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Research Article

Effect of a Short-Term Integrative Program on Quality-of-Life of Breast Cancer Patients and Survivors

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Abstract

Background: The combination of conventional oncology with evidence-based complementary treatment approaches is an emerging field which aims to treat patients in a comprehensive manner to improve their quality-of-life (QoL) as well as spiritual and psychological needs.

Objective: To evaluate the effectiveness of an integrative program, comprising physical and psychological domains delivered for 5 consecutive days, on improvement in the QoL of breast cancer patients and survivors.

Methods: Eighty breast cancer patients and survivors (mean age 56.5 years) enrolled in the program as an add-on to their standard of care treatments. They completed the EORTC QLQ-C30 questionnaire, the 5-level EQ-5D version (EQ-5D-5L) questionnaire and the 36-Item Short Form Survey (SF36) at 3 points during the study: at baseline prior to the start of the intervention, on the first and fifth (last) day of the intervention and 4 weeks after completing it.

Results: All subscores of the SF-36 questionnaire and the EORTC QLQ-C30 significantly increased at the end of the intervention compared to the baseline assessment at the beginning of the intervention. A significant decrease was observed for all 5 health problems of the EQ-5D-5L questionnaire at the end of the intervention compared to the baseline assessment. Improved QoL was maintained 4 weeks after the end of the intervention.

Conclusion: An integrative intervention can provide non-pharmacologic recovery support that optimizes QoL and reduces the symptom burden in breast cancer patients and survivors.

Keywords: Breast cancer; Integrative program; Patients; Quality of life; Survivors

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Introduction

In 2018, there were approximately 43.8 million cancer survivors worldwide diagnosed within the previous 5 years [1]. More than 18 million Americans were cancer survivors in 2022 [2]. Cancer and its treatments render many cancer survivors with lost personal independence and the challenge of regaining former levels of health and well-being. For example, survivors are burdened with depressive symptoms, anxiety, distress, pain, sleep disturbance and fatigue, often for more than 10 years after treatment [3-6]. These symptoms have been found to contribute to worse perceived cognitive functioning in breast cancer survivors [5]. Cancer survivors have reported unmet needs, such as help with psychosocial issues (e.g., fear of cancer recurrence, uncertainty about the future, worry about partners, friends, and families), help to reduce stress and sexual changes. Survivors also needed more help with supportive care, physical issues, including fatigue and usual activities [6-9]. The transition from active treatment to survivorship has been reported to be especially challenging for young adult cancer survivors [10-13]. Therefore, after completing active cancer treatment, it is important to help patients regain functioning and social participation. Cancer rehabilitation, defined as "a set of interventions designed to optimize functioning and reduce disability in individuals with health conditions, in interaction with their environment" [14], is recommended in many clinical guidelines and is a recognized component of oncology care [15,16]. It may include various interventions, including psychological interventions, physical activity, physical therapy, supportive medications to treat symptoms, and assistance for social reintegration [15]. The interventions may be provided as inpatient care in rehabilitation clinics, in outpatient clinics or at home [17].

Focus groups among cancer survivors have revealed the need to expand conceptualization of high-quality survivorship care which must reflect patients' priorities. Specifically, a patient-centered survivorship care system must be organized that empowers and respects patients and provides a holistic approach to survivors' chronic and long-term needs [18].

The combination of conventional oncology with evidence-based complementary treatment approaches is an emerging field which aims to treat patients in comprehensive manner and therefore also attempts to meet patients' health-related quality of life (QoL) as well as spiritual and psychological needs [19].

The InHeal Therapeutic process was developed to improve the general health status of individuals with cancer and chronic diseases, including both the physical and psychological domains that make up holistic wellbeing. The five-day process includes preparation of body

and mind to allow positive entrance to the process. This preparation process comprises personal treatments as well as group sessions to establish body and mind balance and to strengthen the body before the InHeal process. A physical part includes treatment such as acupuncture, naturopathy, yoga, reflexology and breathing sessions. Emotional healing and energetic personal treatments are conducted to reveal hidden, often subconscious, traumas and fears. These include energetic washout sessions and The Journey® method, and are provided by trained and qualified emotional therapists. In addition to these two treatments the participants undergo two "meditation for healing and forgiveness" sessions, a "healing the inner child" meditation session and Tong Lan meditation. Both the Tong Lan meditation and the Journey® method deal with forgiveness processes whereby traumas and fears and associated emotions rise during earlier stages and these induced emotions are met with acceptance, warmth, forgiveness, calmness and increased peace of mind and positive balance.

During the 5-day workshop several additional treatments and activities take place, including group dynamics, yoga breathing sessions, dietary consulting, acupuncture, energetic washout, The Journey® guided imagery session, mindfulness, vocal yoga therapeutic sessions and reflexology. The entire process is overseen by a psychologist.

This study evaluated the change in health-related QoL among patients with cancer and cancer survivors following participation in the InHeal process. We hypothesized that an improvement in QoL would be observed following participation in the program.

Methods

Participants and setting

Adult cancer patients and survivors aged 18 to 70 years who were planning to participate in the InHeal program as an add-on to their standard of care treatments were contacted by phone and provided with information about the study. Individuals who were interested in enrolling in the study were screened according to eligibility criteria. Individuals were excluded from participation in the study if they had severe pain due to other conditions that may confound assessment or self-evaluation of the pain associated with cancer, if they had a personality disorder or mental retardation or if they had a diagnosis of social phobia, generalized anxiety disorder, psychosis, major depressive disorder, schizoaffective disorder, or any other disorder with psychotic symptoms according to the clinical opinion of the investigator.

The intervention took place at the therapeutic center. The participants received full-board accommodation for the five days of the intervention, including meals supervised by a dietician. After concluding the 5-day intervention, the participants returned to their homes.

A follow up one-hour session was conducted once a week for four weeks after the end of the intervention.

The study was approved by Shaare Tzedek Medical Center's ethics committee (approval number 0532-20-SZMC, dated 11/10/2021). All participants received an explanation about the study and its procedures and signed an informed consent prior to enrolling in the study.

Intervention

During the 5-day intervention the following activities were performed:

Day 1: (1) Intake: recording of medical history and concomitant medications (on the first day of the intervention). The goal of the intake is to map the participant's physical and psychological state and his/her illness as a pre-assessment before starting the process. (2) An orientation meeting designed to (a) obtain participants' understanding and commitment for the process, and (b) explain the benefits of the special diet used during the process (no sugar, no white flour, food that is rich in vegetables, protein and antioxidants). The orientation meeting was carried out on the first day of the intervention and was managed by an integrative therapist. (3) Group dynamics to disclose each participant personal reasons and goals for being part of the InHeal process (practice of mirror learning). (4) A lecture dealing with mindfulness practices and a screening of the movie " Heal" which demonstrates success stories as a result of these type of practices to create the right atmosphere for the process. (5) A guided imagery session. (6) Introduction to meditation.

Day 2: (1) A yoga session, (2) a personal dietary session with a naturopathic physician aimed to strengthen each participant physical condition by making a personalized diet change, (3) an acupuncture personal treatment, (4) a trauma release yoga practice.

Day 3: (1) A yoga session, (2) an energetic washout session: a deep breath practice that is supported by massaging trigger points in order to restart the flow of energy throughout the body, (3) a guided imagery session.

Day 4: (1) A yoga session, (2) The Journey method® to uncover root causes and support emotional healing, (3) Tong Lan meditation, (4) Healing the Inner child therapeutic session, (5) personal reflexology treatment.

Day 5: (1) A yoga session, (2) a forgiveness and release ceremony, an emotional process that enables the participant to forgive and reframe their old narrative create an opening for a new beginning.

At follow-up, conducted once a week for 4 weeks after the end of the 5-day intervention, the participants underwent an energetic washout session and The Journey® session. The participants received a new recorded meditation each day.

Outcome measures

To assess the participant's change in QoL following the intervention, the subjects completed the European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30), the 5-level EQ-5D version (EQ-5D-5L) questionnaire and the 36-Item Short Form Survey (SF36) at 3 points during the study: On the first and fifth (last) day of the InHeal process and 4 weeks after completing the 5-day InHeal process.

The EORTC QLQ-C30 [20] is a core generic questionnaire associated with different disease specific modules. It is one of the most widely used health-related QoL questionnaires in cancer research. It assesses important functioning domains (e.g., physical, emotional, role) and common cancer symptoms (e.g., fatigue, pain, nausea/vomiting, appetite loss).

The EQ-5D-5L [21] comprises five dimensions: mobility, self-care, usual activities, pain/discomfort and anxiety/depression. Each

dimension has 5 levels: no problems, slight problems, moderate problems, severe problems and extreme problems. The patient is asked to indicate his/her health state by ticking the box next to the most appropriate statement in each of the five dimensions. This decision results in a 1-digit number that expresses the level selected for that dimension. The digits for the five dimensions can be combined into a 5-digit number that describes the patient's health state.

The SF-36 [22] comprises 36 questions which cover eight domains of health: (1) Limitations in physical activities because of health problems; (2) Limitations in social activities because of physical or emotional problems; (3) Limitations in usual role activities because of physical health problems; (4) Bodily pain; (5) General mental health (psychological distress and well-being); (6) Limitations in usual role activities because of emotional problems; (7) Vitality (energy and fatigue); and (8) General health perceptions.

Statistical analysis

Demographic parameters were analyzed using descriptive statistics. To examine the differences among the three time points for continuous variables, a one-way multivariate analysis of variance (MANOVA) for repeated measures was conducted. To examine differences between the three time points for binary variables (the presence or absence of health problems), Cochran's Q tests were conducted. Post-hoc analysis for pairwise comparisons were conducted with Bonferroni correction.

Results

Demographic and clinical characteristics of the study population

A total of 80 participants were included in the study, most of them (79/80, 98.8%) were female. The median age of the participants was 56.5 years (range, 32-74). Most participants were married or living with a partner (71.3%) and had a tertiary education (78.8%). Over half of the participants (53.8%) reported working – either full or part time, while a third (32.5%) reported not working at the time of the intervention (Table 1).

Most participants had breast cancer (98.8%); one participant had ovarian cancer. Most participants (96.3%) were diagnosed in the 3 years prior to the intervention. At the time of the intervention, 15% of participants were still undergoing treatment for cancer, and 71.3% completed treatment (Table 1).

Variable	Study population N=80
Age, years, median (range)	56.5 (32-74)
Sex, n (%)	
Female	79 (98.8%)
Male	1 (1.2%)
Marital status, n (%)	
Married/living with a partner	57 (71.3%)
Separated/divorced	15 (18.8%)
Widowed	5 (6.3%)
Single	3 (3.8%)
Education, n (%)	
Primary school	4 (5.0%)
Secondary school	13 (16.3%)
Tertiary – non-academic	16 (20.0%)
Academic	47 (58.8%)
Employment status, n (%)	
Full time	26 (32.5%)
Part time	17 (21.3%)
Retired	11 (13.8%)
Unemployed	26 (32.5%)
Cancer diagnosis, n (%)	
Breast cancer	79 (98.8%)
Ovarian cancer	1 (1.2%)
Time since diagnosis, years, n (%)	
≤1	64 (80.0%)
2	13 (16.3%)
3	1 (1.2%)
10	1 (1.2%)
Unknown	1 (1.2%)
Treatment status, n (%)	
Active	12 (15.0%)
Completed treatment <1 years	24 (30.0%)
Completed treatment ≥1 year	33 (41.3%)
Unknown	11 (13.8%)

Table 1: Demographic and clinical characteristics of the study population.

Change in health-related QoL following the intervention

All subscores of the SF-36 questionnaire significantly increased at the end of the intervention compared to the baseline assessment at the beginning of the intervention (Table 2). The percent increase ranged from 105% (for the general mental health domain) to 192% (for the role limitation due to physical health problems). Multivariate analysis showed a significant effect of time, with a very large effect size, meaning overall significant differences, between the three time points in health indices, F (16.64) = 29.18, p < .001, = .879. A post-hoc analysis revealed that all indices were significantly higher after the intervention, compared to before the intervention. No statistically significant changes in subscores were observed between the scores obtained immediately at the end of the intervention and the score obtained 4 weeks after the end of the intervention.

A significant decrease was observed for all 5 health problems of the EQ-5D-5L questionnaire at the end of the intervention compared to the baseline assessment at the beginning of the intervention (Table 3). The percent decrease ranged from 46% (for self-care problems) to 75% (for depression problems). The post-hoc analysis indicated that the proportion of the existence of each of the 5 health problems were significantly lower after the intervention and one month after the end of the intervention, compared to before the intervention. No statistically significant changes in subscores were observed between the scores obtained immediately at the end of the intervention and the score obtained 4 weeks after the end of the intervention.

A statistically significant increase was observed for all 6 subscores of the EORTC QLQ-C30 questionnaire at the end of the intervention compared to the baseline assessment at the beginning of the intervention (Table 4). The percent increase ranged from 104%

SF-36 domains	T1		T2		T3		MANOVA for repeated measures			Post-hoc Adj p-values		
	Mean	(SD)	Mean	(SD)	Mean	(SD)	F	p	eta	T2-T1	T3-T1	T3-T2
PF	36.56	(25.09)	87.25	(14.97)	91.06	(11.52)	244.30	<.001	.76	<.001	<.001	.201
RP	28.28	(22.63)	82.66	(17.95)	83.28	(16.69)	209.27	<.001	.73	<.001	<.001	1.000
RE	31.77	(24.99)	84.69	(17.56)	86.88	(17.07)	187.41	<.001	.70	<.001	<.001	1.000
VT	32.06	(15.96)	79.00	(10.60)	75.25	(12.63)	296.69	<.001	.79	<.001	<.001	.117
MH	39.15	(16.84)	80.30	(9.00)	78.85	(10.07)	302.75	<.001	.79	<.001	<.001	.865
SF	32.66	(26.12)	90.31	(14.88)	93.75	(13.19)	276.79	<.001	.78	<.001	<.001	.287
BP	35.81	(28.86)	83.69	(17.59)	86.88	(17.38)	164.21	<.001	.68	<.001	<.001	.529
GH	38.19	(20.58)	85.00	(13.36)	87.63	(15.24)	230.01	<.001	.74	<.001	<.001	.737

Table 2: Thirty-six-item Short Form Survey (SF-36) subscores at baseline (T1), at the end of the 5-day intervention (T2) and at the end of follow-up (T3).

The differences among the three time points were analyzed by one-way multivariate analysis of variance (MANOVA) for repeated measures. Post-hoc analysis for pairwise comparisons were conducted with Bonferroni correction.

Abbreviations: BP, bodily Pain; GH, general health perceptions; MH, general mental health, covering psychological distress & well-being; PF, physical functioning; RE, role limitations due to emotional problems; RP, role limitations due to physical health problems; SD, standard deviation; SF, social functioning; VT, vitality, energy or fatigue

EQ-5D-5L domains		T1		T2		T3		Cochran's Q tests		Post-hoc Adj p-values		
		n	(%)	n	(%)	n	(%)		p	T2-T1	T3-T1	T3-T2
Mobility Problems	No Problems	26	(32.5)	66	(82.5)	67	(83.8)	65.64	<.001	<.001	<.001	1.00
	Any Problems	54	(67.5)	14	(17.5)	13	(16.3)					
Self-Care Problems	No Problems	40	(50.0)	77	(96.3)	80	(100.0)	72.63	<.001	<.001	<.001	1.00
	Any Problems	40	(50.0)	3	(3.8)	0	(0.00					
Usual Activities Problems	No Problems	12	(15.0)	61	(76.3)	61	(76.3)	77.45	<.001	<.001	<.001	1.00
	Any Problems	68	(85.0)	19	(23.8)	19	(23.8)					
Pain Problems	No Problems	6	(7.5)	47	(58.8)	41	(51.3)	48.23	<.001	<.001	<.001	1.00
	Any Problems	74	(92.5)	33	(41.3)	39	(48.8)					
Depression Problems	No Problems	13	(16.3)	73	(91.3)	70	(87.5)	107.16	<.001	<.001	<.001	1.00
	Any Problems	67	(83.8)	7	(8.8)	10	(12.5)					

Table 3: Five-level EQ-5D version (EQ-5D-5L) questionnaire subscores at baseline (T1), at the end of the 5-day intervention (T2) and at the end of follow-up (T3).

To examine differences among the three time points Cochran's Q tests were conducted. Post-hoc analysis for pairwise comparisons were conducted with Bonferroni correction.

	T1		T2		T3		MANOVA for repeated measures			Post-hoc Adj p-values		
	Mean	(SD)	Mean	(SD)	Mean	(SD)	F	p	eta	T2-T1	T3-T1	T3-T2
Global health status	33.13	(26.32)	90.42	(12.59)	88.85	(12.85)	251.32	<.001	.761	<.001	<.001	1.000
Physical function	44.50	(26.58)	90.75	(11.30)	92.50	(10.08)	196.17	<.001	.713	<.001	<.001	.910
Physical function	34.17	(28.67)	91.46	(14.52)	92.71	(16.31)	210.54	<.001	.727	<.001	<.001	1.000
Emotional function	31.15	(27.20)	94.69	(10.38)	91.35	(13.62)	298.21	<.001	.791	<.001	<.001	.153
Cognitive function	37.29	(29.44)	88.75	(16.08)	91.88	(12.99)	202.13	<.001	.719	<.001	<.001	.433
Social function	31.88	(26.68)	92.08	(20.02)	94.38	(12.70)	246.55	<.001	.757	<.001	<.001	.937

Table 4: European Organization for the Research and Treatment of Cancer Quality of Life Questionnaire (EORTC QLQ-C30) subscores at baseline (T1), at the end of the 5-day intervention (T2) and at the end of follow-up (T3).

The differences among the three time points were analyzed by one-way multivariate analysis of variance (MANOVA) for repeated measures. Post-hoc analysis for pairwise comparisons were conducted with Bonferroni correction.

Abbreviations: SD, standard deviation

(for physical function) to 204% (for emotional function). The multivariate analysis showed a significant effect of time, with a very large effect size, F (12.68) = 40.13, p < .001, = .876. No statistically significant changes in subscores were observed between the scores obtained immediately at the end of the intervention and the score obtained 4 weeks after the end of the intervention.

Discussion

This study evaluated the effectiveness of the InHeal process among breast cancer patients and survivors using 3 QoL questionnaires. Our results showed marked improvements in all QoL domains and a decrease in reported health problems between baseline and the end of the 5-day intervention, which were maintained 4 weeks after the end of the intervention.

Anderson et al., [23] have identified that QoL was the most important outcome to breast cancer survivors. In these women health habits like physical activity and good nutrition were found to interact in daily life with each other and with psychosocial factors such as fear of recurrence, emotional distress and sleep quality [23]. Many studies evaluated the effect of only one type of intervention, such as physical activity, Qigong mind–body exercise, or mindfulness on QoL, mood, depression and fatigue among breast cancer survivors [24-29]. However, a single type of intervention may not be as effective in the long term as an integrative program that encompasses both physical and mental aspects. For example, a meta-analysis of 23 studies had found moderate-quality evidence to support the recommendation of yoga as a supportive intervention for improving health-related QoL and reducing fatigue and sleep disturbances among women with breast cancer when compared with no therapy, as well as for reducing depression, anxiety and fatigue, when compared with psychosocial/educational interventions [30]. A systematic review of 14 randomized controlled studies, which assessed the effect of mindfulness-based stress reduction in women with breast cancer, concluded that it slightly reduces anxiety, depression and slightly improves quality of sleep at both the end of the intervention and up to six months later, but had little to no effect on anxiety and depression two years later [31].

We attribute the high rate of improvement in QoL observed in the InHeal process to the firm structure of the program consisting of a combination of personal treatments along with group support sessions. Throughout the program all activities are supervised and followed closely by the psychologist, thereby allowing particular observation and specific personal guidance throughout the process. Each participant is closely watched, treated and followed through to successful completion of the transformation process.

Qualitative studies conducted among breast cancer survivors regarding their experiences in interventions such as mindful movement [32] and massage [33] have suggested that the study participants perceived emotional and physical healing facilitated by shifts in coping and appraisal mechanisms. Breast cancer survivors that participated in interventions that included conventional exercise-based rehabilitation [34] and mindful movement [35] described a rediscovery of their body's strength and ability [34] as well as enabling them to reconnect mind and body, lessen their pain, and make peace with their bodies [35].

Comparison to other integrative programs that assessed QoL among cancer survivors and particularly breast cancer survivors is difficult due to the different structure of the program components, the program duration and follow-up and the scales used for assessing the change in QoL. Three other integrative programs comprising similar elements have used the same QoL scales [36-38]. Two of the programs [36,37] comprised weekly meetings for 5-6 hours in a single day per week and lasted for 10-11 weeks. While one of these programs [36] showed significant improvements in all QoL domains after 11 weeks, the other program [37] did not find significant effects on global QoL or resilience after 10 weeks, but patients with anxiety and low initial resilience benefited the most from the program. The third program, The Women's Wellness after Cancer Program [38], which uses an e-health platform, reported statistically significant improvements in general health, bodily pain, vitality, and global physical and mental health scores; however, improvements across several QoL domains, albeit to a lesser magnitude, were also noted in the control group, which comprised cancer survivors treated with usual care, though the magnitude of change was less. While the InHeal program only lasts for 5 days with weekly sessions for 4 weeks thereafter, it seems that the intensity of the program and the fact that the participants receive full board accommodation contribute to the improvement in reported QoL.

We perceive that the main difference between the current study and the other studies lies in the multi-level process of the Inheal method. The InHeal method is a body-mind-emotion process, in which the participants go through an intensive week that enables them to discover the emotional root cause of their stress. Finding the root cause helps the subjects decrease the influence of trauma on their body and soul [39]. The techniques and methods used trigger the old traumas of the participant to surface consciously. As Fraud had suggested, the healing of old traumas is possible when the trauma is retouched in the clinic [40].

The resurfacing of trauma reveals subconscious programming that the traumas had created). Through the specific methods used in the Inheal program the participants can create a new narrative that allows them to heal themselves emotionally. This may explain the significant changes in QoL.

The study's strength lies in its evaluation of QoL using 3 different validated scales. The study is limited by its single arm design, and its relatively short assessment duration. Additionally, selection bias (i.e., motivated individuals enrolling in lifestyle intervention) may have affected the representativeness of the sample. The questionnaires were self-reported by participants which is associated with an increased risk of response bias due to the misinterpretation of questions and social-desirability bias even if the survey was de-identified. As all participants were breast cancer survivors, our finding may not be generalizable to other survivors of other cancers. Future research should include a placebo arm, longer follow-up and examine the program in other cancer survivor groups.

Conclusion

An integrative intervention can provide non-pharmacologic recovery support that optimizes QoL and reduces the symptom burden in breast cancer patients and survivors.

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Author's Contribution

NP designed the study and its methodology, and oversaw data collection, contributed to the interpretation of the results and reviewed the manuscript draft. EC and OH contributed to the interpretation of the results and reviewed the manuscript draft. VAM supervised the study, contributed to the interpretation of the results and wrote the original manuscript draft. All authors approved the final version of the manuscript.

Disclosure of Conflicts of Interest

The authors declare no conflicts of interest.

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