qalu.

Odeeffammeem ,e;ott qana,ee ma,ppta qo,atanin alonomni biree akka hin argineetti egama.

Faayidaafi midhas

Qo,onnoon kan midhaa qaamoo tokkoyyuu hin fidu. Garuu gactileen tekko tokko miira kesson irratti dhibbaa umuu dandau.

Dh: Phina kan umuu yoo to’e qoof son deepisuu dhisuun ni dandaame

Akkasumes yeroo kamiffu qo’annoo kesaa of baassun ni dandaame

Gaafiinkun kallottin isiin fayyaduu baatus hirmaannoon kaansariin haarmee fayyaa sammuu dubartoota irratti qabuu hubachuuf nu gargaara.

Gaafflee fi lakkoofsa bilbilaa

Qo,onnoo irratt gaafii kemiyyuu yoo qabaattan 0939789074 irratti bilbiluun garataa qo,oonichaa gaafachuun ni dandaame

Waraqaa waliigaltee

Kenneen amaan godii mullatteessuun mirkonessaa dubbistanii akka hubatten

Feedhiin himaachuuf maligeluu kessan. Yeroo kamittii adebi mafee qo,onnoo adda kutaa akka dondeesssan

Maqan hirmaata	maqaa qo,ataa
Mallattoo	`Mallattoo
Guyyaa	Guyyaa

1.Foormii odeeffannoo dhunfaa

Odeeffannoo Dhunfaa:

Umurii: _____ Teessoo:_____

Haala Fuudhaa fi heerumaa:

☐ qenxee ☐ Fuudhe ☐ wal hiikan

☐ Abbaan manaa du,eera ☐ Addaan ba,an ☐ haariroo kessa jira (osoo hin fuudhin)

Sadarkaa Barnootaa:

☐ Barumsa idilee hin qabu ☐ Mana barumsaa sadarkaa tokkoffaa

☐ Mana barumsaa sadarkaa lammaffaa ☐ Leenji ogummaa

☐ Digrii yuunivarsiitii ☐ Digirii ebba boodaa

Barumsa Sadarkaa olaanaa xumure_____

Hojii:

Hojii ammaa: _____

Haala hojii:

☐ Hojii yeroo guutuu ☐ Hojii yeroo muraasa ☐ Hojii hin qabu

☐ soorama bahe ☐ Barataa

2. Foormii Odeeffannoo Dhukkuba fi walansaa

Guyyaa dhukubichi itti argame: _____ (guyyaa/Ji,a/waggaa)

Sadarkaa kaansarii yeroo bekkamu:

☐ Sadarkaa 0 (DCIS/LCIS) ☐ Sadarkaa I ☐ Sadarkaa II

☐ Sadarkaa III ☐ Sadarkaa IV ☐ Hin beekamne

Gosa kaansarii haarmaa

☐ Kaansarii dactaali kan iddo tokko jiru ☐ kaansarii dactaali kan faca,e

☐ Kaansarii kutaa haarmaa kan faca,e ☐ Kan biroo (hojjirra irra olchi)

wal,ansa kaansarii ammaa

Baqaqsanii yaaluu(gosa:_____)

☐ Kemooteeraapi

☐ wal,ansa carallaa ☐ wal,ansa dandetti qaamaa dhukkuba ittisu dabalu

☐ wal,ansa qindaa'e ☐ wal,ansa hormooni ☐ wanansa amma hin fudhattu

Seenaa wal,aansaa

Waln,aansa duraanii kan fudhatte:

wal,aansa (Guyyaa: _____)

wal,aansa carallaa (Guyyaa: _____)

Seenaa dhukkubaa biroo:

Dhukkuba biroo qabdaa?

☐ Eyyee_. ☐ Lakki

Yoo eyyee ta'e, maaloo tarreessi: _____

Kanneen armaan gadi sirratti argamanii beekuu?

Dhukkuba gadda?

☐ Eeyyee ☐ Lakki

Dhukkuba sodaa?

☐ Eeyyee ☐ Lakki

Dhukkuba haala sammuu biroo?

☐ Eeyyee ☐ Lakki

Yoo eyyee ta'e, maaloo ibsi: _____

Qorichaa ammaa:

Maaloo qorichaa hunda ammaa ibsi (kanneen akka wal,aansa kaansarii fi dhukkuba biroo):

_____

_____

_____

_____

Seenaa Maatii:

Seenaa kaansarii maatii jiraa

☐ Eeyyee ☐ Lakki

Yoo eyyee ta'e, maaloo ibsi: _____

Seenaa maatii dhukkuba haala sammuu jiraa

☐ Eeyyee ☐ Lakki

Yoo eyyee ta'e, maaloo ibsi: _____

3. GAAFANNOO MADAALLII DHIPHINAA FI GADDAA

Xiunxammuun dhibeewwan hedduu irratti dhiibbaa mataasaa akka qabu ni beekama. Kanaafuu, ogeessi fayyaa keessan miira isatti dhaga'amu erga baree sirnaan isin gargaaruu ni danda'a.

Miira sirrii torban darbe isinitti dhaga'ame bu'uureffachuun, gaaffii ogeessi fayyaa sun itti aansee isin gaafatuuf, deebii sirnaawaa kennaa.

Hamma danda'ametti, deebii kennuuf yeroo dheeraa hin fudhatiinaa. Tarii, deebiin battaluma isiniif dhufu miira keessan isa sirrii isiniif ibsuu danda'a.

1.Miirrii dhiphinaa fi cinqii hangam isinitti dhaga'ama?

0 Hedduu yeroo baay'ee

1 Yeroo baay'ee

2 Darbee darbee

3 Homaa natti hin dhaga'amu

2.Wantootni kanaan dura isin gammachiisan, amma hangam isin gammachiisu?

0 Ammas akkuma duriitti na gammachiisu

1 Kan duriirra xiqqoo hir'ateera

2 Xiqqooma na gammachiisa

3 Tasuma odan gammachiisan

3.Miirri oda wantootni badaa ta'an akka waan isin quunnamuuf jedhan isinitti dhaga'amaa?

0 Hedduu baay’ee natti dhaga’ama

1 Baay’ee natti dhaga’ama

2 Xiqqoo natti dhaga’ama

3 Homaa natti hin dhaga’amu

4.Kolfuu fi gaarummaa wantoota kolfa isiniif uuman hubachuu ni dandeessuu?

0 Yeroo baay’ee nan danda’a

1 Akka durii ta’uudhaa baatus nan danda’a

2 Xiqqoma nan danda’a.

3 Homaa hin danda’u

5.Yaadoleen dhiphina isin keessatti uuman sammuu keessanitti hangam deddeebi’u?

0 Hedduu yeroo baay’ee

1 Yeroo baay’ee

2 Yeroo baay’ee ta’uudhaa baatus darbee d arbee

3 Al tokko tokko qofa

6.Isin gammadoodhaa?

0 Homaa gammadoo miti

1 Yeroo baay’ee gammadoo miti

2 Baay’ees ta’uudhaa baatu gammadoo dha

3 Yeroo baay’ee gammadoo dha

7.Tasgabbooftanii taa'uu fi basha'uu ni dandeessuu?

0 Yeroo mara nan danda'a

1 Yeroo baay'ee nan danda'a

3 Yeroo baay'ee hin danda'u

4 Homaa hin danda'u

8.Hojii keessan wayita hojjettan saffisni keessan hangam kan hir'ate isinitti fakkaata?

0 Baay'ee baay'ee yeroo hedduu

1 Yeroo baay'ee hedduu

2 Darbee darbee

3 Homaa hin hir'anne

9.Miirri naasuu ykn shororkaa'uu naannoo garaa keessanii isinitti dhaga'amu ni jiraa?

0 Homtuu natti hin dhaga'amu

1 Darbee darbee

2 Yeroo baay'ee

3 Yeroo baay'ee hedduu

10.Haala uffannaa keessaniif xiyeeffannoo kennuu dhaabdanii jirtuu?

0 Eeeyyee, xiyeeffannoo homaatuu kenna hin jiru

1 Hamman barbaadu xiyeeffannoo kennaa hin jiru

2 Xiyeeffannoon dur kennurraa xiqqoo hanqate kennaan jira

3 Xiyyeeffannoo yeroo mara kenna ture kennuuttan jira

11.Akka waan bakka ta'e deemtaniitti, tasgabbooftanii taa'uuf ni rakkattuu?

0 Yeroo baay'ee hedduu nan rakkadha

1 Yeroo baay'ee nan rakkadha

2 Baay'ees hin rakkadhu

3 Homaa ah in rakkisu

12.Wantoota gara fuulduraa hawwii fi gammachuun eeggattuu?

0 Eeyyee, yeroo mara haaluma barameen ykn duriinan eega.

1 Haala yeroo mara haala baramerraa xiqqoo hanqateenan eega.

2 Haala yeroo mara haala baramerraa hanqateenan eega.

3 Homaatuu gammachuun hin eegu

13.Tasuma, miirri naasuu ykn shororkaa'uu isinitti dhaga'amaa?

0 Yeroo baay'ee hedduu natti dhaga'ama

1 Yeroo hedduu natti dhaga'ama

2 Darbee darbee

3 Baay'ee darbee darbee

14.Sagantaa radiyoo yookiin teleijiiniitiin of ni bohaarsituu ?

0 eyyen yerooheddu

1 hedduus ta’uu baatu eyyeen

2 darbee darbee

3 baay’ee darbee darbee