



## Research paper

## Relieving pressure – An evaluation of Shiatsu treatments for cancer &amp; palliative care patients in an NHS setting

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## ABSTRACT

**Introduction:** The study investigated the effectiveness of Shiatsu therapy in relation to the management of health and wellbeing concerns of cancer and palliative care patients in an out-patient clinic.

**Method:** Patients are referred to the Complementary Therapies Service for symptom management, particularly stress and anxiety, but also other symptoms such as nausea or insomnia. Data was collected following use of the Measure Yourself Concerns and Wellbeing (MYCaW) questionnaire, which was designed for evaluating supportive care interventions.

**Results:** Mean changes in post-intervention MYCaW scores were highly significant ( $p < 0.001$ ), demonstrating considerable improvements in both presenting symptoms and perceptions of wellbeing. Based on a significance level of 0.05, both the Wilcoxon signed-ranks test and the two-tailed *t*-test indicated that post-treatment ranks and means were statistically significantly lower than pre-treatment ranks and means in the categories.

**Conclusion:** Anxiety, stress management and pain scores were the most improved. Wellbeing scores also improved, on average, by two points on the Likert scale. Patients stated that 'being listened to' and 'being heard' were important factors when describing how Shiatsu had helped.

We suggest that a study using larger numbers is necessary in order to provide more robust evidence rather than emerging trends.

## 1. Introduction

Complementary Therapies (CT), including Shiatsu, are frequently used by cancer and palliative care patients for the relief of the physical, emotional and psychological symptoms that the diagnosis of the disease, the disease itself, and the side effects of the treatment may have caused [1–4]. The main reason cancer patients turn to CT, is the improvement in physical and psychosocial well-being [5]. Research findings have shown improvements in quality of life outcomes, as well as in the management of symptoms of the disease or side effects of allopathic interventions, including nausea, insomnia, fatigue and pain [6]. However, most research papers on the use of CT for cancer and palliative care evaluate the outcomes of several therapies grouped together [7–12]. This approach limits the possibilities of attributing benefits to one specific therapy. Therefore, it was decided to present the results of only one therapy, namely Shiatsu. In this respect, the authors have also put forward some suggestions for changes to the data collection form used in this study.

The Japanese Ministry of Health adopted the following definition of Shiatsu in 1957: 'Shiatsu technique refers to the use of the fingers and

the palm of one's hands to apply pressure to particular sections on the surface of the body for the purpose of correcting the imbalances of the body, and for maintaining and promoting health' [13,14]. More recently, the Complementary and Natural Healthcare Council (CNHC), a regulatory body of CT in the UK, describes shiatsu as 'a touch based therapy that applies pressure to areas of the surface of the body through loose comfortable clothing for the purpose of promoting and maintaining wellbeing' [15].

'Between 2005 and the present day, the CT service offered by Bart's Health NHS Trust in two London hospitals has included more than 1500 shiatsu treatments to out-patients and inpatients. During this time no side effects of any of the treatments have been reported, therefore, Shiatsu can be considered a relatively safe therapy in a cancer and palliative care setting'. This appears to be in line with the observations from other centres offering Shiatsu to cancer patients as part of their CT service [16].

A number of studies on the effects of acupressure on cancer patients have been published [17–19]. However, as the distinction between Shiatsu and acupressure is one that needs highlighting to underline the unique character of Shiatsu, as distinct from acupressure [20,21],

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acupressure studies have not been considered in this paper. Long [22] also considers Shiatsu to be distinct from acupressure and states that acupressure ‘focuses on symptomatic relief without necessary reference to the whole energy system or the person outside of the specific area being treated’.

Shiatsu treatments are adapted to meet the needs of the individual patient [23,24]. Some practitioners with experience in the field have suggested guidance to provide a core approach to treating some of the most common challenges cancer patients face. By way of examples (by no means exhaustive), Pamela Ferguson (Shiatsu therapist, certified instructor by AOBTA<sup>1</sup> and by the Shiatsu Society of Germany, with more than 10 years’ experience treating palliative care patients) [25,26] has suggested specific points for managing symptoms in palliative care patients. For pain, this therapist suggests LI 4, St 36, Liv 2 and 3, BI 10, GB 20 and 21, LI 4 and St 36<sup>2</sup> to ease constipation, along with a rolling technique around the ‘Hara’ and also thumb movements at the sacrum. Light touch of HG 6 and 8 or GV 20<sup>3</sup> is suggested to address anxiety and fear.

As the benefits of Shiatsu extend across the full range of a patient’s physical, mental, emotional and spiritual experience [23,27], it is vital to consider holistic approaches. When asked about Shiatsu treatment for cancer patients, Calisar stated that ‘it is so difficult to write about points and meridians that are effective because it is different from one type of cancer to another. Even with the same cancer it is different locations. The person’s reactions change all the time and from patient to patient’ (T. Calisar, 2015. Personal communication email. Tzvika Calisar is a shiatsu practitioner and teacher who trained in Japan. He has many years’ experience of giving shiatsu to cancer patients in Israel and has conducted workshops on shiatsu for cancer patients) [28].

Núñez has stated that she does not use a specific protocol for cancer patients and adds that patients respond ‘individually and differently, both to the cancer and to the treatments’. Núñez adapts her Shiatsu practice to the current status of the patient, sometimes using traditional points for symptom management and sometimes not. Núñez further believes that the management of physical symptoms is only part of this journey. She adds, ‘I think it’s the fact of being touched therapeutically, with knowledge of meridians and the body’s vital energy, which helps and encourages those who receive shiatsu to get inside their body and see that this is not only a battlefield against the disease, but also where emotions and spirit lie and therefore the key to recovery’ (M. Núñez, 2015. Personal communication email. Mercedes Núñez is a shiatsu practitioner and teacher who worked for 8 years at Penny Brohn Cancer Care in Bristol giving shiatsu to cancer patients. She has also conducted workshops on shiatsu for cancer patients) [29].

The National Institute for Clinical Evidence (NICE) recommends that services providing complementary therapies in the NHS evaluate and investigate the effects and impact of therapies [30]. The aim of this service evaluation is to demonstrate the potential perceived benefits of Shiatsu at an out-patient clinic at Whipps Cross University Hospital, Barts Health NHS Trust.

## 2. Methods

### 2.1. Settings and patient recruitment

The Complementary Therapies Service at Bart’s Health was established in 2005 to meet the needs of cancer and palliative care patients, both in a ward setting and as outpatients. Patients are referred to the service for symptom management, particularly to address stress and anxiety but also to help alleviate other symptoms such as nausea or

insomnia. Referrers are usually senior nurses or medical doctors. A range of complementary therapies are offered including reflexology, aromatherapy, massage and Shiatsu. Patients who have been referred into the service are offered a course of 4–8 treatments; however, re-referral following a change in circumstances is possible. The great majority of patients prefer to receive treatments weekly, but a few choose to spread the treatments over a longer period of time. The honorary therapists volunteer their time to the service and take weekly clinics in the therapeutic modality they practice. Normally, patients are allocated to practitioners who have free appointment slots, so patients do not usually select the type of therapy they receive. Most patients had little knowledge of complementary therapies and this was particularly the case with regard to Shiatsu. At Whipps Cross Hospital, patients stay with the same therapist for their sessions, and therefore receive the same type of therapy; in the case of this study, Shiatsu. The only exclusion criterion was when patients did not complete the whole set of pre-arranged sessions, usually because they became too unwell or died during the treatment period.

At Whipps Cross, the shiatsu treatments have been adapted to be given on a massage couch, so as to cause the minimum amount of distress. This is especially important for patients with mobility issues or who are too weak. This adapted method of working is also necessary in order to comply with infection control measures.

All of the Shiatsu therapists in the team are qualified and experienced practitioners, who are all registered with a professional body and hold insurance to practice. The therapists undertake induction training on appointment in order to adapt practice for a cancer and palliative care setting.

### 2.2. Data collection

The tool used by the service to evaluate treatments is Measure Yourself Concerns and Wellbeing (MYCaW), a validated questionnaire [31], which was designed for evaluating supportive care interventions for cancer patients [32]. This individualised (patient-generated) assessment tool requires patients to identify one or two concerns which they would most like the Shiatsu therapist to focus upon during a course of treatments. The therapist gives the questionnaire to the patient to complete. Concerns are scored on a 7-point Likert scale at the first and final appointments, and patients are also required to score their sense of wellbeing on the same scale. Concerns are scored between 0 (not bothering me at all) to 6 (bothers me greatly). A clinically significant improvement is indicated by at least a 1 point change in the scores. Based on a previous study that used the MYCaW questionnaire with 588 patients [33], it is estimated that a sample of 52 patients is needed for a statistically significant change with a power of 90% [34] (see Appendix A). Patients are also able to comment on the treatments at the follow-up stage by answering two open questions. The first question asks the patient to consider other factors which may have affected the concern or problem during the period the patient received Shiatsu treatments. The second question asks the patient to comment on what were the most important aspects for them during their experience at the centre.

Data collection took place at the cancer centre between May 2014 and April 2018. The data were collected as part of a service evaluation. Informed consent from patients was obtained prior to data collection. All data is anonymised and stored safely.

Research ethics approval was not required by the Trust. This is normal procedure for service evaluations since service evaluations do not involve randomisation or allocation to intervention groups [35,36].

The Trust Policy for Massage includes governance measures for the delivery of Shiatsu treatments. Policies are ratified by the Trust’s Clinical Governance Committee and reviewed every three years. There were no concerns about including Shiatsu as a treatment offered by the Complementary Therapies Service.

<sup>1</sup> American Organization for Bodywork Therapies of Asia.

<sup>2</sup> Standard abbreviations for acupuncture points. LI: large Intestine. St: stomach. Liv: liver. Bl: bladder. GB: gallbladder.

<sup>3</sup> HG: heart governor. GV: governing vessel.

**Table 1**  
Types of concerns reported by patient according to MYCaW categories.

Supercategory 1 <sup>st</sup> and 2 <sup>nd</sup> Concerns N = 108							
Psychological and Emotional concerns N = 45 42%	Anxiety N = 15	Stress N = 13	Insomnia N = 9	Low mood N = 2	Body Image N = 1	Frustration Helpless N = 3	Confidence N = 1
Psychological and Emotional concerns N = 1	Feeling Emotional N = 1						
Physical Concerns N = 46 42%	Pain N = 29	Fatigue Shortness of breath N = 9	Legs weakness N = 1	Lethargy N = 4	Knee Problem N = 1	Hand Problem N = 1	Menopause Symptoms N = 1
Hospital Cancer Treatment Concerns N = 17 16%	Neuropathy Numbness N = 4	Constipation N = 3	Skin Rash N = 1	Headache N = 3	Stiffness N = 1	Poor Balance N = 1	Oedema N = 3
Hospital Cancer Treatment Concerns N = 1	Chemotherapy Side effects N = 1						
Concerns about Wellbeing N = 0							
Practical Concerns N = 0							

2.3. Data analysis

The data are based on self-reported perception of symptoms such as pain or anxiety, so it can be considered that the data are ordinal rather than quantitative. Thus, some authors recommend non-parametric tests [33], but De Winter and Dodou [37] found that generally, the two-tailed *t*-test and the Wilcoxon signed-rank test have similar power. To avoid any possible discrepancies in results according to test performed, we decided to analyse the matched pairs with the Wilcoxon signed-rank test and the one sample *t*-test. All analyses were done with Genstat 10th edition.

For the qualitative analysis, the replies were analysed and classified according to published guidelines (see Table 1) [38,39].

3. Results

In this evaluation, baseline and follow-up data on the MYCaW evaluation forms were collected for sixty three out-patients that had followed a course of Shiatsu only treatments between 2013 and 2018. Twenty six patients were male and thirty seven were female. The mean age was 58.79 (range 34–86 years). Fifty three patients had a cancer diagnosis. Eighteen patients were diagnosed with breast cancer, six with colon cancer, five with lymphoma, while the rest of cancer patients were diagnosed with other types of cancer including endometrial, pancreatic, stomach, bladder, prostate and renal cancer. The rest of the patients were referred to the service from palliative care. Of the ten palliative care patients, four had advanced COPD, and three had end stage heart failure, whilst the remainder had diagnoses of Evans syndrome, polio and advanced multiple sclerosis.

3.1. MYCaW concerns

A number of different concerns were identified by patients. The most common primary concerns were pain, anxiety and stress, while the most common secondary concerns were pain and insomnia (Figs. 1 and 2).

Analysis of the MYCaW evaluations demonstrated that overall symptom scores had improved significantly (Table 2). No significant difference can be observed when the improvement rates for concern 1 are compared to those for concern 2. Anxiety, stress management and pain scores were the most improved. Wellbeing scores also improved, on average, by almost two points on the Likert scale.

Based on a significance level of 0.05, both the Wilcoxon signed-

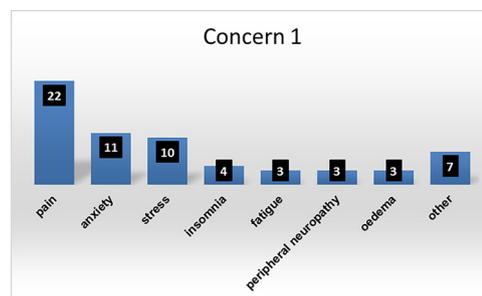


Fig. 1. Primary concern.

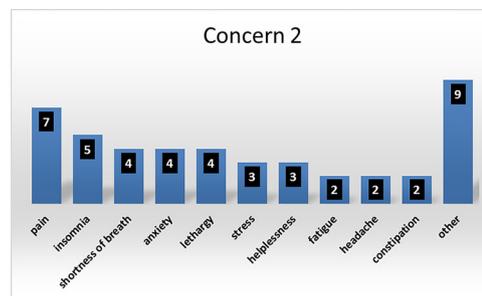


Fig. 2. Secondary concern.

**Table 2**  
Difference in pre and post concerns and wellbeing scores.

	Before treatment Mean (SD)	After treatment Mean (SD)	Diff. Mean (SD)	95% C.I.	Wilcoxon	<i>t</i> -test
<b>Concern 1</b> n (63)	4.51 (1.05)	2.32 (1.31)	2.19 (1.44)	1.83 2.55	p < 0.01	p < 0.001
<b>Concern 2</b> n (45)	4.38 (0.98)	2.44 (1.44)	1.93 (1.42)	1.42 2.45	p < 0.01	p < 0.001
<b>Wellbeing</b> n (63)	3.98 (1.33)	2.25 (1.16)	1.73 (1.56)	1.29 2.17	p < 0.01	p < 0.001

ranks test and the two-tailed *t*-test indicated that post-treatment ranks and means were statistically significantly lower than pre-treatment ranks and means in the three categories.

Pain was one of the symptoms for which scores improved

**Table 3**  
Difference in pre and post scores for pain.

	Before treatment Mean (SD)	After treatment Mean (SD)	Diff. Mean (SD)	95% C.I.	t-test
<b>Concern 1</b> n (22)	4.64 (0.95)	2.68 (1.39)	1.95 (1.53)	1.28 2.63	<b>p &lt; 0.001</b>
<b>Concern 2</b> n (7)	4.14 (0.69)	2.00 (1.41)	2.14 (1.07)	0.85 3.44	<b>p &lt; 0.001</b>
<b>Total</b> n (29)	4.52 (0.91)	2.52 (1.40)	2.00 (1.41)	1.38 2.62	<b>p &lt; 0.001</b>

**Table 4**  
Difference in pre and post scores for anxiety, stress management and insomnia.

	Before treatment Mean (SD)	After treatment Mean (SD)	Diff. Mean (SD)	95% C.I.	t-test
<b>Anxiety</b> n (15)	4.67 (1.05)	2.27 (1.28)	2.40 (1.24)	1.71 3.09	<b>p &lt; 0.001</b>
<b>Stress</b> n (13)	4.69 (1.11)	2.00 (1.00)	2.69 (1.60)	1.72 3.66	<b>p &lt; 0.001</b>
<b>Insomnia</b> n (9)	4.56 (1.01)	2.78 (1.39)	1.78 (1.20)	0.85 2.70	<b>p &lt; 0.05</b>

significantly. Anxiety, stress management and insomnia also saw a considerable improvement. (Tables 3 and 4)

No significant difference was found in the patient concerns improvement rates when males were compared to females, although improvement rates for some concerns and for wellbeing may be higher for females. However, the p value shows little evidence of a difference in means between genders. (Table 5)

A 1-point or more Likert scale difference in improvement of patient concerns scores by age can be observed in Table 6; those aged 34–50 recorded the most improvement for concern 1, whilst those aged over 63 showed the least improvement for concerns, but the highest for wellbeing. Nevertheless, the p values show little or no evidence of difference in means between age groups. (Table 6)

3.2. Qualitative results

The first optional open question in MYCaW asks what other things (apart from the complementary therapy treatments received) might have affected the health of patients. It specifies that ‘the treatment that you have received here may not be the only thing affecting your concern or problem. If there is anything else which you think is important, such as changes which you have made yourself, or other things happening in your life, please write it here’.

Twenty seven patients replied to this question, with 44 responses. The aspects that were recorded the most were ‘Improved Nutrition’ (13 out of 44), ‘Taking Exercise’ (11 out of 44) ‘Receiving CT in the centre’ (6 out of 44), and ‘Positive Cancer Health Related Outcomes’ (5 out of 44). The only negative response is classified as ‘Negative change of environment’.

**Table 5**  
Difference by gender.

	Concern 1	Concern 2	Wellbeing
<b>Grand Mean</b>	2.19	1.93	1.73
<b>Mean Improvement Females</b>	2.43 (n = 37)	1.89 (n = 27)	1.95 (n = 37)
<b>Mean Improvement Males</b>	1.85 (n = 26)	2.00 (n = 18)	1.42 (n = 26)
<b>p value of F-distribution</b>	0.111	0.800	0.192

**Table 6**  
Difference by age groups.

	Concern 1	Concern 2	Wellbeing
<b>Grand Mean</b>	2.19	1.93	1.73
<b>Mean Improvement 34-50</b> (n = 16)	2.56 (n = 16)	2.00 (n = 12)	1.31 (n = 16)
<b>Mean Improvement 51-63</b> (n = 25)	2.16 (n = 25)	2.22 (n = 18)	1.68 (n = 25)
<b>Mean Improvement 64-86</b> (n = 22)	1.95 (n = 22)	1.53 (n = 15)	2.09 (n = 22)
<b>p value of F-distribution</b>	0.44	0.38	0.31

Out of the 63 patients, 53 responded to the second optional open question ‘What has been most important for you? Reflecting on your time with the cancer centre, what were the most important aspects for you?’

The replies comprised 75 items. The most important aspect was ‘relaxation and time for self/self-development’ (36% of responses), followed by ‘Access to therapies’ (21%) and ‘Support and understanding’ (17%). Some of the individual replies were: ‘Me time and felt like walking on air afterwards’ ‘After Shiatsu I sleep much better and have a feeling of wellbeing’ ‘Feeling heard by therapist - been a very positive uplifting experience’ ‘Coming here was a God-send’ ‘Relief on muscles and nerves. Would like it to continue’ ‘Oasis of calm, listened to my needs, invaluable aid to my recovery’ ‘Ability to switch off and deeply relax’. All responses are categorised as positive feedback.

4. Discussion

The results have shown that patient reported outcomes, after receiving 4–8 sessions of shiatsu, had significant improvements across a range of physical, psychological and emotional concerns.

Pain was the most cited concern followed by anxiety. Although in the first case, the Shiatsu therapists’ interventions were geared towards the relief of pain, the results have shown that the treatments can also provide physical and mental relaxation, and reduce sleep problems. Patients also reported on the importance of having time for themselves for their quality of life.

Lida et al [40] found that Shiatsu relieved anxiety in cancer patients. The effects of Shiatsu were greater in patients who had been assigned to a ‘weaker anxiety’ group. In this study, there were similar improvements in anxiety scores. When patients who had scored their anxiety at 5 or 6 on the MYCaW forms were compared to patients who had scored their anxiety at lower levels of concern, those with lower initial scores experienced the most relief.

Lida et al. [40] also found that physical symptom scores were not relieved, and this is in contrast to our findings. For example, pain scores following a course of Shiatsu had dropped significantly in this study (Table 3). This is in line with other studies that have demonstrated the benefits of Shiatsu in reducing pain levels when treating headaches and fibromyalgia [41,42]. Pain can be a complex symptom to manage, so the finding that Shiatsu has benefitted these patients is very encouraging. Improving pain scores may also be linked to the improvement in general ‘wellbeing’ scores we observed, as pain can diminish the perception of ‘quality of life’ in patients living with cancer [43]. Shiatsu therapists may also talk to the patients about self-help techniques to manage pain and this empowering aspect of the intervention may also be linked to improved outcomes for patients [44]. It would be useful to collect further information from patients about the nature of the pain relief experienced, as well as which aspects of pain self-management advice had been most beneficial. In the future, it would be useful to collect data on pain medication use when evaluating the efficacy of treatments. Any reduction in analgesia use would enhance the findings in this study.

Cheeseman et al [45] expressed the improvement and importance attached by patients to relaxation and relief from insomnia. This coincides with the results from this study in which pre-treatment and post-treatment scores showed a reduction of stress and anxiety, and an improvement in sleep quality. Patients' comments to MYCaW's second open question also expressed the sense of relaxation and calm and relief from sleeplessness.

A CT study that took place in three UK centres for women with breast cancer included Shiatsu as one of the therapies offered. Harrington et al [46] seem to imply that in these centres, Shiatsu is used or recommended for physical concerns and wellbeing according to MYCaW's classification, but not for psychological and emotional concerns or for hospital treatment concerns, although this may be related to the availability of this particular treatment [46]. This differs from our study which has shown great potential for Shiatsu in the improvement of self-reported psychological and emotional concerns such as stress, sleep problems and anxiety, and the availability of Shiatsu treatments for hospital treatment concerns such as peripheral neuropathy.

Lida et al [40] suggest that attentive listening is a key part of Shiatsu intervention in their study and this is reflected by feedback from patients in this study also. Patients have stated that 'being listened to' and 'being heard' were important factors when describing how Shiatsu had helped them. Compassionate listening also allows the practitioner to create comprehensive holistic treatment plans, which evolve as the needs of the patient changes over time. Other patient comments included improvements in quality of life, the importance of developing self-help strategies, such as breathing exercises, and a deep reconnection with the body. These outcomes may lead to a greater sense of control from the patient's perspective, at a time when a sense of control may well have diminished. A cancer diagnosis may also lead to a feeling that the body may have let the patient down in some way, so the promotion of body connectivity may be very helpful.

## 5. Limitations of the study

The immediate outcome measures were obtained in the presence of unblinded Shiatsu therapists, whom the patients know to be volunteers, possibly leading to the overestimation of beneficial effect by patients. The generalisability to all cancer patients is uncertain. The differential beneficial effect of Shiatsu therapy is not conclusive in the absence of a standard care control group or any randomisation process. The process and results of this study may be useful in planning controlled studies of Shiatsu interventions.

## 6. Recommendations for changes to MYCaW

The authors suggest that the therapeutic modality utilised is added to the MYCaW form in order to make it easier to identify the type of therapy offered to patients and obtain results for the benefit of each therapy.

A second change suggested is to add the number of sessions that each patient has received and the frequency of these treatments. This would give an insight on whether number of sessions and frequency have an effect on perceived benefits.

The authors of this paper also propose changes to MYCaW forms by adding a further question to the follow-up form. The question would require the patient to explain the difference in pre and post scores. For example, if a patient had scored fatigue at 5 out of 6 at initial assessment and then scored fatigue at 2 following a course of Shiatsu, the

## Appendix A

### Statistical note

Estimation of the sample size needed is based on results from a previous study with 588 participants (533 expressed a second concern) [33]. To

patient would be asked to explain how fatigue is now experienced differently. This may be achieved by assessing the patient's ability to undertake certain tasks at the start of a course of treatments and then again at the end, in line with the Holistic Needs Assessment tool [47]. This would give a clearer indication and quantification of how and how much the therapy has helped the patient.

## 7. Conclusion

A 1 point change in MYCAW scores is considered a clinically significant change when evaluating cancer support programmes [33,48,49].

The mean change in both concern 1 and 2 in this evaluation were higher than two, which suggests that Shiatsu leads to clinically significant improvements in patients.

This evaluation shows that patients' pain and anxiety significantly improved and that relaxation, time for oneself, support and understanding received, and feeling cared for were positive benefits of the Shiatsu sessions.

In view of the results obtained and the feedback from patients, the authors consider it has been demonstrated that patients benefit from receiving Shiatsu. Having established a range of benefits that treatments can provide for symptoms and concerns reported by patients in an NHS setting, we suggest that a study using larger numbers is necessary in order to provide more robust evidence rather than emerging trends.

One of the drawbacks of the MYCaW form identified by the authors, is that it is geared to patients who receive several sessions of CT. This may be a limitation for data collection or research when treating inpatients, since it is not known in advance how long they are going to stay in the hospital or hospice, and may receive only one CT session. The authors are in the process of developing and validating a form that may be more suitable for research with inpatients.

## Notes

- 1 In this text, the use of the words 'treatment' and 'therapy' can be sometimes exchanged. However, 'treatments' has generally been used to explain either number of sessions or adaptation/individualisation of the therapy, while the word 'therapy' has been used to explain more general aspects of Shiatsu or other CT.
- 2 The words "therapist" and "practitioner" are interchangeable in the context of this paper.

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## Conflict of interest

None.

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facilitate an estimation of sample size needed that may be used in future studies, we have included correlation coefficients for our study [50].

	Pearson's correlation coefficient r	Population correlation coefficient $\rho$ 95% CI	Standard deviation of difference. 95% CI	Skewness
Concern 1 n = 63	0.27	0.024 0.485	1.225 1.747	-0.0596
Concern 2 n = 45	0.36	0.074 0.591	1.202 1.833	-0.0230
Wellbeing n = 63	0.22	-0.029 0.444	1.327 1.893	-0.4937
Pain n = 29	0.31	-0.059 0.610	1.223 1.913	-0.0814

All data on differences were analysed using the Saphiro-Wilk test for normality. All t-tests were considered robust for moderate violation of normality assumption.

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