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# **The Effect of Self-Selected Complementary Therapies on Cancer Patients' Quality of Life and Symptom Distress: A Prospective Cohort Study in an Integrative Oncology Setting**

## **Abstract**

### *Objective*

To examine the effectiveness of a multifaceted complementary therapies intervention, delivered in a systematic manner within an Australian public hospital setting, on quality of life and symptom distress outcomes for cancer patients.

### *Methods*

Adults receiving treatment for any form of cancer were eligible to participate in this study. Self-referred participants were offered a course of six complementary therapy sessions. Measures were administered at baseline, and at the third and sixth visit. The primary outcomes were quality of life and symptom distress. Linear mixed models were used to assess change in the primary outcomes.

### *Results*

In total, 1376 cancer patients participated in this study. The linear mixed models demonstrated that there were significant improvements in quality of life and significant reductions in symptom distress over six sessions. Body-based therapies demonstrated significantly superior improvement in quality of life over counselling, but no other differences between therapies were identified. Reduced symptom distress was not significantly associated with any particular type of therapy.

### *Conclusion*

A self-selected complementary therapies intervention, provided in an Australian public hospital by accredited therapists, for cancer patients significantly improved quality of life and reduced symptom distress. The effect of this intervention on quality of life has

particular salience, since cancer impacts on many areas of people's lives and impairs quality of life.

**Keywords:** Cancer; Complementary Therapies; Quality of Life; Distress; Prospective Study.

## **Background**

Cancer patients commonly use complementary medicine therapies as an adjunct to standard care. A systematic review reported that the point prevalence of complementary therapy use among Australian cancer patients was 40%, which reflected the pooled prevalence across all countries. (1) The results of the systematic review also found that there was a consistent trend towards increased use of complementary therapies among cancer patients, with the prevalence shifting from 25% in the 1970's and 1980's, 32% in the 1990's, to an estimated 49% after 2000. (1) The ongoing rise in the use of complementary medicine for cancer by the general public has led to some conventional oncology services implementing strategies that might assist in meeting this increase in demand.(2)

Integrative oncology has emerged in response to cancer patients increasing use of complementary medicine.(2) Such treatment aims to reduce the side effects of standard care, improve emotional health and quality of life, and in some instances augment the effect of standard care.(3, 4) The provision of integrative oncology is often informed by a patient-centred approach, in which different types of health professionals work collaboratively in order to care for the whole person and promote health and wellbeing.(5)

Evidence-based clinical guidelines have been developed for integrative oncology. These guidelines report that cancer patients may benefit from the use of the following types of complementary therapies: mind-body techniques (meditation, yoga, tai chi, relaxation techniques); body-based practices (massage, reflexology, Alexander technique, Pilates); energy therapies (external qi gong, Reiki, polarity therapy, pranic healing); and acupuncture.(6) Benefits that result from the use of these complementary therapies varies from therapy to therapy, but typically include reduced pain, fatigue, and anxiety, along with improved quality of life.(3, 4, 7) The strength of the supporting evidence also differs between complementary therapies, but it is important to note that all of the aforementioned therapies have been shown to be safe for cancer patients to use.(6)

The effectiveness of complementary therapies for the management of cancer symptoms and standard care side effects has typically been established in studies involving the use of a single complementary therapy. However, in everyday settings, integrative oncology takes the form of a complex intervention, commonly comprising several types of therapies.(5, 6) Scant evidence is currently available about the effectiveness of integrative oncology services. In Western Australia, a new innovative approach to integrating complementary therapies within the acute care hospital in addition to standard care, was instigated through the establishment of a cancer support centre in 2001.(8) Our study addresses the literature gap through establishing the effectiveness of a multifaceted complementary therapies intervention, delivered in a systematic manner through this centre situated within an Australian public hospital setting, on quality of life and symptom distress outcomes for cancer patients.

## **Methods**

### *Study Design*

A prospective cohort study was undertaken at a cancer support centre located within a public hospital in Western Australia. Ethical approval for this study was obtained from the Sir Charles Gardiner Hospital Human Research Ethics Committee.

### *Participants*

Adults receiving treatment for any form of cancer were eligible to participate in this study. No other inclusion or exclusion criteria were applied. At the initial presentation to the cancer support centre, potential participants were informed about the nature of the study and required to provide informed written consent before being enrolled in the study.

### *Interventions*

Self-referred participants were offered a course of six complementary therapy sessions. In each session, participants could select one therapy from a range that comprised body-based therapies, energy-based therapies, mind-body techniques, and counselling. All sessions were delivered by practitioners who: had undertaken a recognised training course in a particular therapy; had at least 12 months experience in providing a particular therapy; and undertaken a probationary period as a meet and greet volunteer at the centre.

### *Outcome Assessment*

Demographic and clinical characteristics data collected at baseline included age, gender, residential location, cancer type, cancer site, metastasis, in/out patient status, standard

care received (chemotherapy, surgery, radiotherapy, medication), and presence of co-morbidities. Administered at baseline and at the third and sixth visit, was a seven point global measure, which measured change in disempowerment; depression; anxiety; frustration; confusion; impaired coping; and worry. These measures were combined to form an overall quality of life score. In addition, the Symptom Distress Scale, scored on a five-point Likert scale, evaluated change in pain; fatigue; nausea; bowel problems; breathing difficulty; poor appetite; and impaired sleep.

### *Statistical Analysis*

Data were entered and analysed in Stata v.13. All data were reported descriptively.

Separate linear mixed models were used to establish treatment effects for the outcomes of quality of life and symptom distress. Time (session one, three, and six) and treatment (mind-body techniques; body-based practices; energy therapies, and counselling) were modelled as fixed effects. Further details about the grouping the therapies is displayed in Table 1. ANCOVA was used to examine differences in the change in quality of life and symptom distress between different cancer types over six sessions. Participants were included in the ANCOVA analysis if they experienced only one type of cancer, and types of cancer were only included if there were more than 25 cases. Age and gender were entered as covariates in the linear mixed models and ANCOVA. Missing data were addressed by sequential regression multiple imputation.

### **Results**

Data were obtained from 1274 participants. Figure 1 displays the participant flow over the course of the study. The participants' characteristics are displayed in Table 2. Almost three quarters (74.5%) of the participants were female, the mean age was 55.3 (SD=12.8)

years, and most were outpatients (81.6%). Breast cancer was the predominant cancer type (42%; n=535) and metastases were reported in 348 patients (27%). In terms of standard care, 12% were undergoing concurrent chemotherapy; 15%, concurrent radiotherapy; 26% had prior surgery, and 73% were not receiving active cancer treatment.

The results of the linear mixed model showed that the quality of life score improved significantly over six weeks (Table 3). Body-based therapies demonstrated significantly superior improvement in quality of life over counselling, but no other significant differences between therapies were identified. Numerous differences in improved quality of life were observed between different cancer types (significant differences displayed in Table 4). The largest improvements in quality of life were found for lung cancer and melanoma patients.

The linear mixed model for symptom distress established that it fell significantly across the six sessions (Table 3). Reduced symptom distress was not significantly associated with any particular type of therapy. Numerous differences in reduced symptom distress were identified between varying forms of cancer (significant differences displayed in Table 4). The greatest reductions in symptom distress were observed in lung cancer and colorectal cancer patients.

## **Discussion**

To our knowledge, this was the first study to assess the effect of a complementary therapies intervention, delivered in a systematic manner within an Australian public hospital setting, on broad outcomes for cancer patients. The findings of this study

demonstrate that the self-selected complementary therapies intervention significantly enhanced cancer patients' quality of life and significantly reduced symptom distress. This type of intervention could potentially be routinely offered alongside of standard care in hospital settings, given that cancer typically impacts on peoples' quality of life and emotional state.

Recent research found that most Australian oncology centres do not offer complementary therapies as part of their services. Of the 114 oncology departments surveyed, only 11 delivered complementary therapies interventions in a systematic manner.<sup>(9)</sup> In such cases, complementary therapies were routinely offered and the institution contracted the service providers. An additional 13 oncology centres provided ad hoc complementary therapy programs, in which external contractors occasionally delivered complementary therapy programs.<sup>(9)</sup> As can be seen, though, the majority of oncology departments have not integrated complementary therapies into service delivery, which highlights that there is considerable scope for expansion of these services into mainstream treatment.

The expansion of complementary therapies throughout Australian public hospital settings warrants policy stakeholder consideration of several main points. Close to half of all Australians with cancer use complementary therapies. This indicates that there is widespread demand for complementary therapies in this population. <sup>(1)</sup> Fees for complementary therapies services vary considerably but are not trivial.<sup>(10)</sup> It seems likely that the price point would prevent many people with cancer from using these services. If complementary therapies services were more widely available in public hospitals, in

which the service is commonly provided at no-cost, then the services would be more accessible for more cancer patients. (9)

Another issue that policy stakeholders need to consider is that patients frequently do not discuss the use of complementary therapies with medical specialists.(11, 12) Also, medical specialists either refuse to communicate, or fail to communicate well, about patients' use of complementary therapies.(12-14) These breakdowns in communication can have important implications, as the potential for adverse complementary therapy-conventional care interactions can be overlooked, or appropriate treatment can be delayed because of misinformation about unrealistic cancer treatment.(13) Such communication issues would be much less likely to occur if complementary therapies were integrated in oncology departments.

Finally, policy stakeholders should note that given that our results demonstrated that complementary therapies improved quality of life for cancer patients, and that cost-effectiveness analyses are mainly based on gains in quality of life, the provision of complementary therapies in public hospitals could be cost efficient. Such efficiencies may be advantageous in the present context of healthcare delivery in which stakeholders are continually under pressure to identify cost-savings. However, further studies are warranted to robustly establish the cost-effectiveness of complementary therapies for cancer.

One of the limitations of this study was the lack of a control group, which means that the specific and non-specific effects of the intervention cannot be separated.(15) Undertaking

uncontrolled trials is inconsistent with best practice study design recommendations such as the CONSORT statement, but it is not unusual in clinical oncology studies.(16) Indeed, a study of the United States clinical trials registry found that one-third of the oncology clinical trials were uncontrolled. (17) These uncontrolled trials have in many cases received ethical approval from committees in leading European or United States academic institutions, which suggests that it is not uncommon for everyday pragmatic concerns to outweigh the gold standards of clinical research. (17)

As previously noted, the uncontrolled nature of this study meant that it was not possible to determine the relative contributions of specific and non-specific effects to the overall intervention effect. However, it seems likely that non-specific effects influenced the improvements in quality of life and reduced symptom distress observed in this study. Previous studies have found that users of complementary therapies link beneficial outcomes, such as enhanced quality of life, to interpersonal and transactional processes that occur during complementary therapy consultations.(5, 18, 19) These processes include the establishment of trust and rapport, and involvement in shared decision-making.(18) In addition, the environment and atmosphere of the clinical setting, which has been described as, non-rushed, relaxing and aesthetically appealing, also appears to be a component of the non-specific effect associated with complementary therapy interventions.(8, 18, 20)

## **Conclusion**

The results of this study demonstrate that a self-selected complementary therapies intervention, provided freely through a cancer support centre in an Australian public by accredited therapists for cancer patients, substantially improved quality of life and

significantly reduced symptom distress. The effect of this intervention on quality of life has particular salience, since cancer impacts on many areas of people's lives and impairs quality of life. Complementary therapies are presently integrated into standard oncology services in only a minority of Australian public hospitals, but consideration should be given to expanding the availability of complementary therapies in both private and public hospitals in light of the benefits that may follow. Such benefits, alongside of improved quality of life and reduced distress, include improved healthcare equity, better communication between patients and medical specialists, enhanced coordination of care, and cost-efficiencies in the delivery of oncology services.

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**Table 1: Grouping of Complementary Therapies**

Body-Based Therapies	Energy-Based Therapies	Mind-Body Based Therapies	Counselling
Aromatherapy	Reiki	Chi meditation	Counselling
Relaxation Massage	Pranic Healing	Creative Art Therapy	
Bowen Therapy		Breathe for Health	
Healing Touch		Tai Chi	
Cranio-sacral		Creative Visualisation	
Acupuncture		Music Therapy	

**Table 2: Participants' Baseline Characteristics**

	Mean (95% CI)
Age (mean $\pm$ 95% CI)	55.3 (54.6-56.0)
	<b>Number (Proportion)</b>
Gender (female)	949 (74.5%)
Inpatient	217 (18.4%)
Breast	535 (42.0%)
Lymphoma	117 (9.2%)
Female genital tract	77 (6.0%)
Prostate	68 (5.3%)
Head & Neck	61 (4.8%)
Lung	58 (4.6%)
Brain	58 (4.6%)
Leukaemia	56 (4.4%)
Colorectal	46 (3.6%)
Upper GI tract	44 (3.5%)
Melanoma	33 (2.6%)
Multiple myeloma	29 (2.3%)
Skin (non-melanoma)	18 (1.4%)
Bone & soft tissue	18 (1.4%)
Kidney	14 (1.1%)
Bladder	10 (0.78%)
Mesothelioma	6 (0.47%)
Other	26 (2.0%)
Metastases	348 (27.3%)
Current chemotherapy	36 (12.2%)
Current radiotherapy	53 (15.5%)
Prior surgery	333 (26.1%)

**Table 3 Results of Linear Mixed Models for Quality of Life and Symptom Distress**

<b>Quality of Life</b>			
<b>Variables</b>	<b>Coefficient</b>	<b>p Value</b>	<b>95% CI</b>
Session 3	0.17	0.006	0.05- 0.30
Session 6	0.44	0.0001	0.27- 0.60
Body Based Therapies	Reference Group		
Energy Based Therapies	-0.10	0.17	-0.26- 0.05
Mind Body Techniques	0.05	0.70	-0.20- 0.29
Counselling	-1.22	0.0001	-1.62- -0.82
Age	0.02	0.0001	0.1- 0.03
Gender	-0.30	0.02	-0.54- -0.05
<b>Symptom Distress</b>			
<b>Variables</b>	<b>Coefficient</b>	<b>p Value</b>	<b>95% CI</b>
Session 3	-0.08	0.11	-0.18- 0.02
Session 6	-0.26	0.0001	-0.39- -0.13
Body Based Therapies	Reference Group		
Energy Based Therapies	-0.06	0.34	-0.18- 0.06
Mind Body Techniques	0.03	0.78	-0.17- 0.22
Counselling	0.04	0.79	-0.27- 0.36
Age	-0.01	0.01	-0.02- -0.002
Gender	-0.07	0.46	-0.25- 0.12

**Table 4 Differences in Quality of Life Improvement and Symptom Distress Reduction Between Different Cancer Types**

<b>Cancer Reference Group</b>	<b>Cancer Comparison Group</b>	<b>Mean Difference In QoL Score</b>	<b>p Value</b>	<b>95% CI</b>
Lung	Breast	0.90	.007	0.13-1.73
	Prostate	1.70	.0001	0.76-2.63
	Head/Neck	1.27	.004	0.23-2.32
	Leukaemia	1.34	.0001	0.37-2.23
	Brain	1.43	.0001	0.41-2.46
	Lymphoma	0.87	.04	0.04-1.73
Melanoma	Prostate	1.42	.001	0.37-2.48
	Leukaemia	1.06	.03	0.04-2.09
	Brain	1.16	.03	0.05-2.26

  

<b>Cancer Reference Group</b>	<b>Cancer Comparison Group</b>	<b>Mean Difference In SDS Score</b>	<b>p Value</b>	<b>95% CI</b>
Lung	Breast	-0.94	.0001	-1.6- -0.28
	Prostate	-1.03	.001	-1.8- -0.26
	Head/Neck	-2.06	.0001	-2.91- -1.21
	Leukaemia	-0.97	.003	-1.76- -0.18
Breast	Head/Neck	-1.11	.0001	-1.80- -0.44
Prostate	Head/Neck	-1.03	.002	-1.83- -0.23
Colorectal	Head/Neck	-1.87	.0001	-2.83- -0.91
Leukaemia	Head/Neck	-1.09	.001	-1.89- -0.29
Melanoma	Head/Neck	-1.56	.0001	-2.47- -0.66
Brain	Head/Neck	-1.57	.0001	-2.44- -0.71
Lymphoma	Head/Neck	-1.43	.0001	-2.16- -0.70