

The Effect of Interpersonal Psychotherapy on Quality of Life Among Breast Cancer Patients With Common Mental health Disorder: A Randomized Control Trial At Tikur Anbessa Specialized Hospital

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Abstract

Purpose: To determine the effect of interpersonal psychotherapy on anxiety, depression, and quality of life among breast cancer patients with mental health disorders at Tikur Anbessa Specialized Hospital, Ethiopia.

Methods: A two-arm parallel randomized controlled trial study was conducted among 114 (n=57 intervention, and n= 57 control group) breast cancer patients with common mental health disorder at the oncology center of Tikur Anbessa Specialized Hospital. The hospital anxiety and depression measurement scale was used to assess depression and anxiety disorder and a 30-item quality of life questionnaire was used to assess the quality of life. General Linear Model analysis was done, confounding factors were controlled, and $P < 0.05$ was used to declare statistical significance.

Results: Patients in the intervention group showed a significant improvement in the anxiety (coefficient -3.68; 95% CI -5.67,-1.69; $P < 0.001$), depression (coefficient -3.22; 95% CI -4.7,-1.69; $P < 0.001$), physical functioning (coefficient 10.55; 95% CI 3.13, 17.98; $P = 0.006$), health related quality of life (coefficient 21.85; 95% CI 14.1, 29.59; $P < 0.001$), Insomnia (coefficient -19.56; 95% CI -31.87, -7.25; $P = 0.002$), and fatigue (coefficient -11.37; 95% CI -21.49, -1.24; $P = 0.028$) respectively.

Conclusions: The adapted Ethiopian version of interpersonal psychotherapy had improved anxiety, depression, and some domains of health-related quality of life. Hence, health programmers should consider incorporating it as a treatment option in oncology centers.

Trial registration number: PACTR202011629348967 granted on 20 November 2020 which was retrospectively registered.

Introduction

Breast cancer has become the leading cause of global cancer incidence in 2020, with an estimated 2.3 million new cases, representing 11.7% of all cancer cases and the fifth leading cause of cancer deaths (685,000) worldwide (1). In Africa, breast cancer causes an estimated 168,690 cases and 74,072 deaths (2). In Ethiopia, breast cancer is the commonest cancer type (3), which accounts for 34% of all female cancer cases, according to the Addis Ababa cancer registry survey (4).

Depression and anxiety are the forms of common mental health disorders experienced by cancer patients (5). Both disorders are serious medical illness that negatively affects people's feelings, emotions, cognition, behavior and physical condition (6). Depression experiences in cancer patients have been significantly related to reduced quality of life (7). Anxiety is common psychological distress in cancer patients that leads to autonomous over-activity and anxious behavior (8).

Depression and anxiety are among the psychiatric illnesses that can be treated (9). Quality Of Life (QOL) is one of the common patient-reported outcome measures (10) and it is strongly related to psychological distress in a way that when psychological distress gets treated, quality of life improves (11). Psychotherapy is a collection of interrelated approaches intended to improve social, physical, behavioral, psychological wellness, and mental health (12). In minimizing the intensity of somatic and psychic symptoms, psychotherapy has become very important (13).

The use of interpersonal psychotherapy as an acute and chronic treatment is effective in cancer patients with major depressive disorders (14). There are studies conducted on the relationship between cancer and mental health disorders in Ethiopia (15, 16). However, to the best level of our knowledge, the effect of interpersonal psychotherapy on anxiety, depression, and quality of life among breast cancer patients was not investigated yet. Therefore, this study aimed to determine the effect of interpersonal psychotherapy on anxiety, depression, and quality of life among breast cancer patients with mental health disorders in Tikur Anbessa Specialized Hospital, Ethiopia.

Methods And Materials

Study setting and period

The study was conducted at the oncology center of Tikur Anbessa Specialized Hospital (TASH), Addis Ababa, Ethiopia from January to August 2019. TASH is the biggest specialized hospital and the only cancer diagnostic and treatment center in Ethiopia with both radiotherapy and chemotherapy treatment options (17).

Study design

A two-arm parallel randomized control trial was conducted at the oncology center of TASH. Participants were individually assigned into intervention and control groups at a 1:1 ratio. Interpersonal psychotherapy intervention was given for the intervention group and no intervention was provided for the control group. Participants in both groups received their routine care and treatment (radiotherapy, chemotherapy, and hormonal therapy).

Participants

Adult breast cancer patients aged ≥ 18 years, diagnosed with anxiety and depression using the hospital anxiety and depression measurement scale were included in the study. Participants with severe physical illness, severe mental illness, functionally impairing substance abuse, and acute suicidal attempt were excluded from the study.

Study procedure and intervention

Four trained professional therapists delivered the inter-personal psychotherapy treatment as per the adapted inter-personal psychotherapy for Ethiopian version (IPT-E) guideline (18). The baseline information of socio-demographic, economic, clinical characteristics, and quality of life were obtained after consent.

Intervention

As per the IPT-E guideline, the therapeutic process consists of the beginning phase, middle phase, and that of the final phase. IPT-E session consists of a total of 4–8 sessions. However, in this study, the intervention involved 4–6 therapy sessions.

Beginning phase

The therapist asked the questions that help patients to understand their problems, symptoms, explanatory model, and psychosocial supports. The therapeutic relationship, provision of feedback, and identification of IPT problem areas (loss, change, or disagreements) were established for the focus of the middle phase sessions.

Middle phase

The therapist was working through aspects of underlying interpersonal problems and helping patients to connect with supports. Even though it was recommended to focus on one problem area, the therapist sometimes extended the therapeutic focus to other areas when it was believed to be saliently linked to current distress.

Final phase

The patient's efforts and progress were reviewed, contingency plans were made in case of symptoms worsen. Further, old losses were processed and symptoms that might be mistaken for a re-occurrence of the original symptoms that brought the patient to treatment. The therapists met the patients every week for 30–60 minutes per session.

Outcomes

Anxiety and Depression

The level of depression and anxiety, as calculated by the established Hospital Anxiety and Depression Measurement Scale (HADS), were the primary outcome measures (19). The items were rated on a four-point Likert scale ranging from 0 to 3, with 0 and 21 as the minimum and maximum scores for each subscale, respectively. Anxiety or depression sub-scales with sub-scores ranging from 0 to 7 are considered normal, 8 to 10 are considered cause for concern, and 11 to 21 are considered probable

cases of anxiety or depression (20). The HADS measurement scale was interpreted as follows: 0 to 7 represents normal, 8 to 10 represents mild, 11 to 14 represents moderate, and 15 to 21 represents severe.

Quality of Life

The secondary outcome measure of this study was the QOL. It was tested using the Amharic version of the EORTC QLQ-C30, which was found to be accurate and valid for evaluating QOL among cancer patients (21). The questionnaire has 30 items with three scales and 15 different domains. The three scales used were functional, symptom scale, and general health status as a separate scale. Domains such as physical, role, cognitive, emotional, and social functioning under functional scale whereas dyspnea, pain, fatigue, insomnia, appetite loss, nausea/vomiting, constipation, diarrhea as well as financial difficulties under symptom scale and general health status as a separate scale. The scoring was done according to the QOL questionnaire-C30 manual (22).

Sample size and sampling procedure

Overall, 400 breast cancer patients attended the oncology center during the study period. Of these, 124 patients were eligible for the study and we randomly assigned 62 patients to the intervention group and 62 patients to the control group.

Randomization

All the patients were allocated to one of two groups and the Microsoft Excel 2016 random sequence generator was used for the sequential assignment into the two groups. Nurses who were not involved in the study randomized participants 1:1 to either the intervention or control group.

Statistical Analysis

The collected data were coded, checked for its consistency, and completeness up to the end of the data collection period. Epi DATA version 4.4.2.1 software was used for data entry and the entered data were exported to Minitab version 18 software for windows. Descriptive statistics of categorical variables were presented using frequency and percentages and a chi-square test was used to determine differences between the intervention and control groups. Univariate and multivariate regression was computed before fitting the domains and the independent variables into the Analysis of covariance (ANCOVA). Additionally, a general linear model (ANCOVA) was used to measure the effect of IPT-E on QOL after controlling the effect of covariates. A Per-protocol analysis was used and a P-value < 0.05 was used to declare the statistical significance.

Results

During the study period, 400 patients were receiving routine service at the oncology center of TASH, of these 132 patients were eligible for the study. Of the total 132 patients, 8 patients were refused to participate in the study. Finally, 124 participants were consented to participate in the study and randomized into the intervention and control groups. Of the 124 randomized into intervention and control groups, 10 participants were lost to follow-up. Overall, the data of 114 participants were included in the final analysis (Fig. 1) yielded a 91.9% response rate (Table 1).

Table 1

Background characteristics of breast cancer patients with common mental health disorder at the oncology center of Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2019.

Background Characteristics	Intervention group (IPT) N = 57 N (%)	Control group (TAU) N = 57 N (%)	P-value
Age (years)	5(8.7%)	6(10.5%)	0.97
19–28	19(33.3%)	18(31.5%)	
29–38	24(42%)	22(38.6%)	
39–48	5(8.7%)	7(12.3%)	
49–58	4(7.01%)	4(7.01%)	
> 58			
Wealth Quintiles	17(29.8%)	23(40.3%)	0.40
Lowest	6(10.5%)	2(3.5%)	
Second	9(15.7%)	12(21.05%)	
Middle	20(35.08)	15(26.31%)	
Fourth	5(8.7%)	5(8.7%)	
Highest			
Religion	41(71.9%)	36(63.2%)	0.39
Orthodox	0(0)	2(3.5%)	
Catholic	10(17.5%)	11(19.3%)	
Protestant	5(8.75)	8(14%)	
Muslim	1(1.7%)	0(0)	
Other			
Educational status	9(15.7%)	13(22.8%)	0.07
No Formal Education	13(26.5%)	10(21.3%)	0.06
Primary School	23(46.9%)	22(46.8%)	
Secondary School	12(24.5%)	12(25.5%)	
Technical school and above	30(52.6%)	20(35.1%)	
Marital status	27(47.3%)	37(64.9%)	
Single			
Married			
Metastasis at diagnosis	18(31.5%)	19(33.3%)	0.74
Metastasis present	39(68.3%)	38(22.8%)	
Metastasis absent			

Background	Intervention group (IPT)	Control group (TAU)	P-value
Characteristics	N = 57	N = 57	
	N (%)	N (%)	
Kind of treatment	3(5.2%)	7(12.2%)	< 0.0001**
Chemotherapy	1(1.7%)	0(0)	
Radiotherapy	0(0)	1(1.7%)	
Chemotherapy and Radiotherapy	29(50.8%)	48(84.2%)	
Chemotherapy and surgery	12(21.1%)	0(0)	
Chemotherapy, Radiotherapy, and surgery	1(1.7%)	0(0)	
Radiotherapy and surgery	11(19.3%)	1(1.7%)	
Hormonal therapy			
Other disease condition	12(21%)	6(10.5%)	0.12
Present	45(79%)	51(89.4%)	
Absent			

Abbreviations: IPT: Interpersonal Psychotherapy; TAU: Treatment as Usual. ** There is a statistically significant difference in the kind of treatment between the intervention and control group, where most of the control group patients were on chemotherapy and had surgery.

Outcome variable

Anxiety and depression

After the intervention, post-intervention anxiety score decreased (coefficient - 3.68; 95%CI -5.67,-1.69; P < 0.01). Participant's baseline anxiety score was associated with post-intervention anxiety score (coefficient 0.607; 95%CI 0.35, 0.86; P < 0.01). Being in the highest quintile was inversely associated with post-intervention anxiety score (95% CI -8.39,-2.16 P < 0.001). Patients on radiotherapy and who had mastectomy were found to have increased anxiety (P = 0.025, 95%CI 1.34, 19.84). After the intervention, the post-intervention depression score has decreased, even if the baseline depression level of the intervention group was higher than that of the control groups (P < 0.01, coefficient - 3.22; 95% CI -4.71, -1.68). Participant's baseline depression level was also found to be associated with post-intervention depression score (P < 0.01, coefficient 0.546; 95% CI 0.329, 0.763) (Table 2).

Table 2: ANCOVA result of the effect of IPT-E¹ on mental health disorder among breast cancer patients at the oncology center of Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2019.

Symptoms	Exposure status	Baseline	Outcome	Coefficient	95% CI	t-value	P-value
		Mean (SD)	Mean (SD)				
Anxiety	Intervention	12.49(3.88)	8.21(4.64)	-3.68	-5.67,-1.69	-3.67	<0.001
	Control	12.23(2.73)	11.98(4.62)	-	-	-	-
Depression	Intervention	13.87(3.48)	9.7(4.1)	-3.22	-4.7,-1.69	-4.16	<0.001
	Control	11.75(3.45)	12.23(4.48)	-	-	-	-

Abbreviations: ANCOVA Analysis of covariance, SD standard deviation, CI confidence interval, ANCOVA Analysis of covariance, ¹IPT-E interpersonal psychotherapy adapted for Ethiopian use.

Quality of life of the patients

IPT-E improved physical functioning, decreased insomnia, fatigue, and improved QOL. Psychotherapy was found to be associated with an increased physical functioning in the intervention group (P = 0.006, coefficient 10.55; 95% CI 3.13, 17.98) compared to the control group and participant's age was found to affect the post-intervention physical functioning with (P = 0.02; 95% CI -0.796, -0.071). Base-line depression was found to be associated with post-intervention physical functioning with (P = 0.02; 95% CI -2.45, -0.216).

After the intervention, there was a decrease in fatigue scores. The breast cancer stage significantly affects fatigue; the patient's being stage IV highly increased the post-intervention fatigue score (P = 0.015; 95% CI 5.7, 51.21). The IPT-E had improved the insomnia score with (P = 0.02; 95% CI -31.87, -7.25). Being in the highest quintile negatively affects insomnia with (P = 0.04) (Table 3).

Table 3: ANCOVA result of the effect of IPT-E on treatment outcome among breast cancer patients at the oncology center of Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2019.

Scales	Quality of life domains	Exposure status	Baseline Mean (SD)	Outcome Mean (SD)	Coefficient	95% CI	t-value	P-value	
Functional Scales	Physical functioning	Intervention	66.08(20.33)	73.57(22.00)	10.55	(3.13, 17.98)	2.82	0.006*	
		Control	59.30(26.75)	62.81(25.54)	-				
	Role functioning	Intervention	57.60(32.59)	62.87(34.36)	8.89	(-2.07, 19.85)	1.61	0.111	
		Control	59.94(39.07)	58.48(33.20)	-				
	Cognitive Functioning	Intervention	60.23(29.17)	61.40(29.57)	8.05	(-1.36, 17.45)	1.7	0.093	
		Control	76.90(23.31)	66.96(2.16)	-				
	Emotional Functioning	Intervention	39.62(23.43)	46.35(27.28)	6.54	(-2.75, 15.82)	1.40	0.166	
		Control	55.70(26.92)	48.68(29.20)	-				
	Social Functioning	Intervention	50.29(35.28)	55.56(35.96)	7.09	(-2.68, 16.86)	1.44	0.153	
		Control	64.04(36.57)	51.56(35.96)	-				
	Symptom Scales	Dyspnoea	Intervention	26.32(27.99)	19.88(28.07)	-6.10	(-15.43, 3.22)	-1.30	0.197
			Control	23.39(29.52)	24.56(29.23)	-			
Pain		Intervention	44.44(30.43)	43.57(32.70)	-0.83	(-10.77, 9.10)	-0.17	0.868	
		Control	40.35(31.96)	45.32(31.30)	-				
Fatigue		Intervention	45.42(28.81)	30.99(29.90)	-11.37	(-21.49, -1.24)	-2.23	0.028*	
		Control	48.54(29.22)	44.25(30.32)	-				
Insomnia		Intervention	44.44(36.37)	21.05(27.91)	-19.56	(-31.87, -7.25)	-3.15	0.002*	
		Control	28.07(31.36)	35.09(36.42)	-				
Appetite Loss		Intervention	46.20(34.93)	41.52(37.42)	-3.11	(-14.88, 8.67)	-0.52	0.602	
		Control	47.95(39.35)	49.71(36.25)	-				
Nausea/Vomiting		Intervention	19.59(25.02)	19.59(25.42)	-6.63	(-16.66, 3.39)	-1.31	0.192	
		Control	26.61(31.94)	33.04(32.81)	-				
Constipation		Intervention	29.24(32.78)	31.58(36.96)	-5.36	(-15.08, 4.37)	-1.09	0.277	
		Control	29.82(34.89)	38.01(36.43)	-				
Diarrhea		Intervention	5.85(17.95)	4.09(14.18)	-8.42	(-17.42, 0.58)	-1.86	0.07	
		Control	4.09(14.18)	15.79(24.48)	-				
Financial difficulties		Intervention	67.84(35.62)	64.33(36.66)	-3.02	(-12.33, 6.29)	-0.64	0.522	

		Control	60.23(41.99)	61.99(37.50)	-			
General Health Status	Health-related quality of life/General health status	Intervention	46.93(15.64)	65.79(17.51)	21.85	(14.10, 29.59)	5.60	0.000**
		Control	50.29(17.25)	44.30(16.90)				

Abbreviations: SD standard deviation, CI confidence interval, ANCOVA Analysis of covariance, IPT-E interpersonal psychotherapy adapted for Ethiopian use, *P-value indicates statistically significant values, CMD common mental disorders where in this study it represents anxiety and depression.

Discussion

In this study, IPT was found to be effective in reducing anxiety and depression. This was consistent with the previous studies (23–25). This finding was consistent with one meta-analysis and a randomized controlled trial study, which indicates the usefulness of psychological intervention for cancer survivors with depression and anxiety (23, 24). Similarly, a randomized controlled study conducted in France found a significant reduction in anxiety and depression in the intervention group (25).

Our analysis showed a significant negative association between post-intervention anxiety score and the patient being in the highest quintile. Similarly, a study done in India indicated that those patients with low monthly income and less financial support tend to be more anxious than the other contrasts (26). This is because cancer treatment imposes unbearable costs which cause frustration among patients.

In our study, we found a positive association between post-intervention anxiety score, radiotherapy, and mastectomy treatment. Similarly, another study found that radiotherapy leads to increased emotional distress, anxiety, and depression (27). The potential reason for this may be, patients tend to worry about the critical side effects that they may experience due to the radiotherapy. Patients also tend to frustrate about the likelihood of radiotherapy damaging other organs or giving them to other forms of cancer.

Similarly, breast cancer patients who had mastectomy experienced emotional disturbance (28). Females with mastectomy suffered emotional disturbance. This might be due to the perception that the breast is a sign of womanhood in many cultures, and its absence is believed to affect sexual attraction towards the opposite sex.

In this study physical functioning of patients in the IPT group was improved significantly when compared with that of the control group. This was in line with other randomized controlled trial studies (29–31). Age and depression were negatively associated with physical functioning. This was consistent with the study conducted in Germany (32). This could be due to the high risk of reduced physical functioning and the natural physiological phase of aging among older patients.

There is a significant association between depression and physical functioning. In line with our finding another study showed that, by reducing depressive symptoms, there could be an improvement in physical functioning (33). This may be because depression results in some physical symptoms such as tiredness, weight loss, and loss of appetite, and such physical signs may affect physical functioning.

Insomnia was significantly affected by the therapy administered, similarly, another study found an improved self-rated sleep parameter among breast cancer patients (34), and reduced incidence of sleep disturbances among patients (35). Similarly, another study that implemented 12 weeks of mindfulness-based stress reduction technique found improved sleep quality in patients with breast cancer (36) which implied that sleep difficulties can be alleviated by psychotherapeutic intervention. In our study patients that encountered sleep disturbance were offered sleep hygiene that in turn helped them to alleviate the problem.

Fatigue is also another symptom scale that was improved by IPT. This finding was consistent with another study that determined the effect of mindfulness-based stress reduction technique on reducing fatigue and other study conducted on investigating the effect of supportive-expressive group discussion on quality of life, in cancer survivors (37, 38) which they found a decreased fatigue score among the intervention group. Our result showed that being stage IV highly predicted fatigue.

The possible explanation for this could be that as the stage of the cancer increases physical deterioration becomes inevitable, thereby, patients also started to experience severe pain and fatigue.

The health-related quality of life of breast cancer patients was improved by IPT. Similarly, other studies that used different kinds of therapy techniques have found an improved health-related quality of life (31, 38). Our result revealed that there was a significant association between the patient being in the highest quintile and health-related quality of life. In line with this finding, a study showed that socio-economic status has an impact on health-related quality of life in which the potential explanation could be that levels of income are related to nutrition, accommodation, and access to health care, all of which are important to the HRQOL of a person (39, 40).

Conclusions

In this study, interpersonal psychotherapy for Ethiopian use affected anxiety, depression, and quality of life of breast cancer patients with a common mental health disorder. Hence, health programmers may consider incorporating it as a treatment outcome.

Strengths Of The Study

We used a validated tool and a strong study design to determine the depression, anxiety, and quality of life of the study participants. The inclusion of patients diagnosed with only one type of cancer also ensures the homogeneity of the groups, thus ensuring that the finding is representative.

Limitations of the study

We measured the post-intervention outcome two weeks after the final psycho-therapy session, which might influence our outcome. In addition, the study used the patients' response for outcome assessment so it's somewhat subjective. Additionally, we were unable to control the therapist-to-therapist difference that could influence our outcome.

Declarations

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Code availability: All data generated or analysed during the study are included in this manuscript.

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Data availability: The datasets generated and analyzed during the current study are available from the corresponding author on a reasonable request.

Compliance with ethical standards

Conflict of interest: The authors have no conflicts of interest to declare that are relevant to the content of this article

Ethical approval

This study was performed in line with the principles of the Declaration of Helsinki. Ethical approval was obtained from the institutional review board of the school of public health, Addis Ababa University (SPH/004/2019).

Consent to participate: The participants gave consent to participate in the study through informed written consent.

Consent for publication: The participants gave consent for publication through informed consent.

Author contributions

Conceptualization: Winini Belay, Werissaw Haileselassie; Methodology: Winini Belay, Mirgissa kaba, Wajana Lako, Wondemagegnehu Tigeneh, Werissaw Haileselassie, Abebe Ejigu; Formal analysis and investigation: Winini Belay, Zekariyas Sahle; Writing - original draft preparation: Winini Belay; Writing - review and editing: Mirgissa kaba, Wajana Lako, Wondemagegnehu Tigeneh, Yonas Baheretebeb, Zenawi Hagos Gufue, Abebe Ejigu; Supervision: Winini Belay, Mirgissa kaba, Werissaw Haileselassie; Project administration: Winini Belay, Werissaw Haileselassie; Supervision; Winini Belay, Wajana Lako, Werissaw Haileselassie; Validation; Winini Belay, Zekariyas Sahle; Visualization: Winini Belay, Zekariyas Sahle; Resources: Wajana Lako, Werissaw Haileselassie.

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Figures

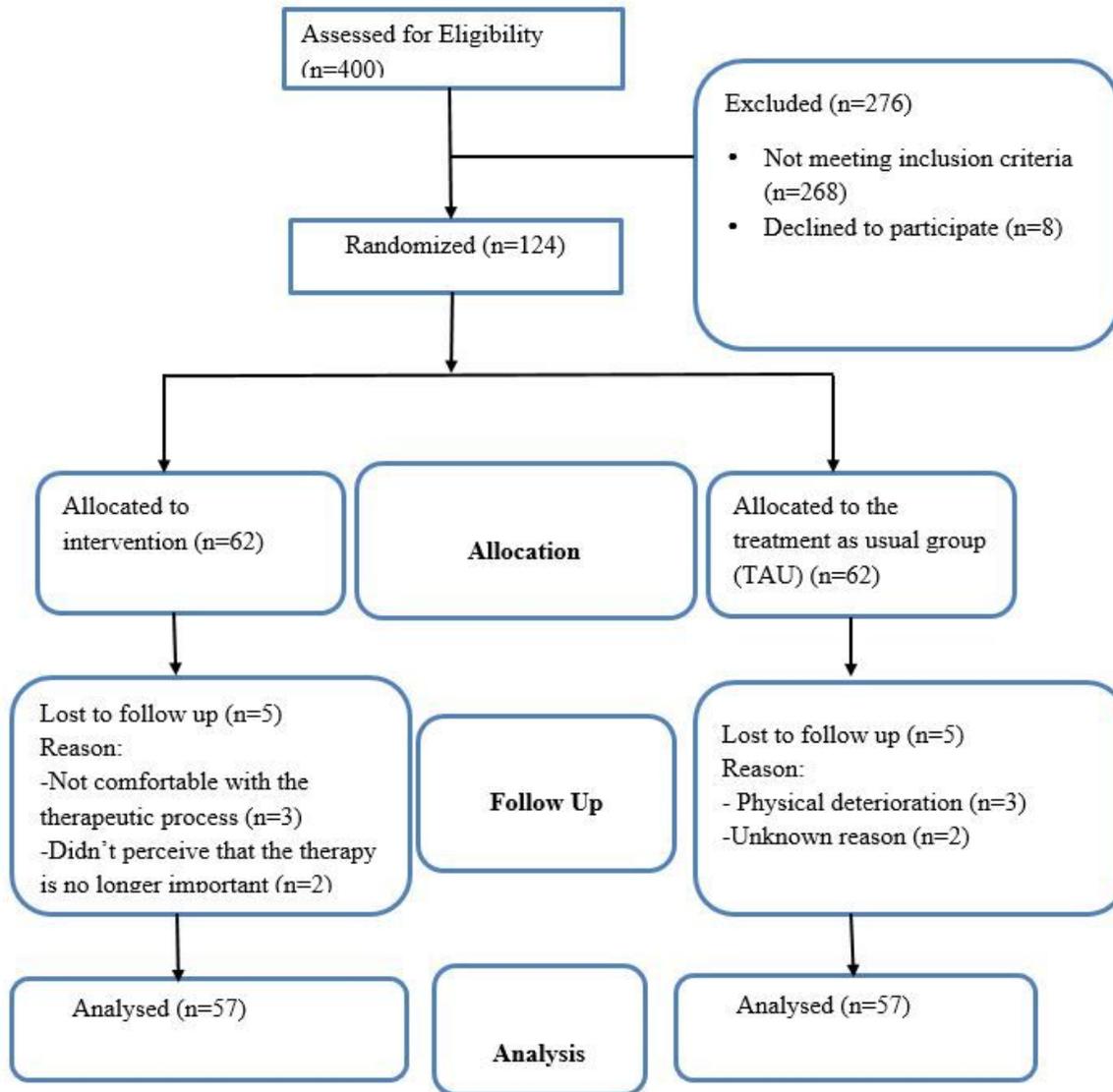


Figure 1

CONSORT flowchart for determining the effect of interpersonal psychotherapy on quality of life among breast cancer patients with common mental health disorders at the oncology center of Tikur Anbessa Specialized Hospital, Addis Ababa, Ethiopia, 2019.