

The Effectiveness of Combined Adjuvant Hormonal Therapy with Emotional Freedom Technique (AH-EFT) on Mental Health Breast Cancer Patients

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ABSTRAK

Kanker payudara merupakan masalah kesehatan global yang heterogen dan signifikan, dengan lebih dari 2,3 juta kasus baru dan 685.000 kematian yang tercatat pada tahun 2020. Meskipun pengobatan seperti operasi dan terapi hormonal adjuvan (AHT) telah terbukti efektif, distres psikologis, termasuk kecemasan dan depresi, masih tetap ada di antara pasien. *Emotional Freedom Techniques* (EFT) menawarkan solusi potensial untuk gejala psikologis; namun, integrasi AHT dan EFT untuk mengoptimalkan hasil tetap kurang dieksplorasi, terutama di lingkungan yang beragam secara budaya seperti Indonesia. Menjembatani kesenjangan ini melalui penelitian multidisipliner dapat meningkatkan perawatan kanker payudara dengan meningkatkan kesejahteraan psikologis. Penelitian ini menggunakan desain kuasi-eksperimental dengan ukuran sampel minimum 176 peserta, yang dihitung menggunakan GPower, dibagi rata antara kelompok intervensi dan kontrol. Data dikumpulkan menggunakan kuesioner yang dimodifikasi dan sintaksis terapi, kemudian diproses melalui analisis eksploratori dan kuantitatif, termasuk metode univariat dan bivariat. Hasil penelitian ini menunjukkan bahwa uji t sampel berpasangan mengungkapkan perbaikan signifikan dalam kesehatan mental untuk semua kelompok, dengan kelompok intervensi (AH-EFT) menunjukkan efek yang paling mencolok ($t = -14.724$, $p = 0.000$). Uji t sampel independen mengonfirmasi perbedaan signifikan antara kelompok eksperimen dan kontrol ($t = 5.479$, $p = 0.000$), dengan kelompok intervensi memiliki skor lebih rendah namun menunjukkan perbaikan yang lebih konsisten. Temuan ini menyoroti bahwa intervensi AH-EFT memiliki potensi untuk meningkatkan hasil kesehatan mental pada pasien kanker payudara di samping perawatan konvensional.

Kata Kunci : Terapi Hormonal Adjuvan - *Emotional Freedom Technique* (AH-EFT), Kanker Payudara, Kesehatan Mental

ABSTRACT

Breast cancer is a heterogeneous and significant global health issue, with over 2.3 million new cases and 685,000 deaths recorded in 2020. While treatments such as surgery and adjuvant hormonal therapy (AHT) have demonstrated efficacy, psychological distress, including anxiety and depression, persists among patients. Emotional Freedom Techniques (EFT) present a potential solution for psychological symptoms; however, the integration of AHT and EFT to optimise outcomes remains underexplored, particularly in culturally diverse settings like Indonesia. Bridging this gap through multidisciplinary research could enhance breast cancer care by improving psychological well-being. This study employed a quasi-experimental design with a minimum sample size of 176 participants, calculated using GPower, evenly distributed between intervention and control groups. Data were collected using modified questionnaires and therapy syntax, and processed through exploratory and quantitative analyses, including univariate and bivariate methods. The results of this study show that the Paired Sample t-test revealed significant mental health improvements for all groups, with the intervention group (AH-EFT) showing the most pronounced effect ($t = -14.724$, $p = 0.000$). The Independent Sample t-test confirmed a significant difference between the experimental and control groups ($t = 5.479$, $p = 0.000$), with the intervention group scoring lower but demonstrating more consistent improvement. These findings highlight that the AH-EFT intervention has the potential to enhance mental health outcomes in breast cancer patient's alongside conventional care.

Keyword : Adjuvant Hormonal Therapy - *Emotional Freedom Technique* (AH-EFT), Breast Cancer, Mental Health

Introduction

Breast cancer (BC) is a heterogeneous disease encompassing a wide variety of pathological entities and a range of clinical behavior (Rakha, Tse and Quinn, 2023). These are underpinned at the molecular level by a complex array of genetic alterations that affect cellular processes (Harbeck *et al.*, 2019). Stage of breast cancer is a metastatic cancer and can commonly spread to distant organs such as the bone, liver, lung and brain, which mainly accounts for its incurability. Early diagnosis of the disease can lead to a good prognosis and a high survival rate (Sun *et al.*, 2017).

Over 2.3 million new cases and 685,000 deaths from breast cancer occurred in 2020. Large geographic variation across countries and world regions exists, with incidence rates ranging from <40 per 100,000 females in some Asian and African countries, to over 80 per 100,000 in Australia/New Zealand, Northern America, and parts of Europe (Arnold *et al.*, 2022). Smaller geographical variation was observed for mortality; however, countries in transition still had a disproportionate number of breast cancer deaths compared to countries in transition. By 2040, the burden from breast cancer is predicted to increase to over 3 million new cases and 1 million deaths every year because of population growth and ageing alone (Arnold *et al.*, 2022).

According to the results of research conducted by The Global Cancer Observatory in 2018, it is known that in 2018 the number of new breast cancer patients in Indonesia was 58,256 women (18% of population), while the new cervical cancer patients were 32,469 women (Bray *et al.*, 2018). According to the Indonesian Ministry of Health's Directorate of Prevention and Control of Non-Communicable Diseases in 2020, breast cancer has the greatest incidence rate in women, the number of new cases of breast cancer reached 68,858 cases (16.6%) of a total of 396,914 new cases of cancer in Indonesia. Meanwhile, the number of deaths reached more than 22 thousand cases (Indonesian Health Ministry, 2020). From the total number of cancer sufferers in North Sumatra in 2019, breast cancer ranks first with 856 cases (Novitarum *et al.*, 2022). As of the result of the preliminary survey conducted by the researchers at Indonesian Cancer Foundation, Medan Regency, the number of breast cancer patients hospitalized in the last three months, from November 2021 to January 2022, is estimated to be 600.

Approximately two-thirds of all breast cancer cases have hormone receptor-positive breast cancer [estrogen receptors positive (ER+) or estrogen receptors positive plus progesterone receptors positive (ER+ plus PR+)]. After primary treatment (surgery, radiation, and chemotherapy), adjuvant hormonal therapy (AHT) is a standard therapy prescribed for most hormone receptor positive breast cancer. The most common two types of AHT used are selective estrogen receptor modulators (SERM) such as tamoxifen and aromatase inhibitors (AI) that inhibit estrogen production such as anastrozole (Saad, Rabea and Salih, 2022). Long-term management by AHT for five years or more is highly effective in reducing recurrence, mortality rates and improve overall survival (Kuo *et al.*, 2022; Drăgănescu & Carmocan, 2017).

Being diagnosed with breast cancer and the various treatment approaches present several challenges to the women which impact on their overall health and wellbeing (Kugbey, Oppong Asante and Meyer-Weitz, 2020). Many women undergoing treatment for recently diagnosed breast cancer report clinically relevant symptoms of anxiety and/or depression (Lopes *et al.*, 2022). Evidence suggests the prevalence of comorbid mental health problems such as anxiety and depression which are linked to decreased quality of life of breast cancer patients (Kugbey, Oppong Asante and Meyer-Weitz, 2020). Longitudinal studies have shown that mental health symptoms tend to improve over time, with many breast cancer survivors reaching similar levels to those of the general population around 1 year after the diagnosis (Carreira *et al.*, 2021).

These common mental health problems exacerbate the health outcomes of the patients due to their interference with illness management as some of the symptoms may include a loss of interest, lack of concentration, loss of appetite, restlessness, hopelessness and, in some cases, suicidal ideation (Kugbey, Oppong Asante and Meyer-Weitz, 2020). Factors that have been associated with poorer mental health and quality of life include younger age at diagnosis, lower socio-economic status, persistent fatigue, lymphedema or arm symptoms, and having had chemotherapy (Carreira *et al.*, 2021).

A promising innovation for addressing psychological distress is called The Emotional Freedom Techniques (EFT) (Dincer and Inangil, 2021). Emotional freedom technique combines elements of established methods such as exposure and cognitive therapies with somatic stimulation in the form of acupressure (fingertip pressure on acupuncture points). It is described in a treatment manual that has been available since the inception of the method (Church *et al.*, 2018). EFT has been proven by more than 100 studies that prove its effectiveness in treating physiological and psychological symptoms (Tambunan *et al.*, 2022). Previous studies have also proven that EFT is statistically significant in dealing with psychological distress based on more than 98% of related studies (Rancour, 2017) In addition, it is also significant in reducing anxiety, depression, fatigue, stress management, and fear (Dincer & Inangil, 2021; Feinstein,

2019; Irmak Vural & Aslan, 2019). And EFT is an effective clinical technique for managing students' mental health issues (Hwan Lee *et al.*, 2017).

Breast cancer treatments prompt changes in a person's physical appearance, sexuality, and fertility that interfere with their identity, attractiveness, self-esteem, social relationships, and sexual functioning. Patients also report more fatigue and sleep disturbances. Treatment side effects, together with prognostic uncertainty cause the woman to suffer negative experiences, such as stress in significant relationships, and emotions, like anxiety, sadness, guilt, and/or fear of death with negative consequences on breast cancer patients' (Ciria-Suarez *et al.*, 2021).

Both the hormonal therapy and emotional freedom technique is important to increase the speed recovery of patients. However, there is limited research yet that address those two treatments at the same time to treat the patients specifically on geographically or cultural base of such as Indonesia. Most treatment in hospital only focuses on treatment the cancer only or treat the psychological only. When in fact, both treatments can go hand in hand to faster the patient's recovery. According to Church & David (2019), clinical EFT (Emotional Freedom Techniques) offers a promising technique to improve both the physical and psychological dimensions of well-being. Therefore, exploring and investigating the efficacy of these combination therapy between adjuvant hormonal and Emotional Freedom Technique to improve mental health in early-stage breast cancer in this research.

Methods

This quasi-experimental study employs a nonequivalent control group design (Manshur & Husni, 2020; Flannelly *et al.*, 2018). involving an experimental and control group, both receiving pretests and posttests without random selection (Siedlecki, 2020). The study targets women with early-stage breast cancer receiving outpatient care at the Indonesian Cancer Foundation, Medan Regency. Sample size calculation using G-Power ($\alpha = 0.05$, effect size = 0.5 (Cohen, 1988), power = 0.95 (Cohen, 1990)) determined a minimum of 176 participants (88 per group), adjusted to 110 per group to account for a 20% attrition rate (Lin *et al.*, 2021). The study employs purposive sampling, including patients aged 18–50 who can read, write, and consent, while excluding those with advanced cancer, non-outpatients, or unwilling to participate.

This study uses two research instruments: a therapy module and a questionnaire. The therapy module, AH-EFT, combines Adjuvant Hormonal Therapy (AHT) with the Emotional Freedom Technique (EFT) to manage emotional distress in breast cancer patients (Sari *et al.*, 2021; Ordu *et al.*, 2018). AHT includes medications like tamoxifen and aromatase inhibitors, while EFT involves tapping on meridian points to reduce negative emotions. Patients in the intervention group took AHT and participated in daily EFT sessions for one month. The control group followed their usual routine. The AH-EFT module underwent expert validation at the Indonesian Cancer Foundation in Medan Regency, achieving an overall content validity of 97%, confirming its feasibility and effectiveness (Tuckman, 1965; Fuad *et al.*, 2019; Ab Razak *et al.*, 2021). Experts rated its clarity, relevance, and integration of Emotional Freedom Technique with hormonal therapy, while qualitative feedback refined language, case studies, and EFT exercises. Sub-module validity averaged 95%, with reliability testing yielding a high Cronbach's Alpha of 0.934, surpassing the 0.6 threshold (Kerlinger, 1979). These findings establish AH-EFT as a valid and reliable tool for enhancing mental health and clinical outcomes in breast cancer patients.

The study also employs the Hospital Anxiety and Depression Scale (HADS) for mental health, a validated 14-item questionnaire assessing anxiety and depression, rated on a 4-point Likert scale (Al Eid *et al.*, 2020; Sileyew, 2019). A validity test was conducted on 30 chronic kidney disease patients undergoing hemodialysis, revealing that all items were valid, as their correlation coefficients exceeded the critical r -value of 0.361 (Azhar, Erdiansyah and Rudiman, 2022). Reliability, which measures an instrument's consistency, was tested using Cronbach's Alpha, yielding a value of 0.882, indicating excellent internal consistency (Amirrudin, Nasution and Supahar, 2021). As a Cronbach's Alpha above 0.700 is considered reliable, this result confirms the instrument's stability and dependability for assessing mental health in breast cancer patients.

The data collection process involves administrative, content, technical, and methodological steps. The researcher obtains ethical approval, designs the AH-EFT module, and secures necessary permissions. Informed consent is gathered, and non-randomised groups are formed. Pre-intervention and post-intervention assessments using the Hospital Anxiety and Depression Scale (HADS) are conducted to measure clinical outcomes and mental health. The intervention lasts one month with daily 1–2 hour sessions, while the control group receives standard therapy. Data is collected at two points: before the intervention (Time 1) and 4–5 weeks after (Time 2) to assess changes. Data analysis in this study involves three approaches: descriptive quantitative analysis to assess the baseline mental health of breast cancer

patients, paired sample t-test to compare pre- and post-intervention differences between the intervention and control groups, and independent t-test to analyze mental health after the AH-EFT intervention within both groups.

Results and Discussions

The data reveals significant improvements in mental health among breast cancer patients in the intervention group, with a marked shift from higher anxiety levels to lower anxiety categories post-test. In particular, the number of participants reporting no anxiety increased from 3% to 18%, and those reporting “a little” anxiety rose from 7% to 55%. Conversely, the control group showed only modest improvements, with slight increases in participants reporting reduced anxiety, but higher anxiety levels remained more prevalent. Overall, while both groups showed positive changes, the intervention group experienced more pronounced improvements, highlighting the effectiveness of the AH-EFT intervention in enhancing mental health among breast cancer patients.

Table 4.1 Frequency Distribution of Pre-Test and Post-Test

No	Category	Value	Intervention Group				Control Group			
			Pre test		Post test		Pre test		Post test	
			F	%	F	%	F	%	F	%
1	No Anxiety	< 7	3	3%	18	18%	0	0%	6	6%
2	A Little	7 - 15	7	7%	55	55%	0	0%	35	35%
3	Moderate	16 - 24	24	24%	27	27%	23	23%	51	51%
4	Quite a bit	25 - 33	39	39%	0	0%	49	49%	8	8%
5	Extremely	34 - 42	27	27%	0	0%	28	28%	0	0%
Total			100	100%	100	100%	100	100%	100	100%

The Kolmogorov-Smirnov (KS) test was used to assess the normality of the data in both the control and intervention groups for pre-test and post-test mental health measures.

Table 4.2 Normality Test

	Group	Statistic	df	Sig.
Pretest	Control	0.077	100	0.148*
	Intervention	0.080	100	0.113*
Posttest	Control	0.066	100	0.200*
	Intervention	0.060	100	0.200*

*significant >0.05

The test results revealed that all significance values were greater than 0.05, with pre-test values of 0.148 and 0.113 for the control and intervention groups, respectively, and post-test values of 0.200 for both groups. These results confirm that the data in both groups are normally distributed, validating the use of parametric statistical methods for further analyses. The KS test findings support the assumption of normality, ensuring that subsequent analyses are based on appropriate data distributions.

The Levene’s Test of Homogeneity of Variances was conducted to assess whether the variances between the intervention and control groups were equal.

Table 4.3 Homogeneity Test

Group		Levene Statistic	df1	df2	Sig.
Pretest	Based on Mean	3.469	1	198	0.064
	Based on Median	3.421	1	198	0.066
	Based on Median and with adjusted df	3.421	1	183.110	0.066
	Based on trimmed mean	3.523	1	198	0.062
Posttest	Based on Mean	0.180	1	198	0.672
	Based on Median	0.176	1	198	0.675
	Based on Median and with adjusted df	0.176	1	197.198	0.675
	Based on trimmed mean	0.179	1	198	0.672

*significant >0.05

The test results for both pre-test and post-test data showed significance values above 0.05: 0.064 for the pre-test and 0.672 for the post-test. These results indicate that the variances between the groups are homogeneous. Therefore, it can be concluded that the variances within both the intervention and control groups are equal, ensuring the validity of subsequent statistical comparisons and analyses.

The Paired Sample t-test was conducted to assess the impact of the Adjuvant Hormonal Therapy with Emotional Freedom Technique (AH-EFT) intervention on mental health scores before and after treatment.

Table 4.4 Paired Sample T-test

Group	Mean	95% Confidence Interval of the Difference		t	Sig. (2-tailed)
		Lower	Upper		
Pair 1 Pretest - Posttest	-14.32500	-15.72978	-12.92022	-20.109	0.000*
Pair 2 Control Pretest - Control Posttest	-13.24000	-15.14426	-11.33574	-13.796	0.000*
Pair 3 Intervention Pretest - Intervention Posttest	-15.41000	-17.48668	-13.33332	-14.724	0.000*

*significant <0.05

The results, presented in Table 4.20, indicate significant improvements in mental health across all groups. For Pair 1 (overall participants), the t-value of -20.109 with a significance of 0.000 demonstrates a substantial improvement in mental health scores after the intervention. For Pair 2 (control group), the t-value of -13.796 and significance of 0.000 show significant improvement, likely due to standard care. For Pair 3 (intervention group), the t-value of -14.724 and significance of 0.000 highlight a significant positive effect of the AH-EFT intervention on mental health. Overall, the results show that while both groups experienced improvements, the intervention group showed a more pronounced effect, demonstrating the efficacy of AH-EFT in enhancing mental health outcomes.

The independent sample t-test was employed to compare the mental health outcomes between two groups of breast cancer patients: those receiving the Adjuvant Hormonal Therapy with Emotional Freedom Technique (AH-EFT) module (experimental group) and those receiving regular/conventional care (control group).

Table 4.5 Independent Sample T-Test Results Comparing Control and Intervention Groups

	Levene's Test for Equality of Variances				t-test for Equality of Means				
	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
								Lower	Upper
Equal variances assumed	0.180	0.672	5.479	198	0.000	4.32000	0.78845	2.76516	5.87484
Equal variances not assumed			5.479	197.590	0.000	4.32000	0.78845	2.76514	5.87486

*significant <0.05

The homogeneity of variance was confirmed with Levene's test, showing a significance of 0.672 ($p > 0.05$), indicating that the variances of the two groups were equal. The results in Table 4.23 show a significant t-value of 5.479 ($p = 0.000$), which is much greater than the critical t-value of 1.9721, indicating a significant difference in the level of mental health before and after the intervention between the two groups. The experimental group (AH-EFT) had a mean mental health score of 11.4900, compared to the control group's mean score of 15.8100, as shown in Table 4.24. Despite the lower mean score in the experimental group, the intervention's effectiveness is reflected in its more consistent mental health scores, suggesting a positive effect.

Table 4.6 Comparison of Mean Scores Between Control and Intervention Groups

Group	N	Mean	Std. Deviation	Std. Error Mean
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Posttest	Control	100	15.8100	5.70078	0.57008
	Experiment	100	11.4900	5.44670	0.54467

The study's findings support the hypothesis that the AH-EFT intervention leads to a significant difference in mental health outcomes, with the experimental group demonstrating improvements in mental health compared to the control group. These results highlight the potential of the AH-EFT module as a beneficial addition to conventional care for breast cancer patients, offering a promising avenue for enhancing mental well-being in clinical settings.

This study's findings align with previous research that underscores the significant impact of AHT side effects on the quality of life and mental health of breast cancer patients. Haidinger & Bauerfeind (2019) identified long-term symptoms such as fatigue, depression, and peripheral neuropathy, which are commonly experienced after cancer treatments, with AHT contributing to fatigue, joint pain, and mood disturbances. While AHT's side effects tend to be less severe than those of chemotherapy, they still have a considerable impact on patients' overall well-being. Studies by Bichoo et al. (2021) and Saad et al. (2022) further emphasize the negative effects of AHT on quality of life and treatment adherence. The research also highlights the benefits of complementary psychological interventions, such as SEFT (Afriyanti & Wenni, 2018) and Emotional Freedom Technique (EFT) (Tack et al., 2021; Bach et al., 2019), in alleviating these challenges. These findings reinforce the potential for integrating AHT with therapies like EFT, which can improve emotional resilience, address psychological symptoms, and enhance overall patient well-being.

Conclusion and Recommendation

The Paired Sample t-test results indicate significant improvements in mental health across all groups, with the intervention group (AH-EFT) showing the most pronounced effect. The overall participants (Pair 1) had a t-value of -20.109 ($p = 0.000$), suggesting substantial improvements in mental health after the intervention. Both the control and intervention groups showed significant improvements, but the intervention group exhibited more notable effects, with a t-value of -14.724 ($p = 0.000$). The Independent Sample t-test confirmed a significant difference in mental health outcomes between the experimental and control groups ($t = 5.479$, $p = 0.000$), with the experimental group showing a mean score of 11.49, compared to the control group's 15.81. These findings demonstrate the effectiveness of AH-EFT in enhancing mental health outcomes for breast cancer patients, highlighting its potential as a valuable complement to conventional care.

Based on the findings, it is recommended that healthcare providers consider integrating the AH-EFT intervention into standard care for breast cancer patients to enhance their mental health outcomes. Future research could explore the long-term effects of AH-EFT on emotional well-being and its potential to be applied across other cancer types or chronic conditions. Additionally, further studies could investigate the scalability of the intervention, including its applicability in diverse healthcare settings and its impact on a broader patient demographic. This will help to better understand the full potential of AH-EFT as a complementary therapy in cancer care and its broader application in improving patients' quality of life.

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