The Effect of Reiki Therapy on Quality of Life of Patients with Blood Cancer: Results from a Randomized Controlled Trial

Abstract

Introduction

Reiki therapy has been used for a variety of health issues. The aim of this study was to ascertain how Reiki therapy could help holistically in alleviating suffering in patients with blood cancer. Its main aims were to: (1) assess the effect of Reiki as a complementary therapy on the quality of life (QoL) of cancer patients, (2) compare the QoL of cancer patients receiving Reiki therapy with the QoL of cancer patients who received sham Reiki therapy.

Methods

The sample consisted of an intervention (58 patients) and a control group (initially consisting of 58 patients). Patients were allocated to one of two groups (true Reiki or sham Reiki) by using computer randomization. True Reiki or sham Reiki treatment was delivered twice a week for 4 weeks and lasted 60 minutes. Quality of life was measured using the Portuguese version of the WHOQoL-Bref. Data was analysed using univariate comparisons, t Student or Mann-Whitney test for each dimension, and multivariate comparison by estimation of latent class models.

Results

Sixteen patients who had been allocated to the control group died after recruitment into the study and before they took part in the study or had answered the questionnaire. The Reiki group showed significantly more improvements in the general, physical, environmental, and social dimensions of the WHOQoL-Bref (p<0.05). Only the psychological domain did not reach statistical significance. Multivariate clustering using latent class models revealed that being younger (under 52), an unmarried male, and having a higher level of education contributed to a greater satisfaction with life in those you received true Reiki therapy when compared with sham Reiki.

Conclusions

These findings suggest that Reiki may be an effective and safe option for improving well-being in patients with blood cancer. These findings may lend support for the inclusion of Reiki into national health services as it may provide a useful contribution to improving patients' welfare and consequently a better quality of life.

Key words: Reiki, effectiveness, blood cancer patients, quality of life, randomised controlled trial

1. Introduction

The use of complementary and alternative medicine (CAM) in national health systems has been the subject of constant debate. There are important reference documents from the World Health Organization (WHO) [1], which advocate the need for research on traditional and complementary medicines: (1) national policies on including their practice in national health systems, (2) safety, efficacy and quality of these practices, (3) access to them and (4) rational use by professionals and consumers. In this paper it will be referred to as complementary medicine (CM), as in most cases in the West it is used rather as a complement than an alternative to orthodox medicine [2].

'Healing', sometimes referred to as 'spiritual healing', has become an increasingly important component of complementary medicine (CM), particularly in cancer care [3]. Healing is not a religious activity and clients do not need to have religious faith or hold any particular beliefs, and it is non-diagnostic and non-invasive [4]. The healer's hands are usually held a few inches above the body surface, however, in some instances, with permission, the healer may touch the person receiving healing [3]. It seeks to harmonise the physical, emotional, mental and spiritual domains of a person's wellbeing, and healers currently work in hospitals, general practices, hospices and care centers as well as voluntary clinics in primary health care [4].

This project was based on the need to know whether one of these 'healing' therapies (Reiki) could help as a holistic approach to alleviate the most significant aspects of cancer patients' suffering: stress, suffering in its broadest sense, anxiety, pain, changes in self-image and side effects of treatments such as chemotherapy.

The spiritual aspect of healing can be measured using various dimensions, and we highlight trust over the meaning of life by opening the transcendent, the sense of a mission to accomplish in life through relationships with others, taking a positive world view of all events, such as suffering and death [5] and spirituality as the foundation of nursing [6]. This spiritual aspect, the multidimensional concept of health, first attracted WHO's attention in 1994 (Group Quality of Life Division of Mental Health, WHO).

Since 1994, the WHOQoL Group has played a pivotal role in creating and developing a concept and tool to validate the quality of life (QoL) of different types of patients,

particularly in the field of oncology. The authors postulated three criteria to clarify the concept of QoL: (1) subjectivity - each patient's perception of QoL, (2) multidimensionality - assessing multiple universal domains, such as the physical, psychological, social and spiritual and (3) positive and negative dimensions, including positive and negative perceptions (or degree of mobility and pain). The development of these constructs led to a definition of QoL, individuals' perception of their position in life in terms of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. WHOQoL-100 is based on six domains: physical, psychological, level of independence, social relationships, environment and spirituality / religion / personal beliefs. A briefer version of the measure the WHOQoL-Bref has been validated which covers four domains: physical, psychological, social relationships and environment, with 26 questions, and version WHOQoL - 100, has three issues in the area spirituality, religion and personal beliefs. The aim of our research was to provide evidence of Reiki's effectiveness and safety in improving the QoL of patients with blood cancer, thus providing means for its potential scientific acceptance. Particular aims of this research were as follows:

1) To assess the impact of Reiki as a complementary approach to improve QoL in cancer patients attending the Haematology and Oncology Unit (Hospital S. João, Porto), by comparing the figures for each domain of the WHOQOL-Bref (physical, psychological, social relationships and environment) and four questions from WHOQOL-100 between patients receiving true Reiki (the intervention group) and a control group of patients receiving sham Reiki.

2) To compare the QoL of cancer patients receiving Reiki therapy (intervention group) to the QoL of those receiving sham Reiki (control group), using the WHOQL - Bref questionnaire (Portuguese version), and Assessment of Patients' Quality of Life (WHOQL: World Health Organization Quality of Life).

In order to obtain sufficiently sound conclusions we used a triangulation method employing statistical tests and a probabilistic/statistical model (latent class models-LCM). The LCM results corroborated the statistical tests results.

2.   Background and theoretical framework

Spirituality is a set of all non-material emotions and beliefs, with the assumption that there is more to life than being totally fulfilled or understood, emphasizing issues like the meaning and purpose of life, though not limited to any particular religious belief or practice

[7]. Spirituality is also increasingly recognized as a key determinant of health globally [8]. A previous scientific study of whether spirituality could influence the QoL of cancer patients undergoing chemotherapy concluded that the higher the patient's levels of spirituality were, the greater his/her QoL in general, especially in terms of physical, functional and emotional wellbeing, [9].

According to statistical data from the Instituto Nacional de Estatística (INE, 2009), unlike most EU countries cancer is the second cause of death in both sexes in Portugal (the first being stroke). Diagnosis of cancer is a time of distress and anxiety, because the disease is labelled as painful and often fatal [10]. After diagnosis and throughout the treatment, the patient experiences physical losses, damage to the body plus uncertainty about the future, all of which increase their anxiety.

According to Reiki energy research findings, tests carried out by scientific instruments (Magnetic Resonance Imaging - MRI - Gaussmeters and other EMF detectors) indicate that there are electromagnetic fields around the human body and each of its organs that pulsate at different frequencies and remain within a specific frequency when they are healthy, but go outside it when they are not [11].

Several studies have provided evidence supporting the use of Reiki. Table 1 contains a recent literature review on studies of using Reiki considering objectives, methods and findings.

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Studies have demonstrated different effects (1) a significant reduction of pain, depression, and anxiety in chronically ill people who received Reiki treatments compared with sham Reiki [28]; (2) hands-on Reiki or distance Reiki significantly reduced mild depression and stress [29]; (3) Reiki was effective as a self-care intervention based on interviews with 11 nurses trained in Reiki [30] and (4) Reiki significantly reduced physiological effects of stress in rats compared with sham Reiki [26].

3. Design, methods and procedures

The aim of this study was to study the impact of Reiki therapy as a CM by comparing it with sham Reiki for patients with blood cancer.

3.1. Population and sample

The target population was 230 inpatients at the Department of Haematological Oncology at Centro Hospitalar de S. João, 8th Floor (CHSJ Computer Centre, 2005). The sample included all patients in the Isolation Unit, 100 patients, based on the following inclusion criteria:

- Males or females aged between 18 and 62 (inclusive)

- A medical diagnosis of blood cancer

- An indication of less than 14 days' hospitalization,

- Not cognitively impaired - Having agreed to undergo Reiki therapy (two patients did not agree)

- Having signed the informed consent form for research participants

Patients were excluded who:

- Had a clinical history of respiratory illness, gastrointestinal, renal, hepatic, neurological, cardiovascular, psychiatric or cognitive deficit, diagnosed before or during the investigation process

- Had taken part in previous research in hospital

The sample consisted of two groups, one experimental (58 patients, fifteen male) and a control group with fourteen males (initially consisting of 58 patients, sixteen of which died after randomisation? and who had not completed the baseline questionnaire). The patients were allocated to one of two groups, true Reiki or sham Reiki by simple computer randomization. This was a randomized, double-blinded, placebo-controlled study using a cross-sectional design, and was conducted to compare the effects of Reiki versus placebo (sham Reiki). Each patient of the experimental group received Reiki therapy in two scheduled individual sessions per week for 4 weeks and each session lasted an average of 60 minutes; treatments were standardized, and each patient did have the same therapist, all of them Reiki Masters. Sessions were conducted in the patient's own room, which provided the appropriate conditions for the therapy. The Alarcão team of researchers provided Reiki to the intervention group, while the control group was treated with sham therapists who were not qualified in Reiki. The intervention group treatment was carried out between 4 and 9 p.m. from Monday to Friday, outside the investigator's normal office hours. The project was undertaken outside working hours, between 4 and 9 p.m. by a team of five therapists who included the Alarcão researcher / nurse. The team therapists delivered 25 treatments a day, or 125 per week. Because the project lasted four weeks 472 Reiki sessions were planned (eight per patient). The patients in the intervention and control groups attended all sessions.

The variables selected for the study according to its goals were as follows:

(1) Sociodemographic: gender, age, marital status, educational attainment; (2) Independent: cancer, disease stage, type of treatment used in the last two weeks; (3) Dependent: Reiki impact of therapy on QoL of patients.

3.2. Data collection

Data collection was divided into three parts. The first consists of 13 closed questions, providing Demographics data on the participants, obtained from respective records.

The second set of data was the use of the Portuguese version of the WHOQoL-Bref [31], which was used to assess quality of life. We also used an abbreviated version of the WHOQoL-100 consisting of 26 questions divided into four sections: Physical, Psychological, Social Relations and Environment. For all questions we used a Likert scale of five points, corresponding to four assessment dimensions - intensity, capacity, frequency and evaluation

[26]. The third part of the questionnaire consisted of an open ended question for the patients in the intervention group to describe what they thought of Reiki therapy. Data collection began at 11 June 2013, and ended in 12 July, 2013. Each patient completed the WHOQoL-Brev at baseline, which was given after all treatment sessions.

3.3. Data Analysis

We compared QoL outcomes in intervention and the control groups using baseline data from the questionnaire and after all treatments had been completed. Initially the means and standard deviations were calculated for the various parameters at baseline and ascertained that there were no significant differences between the groups. Means and standard deviations after all treatment sessions were calculated, and we only present these results. For comparisons between the results obtained between the two groups the Student's t test was used for the quantitative variables, and for normal and homocedastic populations, and the non-parametric Mann-Whitney test. The Pearson's correlation coefficient was used to analyze the correlations between the results in the various domains. Finally, cluster analysis using latent class models [32, 33, 34, 35] were used to identify the characteristics of patients in the multivariate analysis, allowing a comparison with the results previously achieved, in order to facilitate triangulation [36]. Thus, we addressed comparative analyses of different related concepts and theories, tests of hypotheses and latent class models estimation, in order to measure if Reiki was an effective CM for better QoL in patients with blood cancer. The study and data collection began after permission was obtained from the Ethics Committee at Hospital São João, and the study subjects gave informed consent for participation in the study.

4.   Data Analysis and Results

The data analysis initially utilised univariate descriptive statistics to estimate the means and standard deviations of the results in each domain for the Intervention group and control group (Table 2).

(Table 2 here)

4.1. *Comparison of means*

The averages of the four domains - physical (TWD1), psychological (TWD2), social relationships (TWD3) and environment (TWD4) was calculated for each domain for the Intervention and Control groups (TWDG). To investigate whether the t test or the Mann Whitney non-parametric test, should be used, the Kolmogorov-Smirnov and Shapiro-Wilk (Table 3) for analysis of normal populations, followed by the Levene test for analysis, assuming homocedasticity or homogeneity of variances.

(Table 3 here)

Thus, testing the null hypothesis H_0: TDWi had a normal distribution (i = G, 1, 2, 3, 4), versus the alternative hypothesis H_1: TDWi did not have a normal distribution, with the level of significance $\alpha = 0.05$, compared to the values seen in Table 3 we demonstrate:

1) We rejected the null hypothesis and accepted the alternative with respect to the Intervention and Control group TWDG, InterventionTWD2 and Control TWD3, i.e. the data did not follow normal distribution. Consequently, to compare the means of the TWDG, TWD2 TWD3 groups - Intervention and control - we used the Mann-Whitney test (non-parametric) instead of the t Student test.

2) We did not reject the null hypothesis in other cases, and so in order to compare the means of the Intervention and control groups we used the parametric t student, if there was homoscedasticity, and Mann-Whitney test, otherwise.

The results are shown in Table 4. In column 2 we can see the results of the Levene test (values of the test statistic and p-value), used to test the hypotheses:

H_0: The variances are homogeneous

H_1: The variances are heterogeneous

(Table 4 here)

Because all p values were greater than $\alpha = 0.01$ in the Levene test, we accepted the hypothesis of homogeneity of the variances. In TWD1 and TWD4, we were able to use the t test for comparison of means between the Interventionand control groups, testing the hypotheses:

H_0: The distribution of the Intervention group is less than or equal to the control group

H_1: The distribution of the Intervention group is higher than the control group

Because the p values were lower than 0.05 in TWD1 and TWD4 we rejected the null hypothesis and accepted the alternative hypothesis, thus concluding that the mean of the Intervention group was higher than that of the Control group. With regard to the physical and environmental domains, the means for the Intervention group mean was higher than that for the control group. The Mann-Whitney test was used to compare the means of the Intervention and Control groups TWDG (general), TWD2 (psychological) and TWD3 (social relations), with the hypotheses:

H_0: The distribution in the Intervention group is less than or equal to the control group

H_1: The distribution in the Intervention group is higher than the control group

The results in Table 5 show higher values for the experimental group for social relations domain (TWD3) and general domain (TWDG) compared with controls.

Only in psychological domain (TWD2), insufficient evidence was found in the data to reject the null hypothesis and accept the alternative hypothesis, i.e. to conclude that the mean of the Intervention group was higher.

(Table 5 here)

4.2. Correlations

After comparing the averages in several areas of the Intervention and control groups, we examined possible correlations between the domains' scores (Table 6). As can be seen, there is a correlation between multiple pairs of fields. All the fields are correlated to each other.

(Table 6 here)

4.3. Clustering using latent class models

The mean comparisons demonstrated that Reiki had an effect, which included physical, social relationships and environment. It was thought that it would be useful to use multivariate analysis to explore the homogeneity/heterogeneity of the study subjects and, in the event of heterogeneity, to find out why, in terms of all variables used. The technique used was analysis of multivariate clustering via latent class models [35].

Latent class models are used to justify associations observed between two or more variables, using the relationships of these variables with an underlying latent variable with two or more classes. These statistical models thus test whether a set of unobserved latent classes justifies the association between observed variables. In this context, a specific solution consisting of a set of latent classes, it is reasonable if it minimizes the association between variables within each class.

In the estimation of latent class models, are of fundamental importance in its structure, the estimation of the probabilities of latent classes or relative dimensions and conditional probabilities of certain individual taking values in certain category of the observed variables, given that it is a member of a class of latent variable. The proportions of the latent classes describe the probability distribution of the latent classes or types. They are therefore useful in describing types of prevalence within population prevalence and comparing subpopulations. Regarding the clustering (segmentation) base variables used in this study, it is clear that the same scale of measurement was used for all (all of them are categorized variables) and they were modelled with multinomial distribution. For a more complete description of the estimation of latent class models with the maximum likelihood method via the Expectation-Maximization algorithm, see [37] and [38]. These models have advantages over other clustering models, for example Cluster Analysis [35]. When selecting the model we used the information criterion AIC_3 because all variables considered are categorized [39]. Estimation of these models led to the selection of a two-class latent model, as shown in Table 7, where we see the probabilities of belonging to clusters 1 or 2, 0.54 and 0.46 respectively.

(Table 7 here)

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The remaining values are conditional probabilities. For example, 0.1106 and 0.0223 represent the conditional probabilities of the subjects responding *Very good* to the question on their quality of life, knowing that they belonged to clusters 1 and 2, respectively. Due to 0.1106 being greater than 0.0223, it follows that it is a very good feature of cluster 1, regarding their evaluation of quality of life. These probabilities were essential in establishing the profiles of individuals shown in Table 9 and starting a discussion. Firstly, the characteristics in Table 9 helped classify subjects into clusters *satisfied with life* (Cluster 1) and *bitter with life* (Cluster 2).

Those satisfied with life were mostly individuals who evaluated the quality of life as good or very good and were satisfied or very satisfied with their state of health. Their physical pain did not prevent them from doing what they wanted; they did not need the health care team to help them in their daily lives and they were able to concentrate considerably or very much. They felt feel very or extremely safe in their daily lives, considered their physical environment highly appropriate, had all the energy they needed for their daily lives and fully accepted their physical appearance. They had enough money to meet their needs and agreed completely that had easy access to the information they needed to organize their daily lives. They had plenty of opportunities for leisure activities, assessed their mobility as good or very good, were satisfied or very satisfied with their sleep, their ability to work and get on with their day-to-day lives. They were satisfied or very satisfied with themselves, their personal relationships, their sex lives, the support they received from friends, the place they lived in, their access to health services and the transport they used. They never or rarely have negative feelings such as sadness, despair or anxiety and their religious beliefs, principles and personal values give them great strength to face problems and understand the difficulties of life.

(Table 8 (covariates) here)

Those embittered with life were mostly individuals who evaluated the quality of their lives as bad or very bad and were dissatisfied or very dissatisfied with their health. Physical pain prevented them considerably or a great deal from doing what they wanted. They needed the health care team considerably or a great deal live their daily lives. They liked little or nothing about their lives life and their concentration was low or zero. They did not feel safe

in their daily lives, and considered their physical environment slightly or totally unsuitable. They did not have enough energy for their daily lives, did not accept their physical appearance, had little or no money to meet their needs and had no easy access to the information they needed to organize their daily lives. They little or no opportunity for leisure activities and assess their mobility as poor or very poor. They are dissatisfied or very dissatisfied with their sleep, their ability to work and perform daily activities. For better characterization we included covariates in the model and Table 8 shows estimated parameters.

(Table 9 here)

(Table 9 (cont.) here)

They were dissatisfied or very dissatisfied with themselves, their personal relationships and their sex lives. They were very dissatisfied ore satisfied with the support they got from their friends, dissatisfied or very dissatisfied with the place they lived in. They were satisfied or neither satisfied nor dissatisfied with their access to health services and the transport they uses. They often or always had negative feelings such as sadness, despair or anxiety and their religious beliefs, principles and personal values gave little or a lot of to their lives or strength to face their difficulties and little or nothing to help understand the difficulties of life.

In Table 8 the conditional probabilities that allowed us to draw profiles according to demographic variables or covariates, which told us more about the two types (Table 9). We learned that in cluster 1, *Satisfied with life*, were mostly patients in the intervention group, aged up to 52, mostly single or divorced men, with higher levels of education.

In summary, using all the variables in Table 7, clustering base variables, we characterized multivariate profiles for the cases considered in this study (Table 9). This information was completed with data obtained through the use of covariates (Table 10).

In cluster 2, embittered with life, we had mostly individuals in the control group, aged over 53, mostly women with lower levels of education, mostly married or widowed and who had the questionnaire done for them by the interviewer (Table 10).

(Table 10 here)

5. Discussion

As our health care system is experiencing increased pressure associated with an aging population, more patients with chronic conditions and higher costs of care, nurses can be expected to be on the forefront of innovative ways of delivering effective, affordable care. Pain intensity and duration were the key factors affecting the QoL in patients with cancer [40] and we concluded that global QoL in patients with cancer was better when they used Reiki therapy, because significant differences were observed between the experimental and treatment groups. The data showed a higher mean in the experimental group than the control group in the following domains: general (TWDG), physical (TWD1), social relations (TWD3) and environment (TWD4). Only in the psychological domain (TWD2) was there insufficient evidence in the data to reject the null hypothesis and accept the alternative hypothesis, i.e. to conclude that the mean of the experimental group was higher. Thus, these results allow us to conclude that Reiki is an effective and safe therapy in the physical, social and environmental domains.

By triangulating, the use of latent class models allowed us to identify, in a multivariate analysis, two clusters that broadly correspond to experimental and control groups, and we called them *Satisfied with life* (Cluster 1) and *Bitter with life* (Cluster 2), respectively, according to the characteristics evidenced. Simultaneously, these models also helped identify demographic factors that helped discriminate between these two clusters: age, gender, marital status, educational level (Table 10). In particular, being younger (under 52), an unmarried male, and having a higher level of education contributed to a greater satisfaction with life along with Reiki therapy. It will be worthwhile in future studies to try to understand how these demographic factors may influence the decision to opt for Reiki therapy or boost the effects of Reiki therapy. Because of these results, the hospital in which the investigation was carried out has now decided to incorporate Reiki therapy in the services available, thus including holistic care concepts in care delivery.

6. Conclusion

We asked the patients if they felt they had the real or sham Reiki and only three of them guessed right (two in the experimental group). No side effects were recorded on any of the participants during the period of the experiment, in everyday hospital stay's observation. In addition, there were also no records of patients considering that the questionnaires were upset

or too long, that is, the acceptance of patients was good. These findings show that Reiki appears to be an effective and safe option for improving well-being in patients with blood cancer. These findings support the inclusion of Reiki into national health services, thereby contributing to patients' welfare and consequently a better quality of life.

7. Limitations

The sixteen who died during the experiment without answering the questionnaire were part of a group of thirty seven patients who had the worst diagnosis, concerning the type or stage of cancer. The others who completed the study who had a bad prognosis, that is 37-16 patients, were randomly associated to experimental group. We hope to extend this project, with significantly larger sample sizes and using mixed methods research.

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Table 1 Reiki therapy research

Author	Aim	Methods	Results/ Conclusion
Kundu, Dolan-Oves, Dimmers, Towle, and Doorenbos (2013) [12]	Explore the feasibility of a Reiki therapy-training program for the caregivers of pediatric medical or oncology inpatients, at a large pediatric hospital	A series of Reiki training classes were offered by a Reiki Master. At completion of the training, an interview was conducted to elicit participant's feedback regarding the effectiveness and feasibility of the training program. Seventeen of the 18 families agreed to participate.	Most families (65%) attended three Reiki training sessions, reporting that Reiki benefitted their child by improving their comfort (76%), providing relaxation (88%), and pain relief (41%).
Suroowan and Mahomoodally (2013) [13]	To assess CAM usage among women in Mauritius	A cross-sectional survey with a nationally-representative sample (n = 384)	Thirteen therapies were identified and are currently used to treat or manage 26 ailments: phytotherapy (30%); yoga (13%); deep-breathing (12%); massage therapy (11%); ayurvedic medicine (8%); meditation (6%); zootherapy (6%); homeopathy (5%); exercise (3%) and reiki (3%). The most prevalent CAM was phytotherapy.
Tarantino, Earley, Audia, D'Adamo, and Berman (2013) [14]	To address problems such as stress, fatigue, and burnout	A total of 84 participants, recruited via presentations, flyers, and word of mouth, completed the 8-week program. The experiential course, entitled Healing Pathways, combined training in Reiki, guided imagery, yoga, toning, meditation, intuitive scanning, creative expression, and mentorship to foster more empowered and resilient individuals.	They measured the effectiveness of the program via mixed methods consisting of qualitative interviews providing in-depth feedback and quantitative analysis demonstrating statistically significant benefit.
Marcus, Blazek-O'Neill, and Kopar (2013) [15]	To evaluate patient-perceived benefits from receiving Reiki at a cancer infusion center	During a 6-month period, adults at a university hospital receiving Reiki through volunteer services were invited to complete a survey asking about perceived changes after Reiki. Changes in pain, mood, distress, sleep, and appetite were rated on a 5-point scale from no benefit to great benefit. Surveys were distributed after completing treatment and were returned in postage-paid envelopes. A total of 145 surveys were completed (34.5% response rate), with 47 participants seen in the cancer infusion center and 98 in other areas of the hospital.	Reiki was rated as a positive experience by 94% at the cancer center and 93% of others, with 92% at the cancer center and 86% of others interested in receiving additional Reiki sessions. Symptomatic improvement was similar for people at the cancer center and others, respectively, with much to great improvement for 89% and 86% for relaxation, 75% and 75% for anxiety/worry, 81% and 78% for improved mood, 43% and 35% for improved sleep, 45% and 49% for reduced pain, 38% and 43% for reduced isolation/loneliness, 75% and 63% for improved attitude, and 30% and 30% for improved appetite. Response was unaffected by previous exposure to Reiki, massage, or other touch therapy. Conclusion: Reiki results in a broad range of symptomatic benefits, including improvements in common cancer-related symptoms.
Fox, Butler, Coughlan, Murray, Boland, Hanan, Murphy, Forrester, O'Brien and O'Sullivan (2012) [16]	To investigate complementary and alternative medicine (CAM) use among women with breast cancer in Ireland	Mixed methods modified sequential explanatory design. Semi-structured interviews were conducted with oncology professionals (n = 20) and CAM practitioners (n = 20) and this was followed by a survey of 406 women with breast cancer using the 'Use of Complementary and Alternative Therapies Survey' questionnaire (UCATS) (Lengacher et al., 2003). Follow up interviews were subsequently undertaken with a subset of this survey sample (n = 31).	Over half of those surveyed (55.7%, n = 226) used some form of CAM since diagnosis. The most frequently used therapies were massage, herbal supplements (including herbs with oestrogenic properties), antioxidants, relaxation, counselling, health supplements, reflexology, Reiki and support groups. Most respondents reported that the CAM therapies they had used were helpful. The qualitative data elaborated on and provided clarification of the survey results.
Bourque, Sullivan and Winter (2012) [17]	To determine whether the use of Reiki decreases the amount of meperidine administered to patients undergoing screening colonoscopy.	Following the chart review, 30 patients were recruited to the Reiki study. Twenty-five of the study arm patients received Reiki in conjunction with meperidine. Five randomly chosen study arm patients received placebo Reiki in conjunction with meperidine in an attempt to blind the clinicians to the treatment received by the patients.	Results from this pilot study suggest that there may be a decrease in meperidine needed during screening colonoscopy when patients receive Reiki treatments before the procedure.

Table 1 Reiki therapy research (cont.)

Author	Aim	Methods	Results/ Conclusion
Birocco, Guillame, Storto, Ritorto, Catino, Gir, Balestra, Tealdi, Orecchia, Vito, Giaretto, Donadio, Bertetto, Schena, Ciuffreda (2012) [18]	To investigate the role of Reiki in the management of anxiety, pain and global wellness in cancer patients	Building on the results of a pilot project conducted between 2003 and 2005 by a volunteer association at our hospital, a wider, 3-year study was conducted at the same center. The volunteer Reiki practitioners received 2 years of theory and practical training. The study population was 118 patients (67 women and 51 men; mean age, 55 years) with cancer at any stage and receiving any kind of chemotherapy.	Overall, the sessions were felt helpful in improving well-being, relaxation, pain relief, sleep quality and reducing anxiety. Offering Reiki therapy in hospitals could respond to patients' physical and emotional needs.
Díaz-Rodríguez, Arroyo-Morales, , Cantarero-Villanueva, Férnandez-Lao, Polley and Fernández-de-las-Peñas (2011) [19]	Eighteen female nurses with a diagnosis of Burnout syndrome (BS) were recruited at the University Hospital San Cecilio (Granada, Spain) between January and July 2009	The study was randomized, double-blind, placebo-controlled, using a crossover design, and conducted to compare the immediate effects of Reiki versus placebo (sham Reiki) in nurses with BS	Results showed that a single Reiki treatment produced a statistically significant increase in s-IgA and diastolic blood pressure, but not in α-amylase activity or systolic blood pressure in nurses with BS, whereas the placebo Reiki group showed no significant changes in blood pressure or salivary markers. These results indicate that Reiki can increase the unspecific sIgA immune response when applied to nurses suffering with BS.
Díaz-Rodríguez, Arroyo-Morales, Fernández-de-las-Peñas, García-Lafuente, García-Royo and Tomás-Rojas (2011) [20]	To analyze the immediate effects of Reiki on heart rate variability (HRV), body temperature, and salivary flow rate and cortisol level in health care professionals with burnout syndrome (BS).	Placebo-controlled, repeated measures, crossover, single-blind, randomized trial. Participants included 21 health care professionals with BS. They were randomly assigned the order in which they would receive a Reiki session applied by an experienced therapist and a placebo treatment applied by a therapist with no knowledge of Reiki, who mimicked the Reiki treatment.	The results suggest that Reiki has an effect on the parasympathetic nervous system when applied to health care professionals with BS.
Bowden, Goddard and Gruzelier (2011) [21]	To examine the impact of Reiki on anxiety/depression	40 university students-half with high depression and/or anxiety and half with low depression and/or anxiety-were randomly assigned to receive Reiki or to a non-Reiki control group. Participants experienced six 30-minute sessions over a period of two to eight weeks, where they were blind to whether noncontact Reiki was administered as their attention was absorbed in a guided relaxation.	The participants with high anxiety and/or depression who received Reiki showed a progressive improvement in overall mood, which was significantly better at five-week follow-up, while no change was seen in the controls. While the Reiki group did not demonstrate the comparatively greater reduction in symptoms of illness seen in our earlier study, the findings of both studies suggest that Reiki may benefit mood.
Richeson , Spross, Lutz and Peng (2010) [22]	To evaluate the effect of Reiki as an alternative and complementary approach to treating community-dwelling older adults who experience pain, depression, and/or anxiety.	Participants (N = 20) were randomly assigned to either an experimental or wait list control group. The pre- and posttest measures included the Hamilton Anxiety Scale, Geriatric Depression Scale-Short Form, Faces Pain Scale, and heart rate and blood pressure. The research design included an experimental component to examine changes in these measures and a descriptive component (semi-structured interview) to elicit information about the experience of having Reiki treatments.	Significant differences were observed between the experimental and treatment groups on measures of pain, depression, and anxiety; no changes in heart rate and blood pressure were noted. Content analysis of treatment notes and interviews revealed five broad categories of responses: Relaxation; Improved Physical Symptoms, Mood, and Well-Being; Curiosity and a Desire to Learn More; Enhanced Self-Care; and Sensory and Cognitive Responses to Reiki.

Table 1 Reiki therapy research (cont.)

Author	Aim	Methods	Results/ Conclusion
Hulse, Stuart-Shor and Russo (2010) [23]	This pilot study examined the use of Reiki prior to colonoscopy to reduce anxiety and minimize intraprocedure medications compared with usual care.	A prospective, non-blinded, partially randomized patient preference design was employed using 21 subjects undergoing colonoscopy for the first time. Symptoms of anxiety and pain were assessed using a Likert-type scale. Between-group differences were assessed using chi-square analyses and analysis of variance.	Results suggest that (1) anxious people may benefit from an adjunctive therapy; (2) anxiety and pain are decreased by Reiki therapy for patients undergoing colonoscopy, and (3) additional intraprocedure pain medication may not be needed for colonoscopy patients receiving Reiki therapy. This pilot study provided important insights in preparation for a rigorous, randomized, controlled clinical trial.
Bowden, Goddard and Gruzelier (2010) [24]	The study investigated whether participants who received Reiki would show greater health and well-being benefits than a group who received no Reiki.	A method of blinding participants to Reiki was also tested, where non-contact Reiki or No-Reiki with random assignment was given to 35 healthy psychology undergraduates whose attention was absorbed in one of three tasks involving self-hypnosis/relaxation. Participants experienced ten 20-min intervention sessions over a period of two and a half to 12 weeks.	While the Reiki group had a tendency towards a reduction in illness symptoms, a substantive increase was seen in the No-Reiki. The Reiki group also had a near-significant comparative reduction in stress, although they also had significantly higher baseline illness symptoms and stress scores. The Reiki blinding was successful - the groups did not differ statistically in their beliefs regarding group membership. The results are suggestive that the Reiki buffered the substantive decline in health in the course of the academic year seen in the No-Reiki group.
Ring (2009)[25]	The purposes of this qualitative research study were to describe the changes in pattern manifestations that individuals experienced associated with receiving Reiki, and to present the theoretical understanding of these changes.	The unitary field pattern portrait research method was utilized because it was ontologically, epistemologically, and methodologically consistent with the science of unitary human beings.	Reiki was found to be associated with changes in awareness from dissonance and turbulence to harmony and well-being by helping individuals knowingly participate in actualizing their own capacities for healing. Reiki was found to be an appropriate voluntary mutual patterning nursing modality.
Baldwin, Wagers and Schwartz (2008) [26]	To determine whether application of Reiki to noise-stressed rats can reduce their heart rates (HRs) and blood pressures.	Three unrestrained, male Sprague-Dawley rats implanted with radiotelemetric transducers were exposed daily for 8 days to a 15-minute white noise regimen (90 dB). For the last 5 days, the rats received 15 minutes of Reiki immediately before the noise and during the noise period. The experiment was repeated on the same animals but using sham Reiki. The animals were housed in a quiet room in University of Arizona Animal Facility.	Reiki, but not sham Reiki, significantly reduced HR compared to initial values. With Reiki, there was a high correlation between change in HR and initial HR, suggesting a homeostatic effect. Reiki, but not sham Reiki, significantly reduced the rise in HR produced by exposure of the rats to loud noise. Neither Reiki nor sham Reiki significantly affected blood pressure. Reiki is effective in modulating HR in stressed and unstressed rats, supporting its use as a stress-reducer in humans.
Lee, Pittler and Ernst (2008) [27]	The aim of this systematic review is to summarise and critically evaluate the evidence for the effectiveness of Reiki.	We searched the literature using 23 databases from their respective inceptions through to November 2007 (search again 23 January 2008) without language restrictions. Methodological quality was assessed using the Jadad score. The searches identified 205 potentially relevant studies. Nine randomised clinical trials (RCTs) met our inclusion criteria.	In total, the trial data for any one condition are scarce and independent replications are not available for each condition. Most trials suffered from methodological flaws such as small sample size, inadequate study design and poor reporting. In conclusion, the evidence is insufficient to suggest that Reiki is an effective treatment for any condition. Therefore the value of Reiki remains unproven.

Table 2 Mean and standard deviation of scores by group (n$_1$=58, experimental; n$_2$=42, control)

Group		TWDG	TWD1	TWD2	TWD3	TWD4
Experimental	Mean	58.405	57.883	53.234	74.571	64.186
	n	58	58	58	58	58
	Standard deviation	20.8624	15.6630	10.7552	17.1338	12.3396
Control	Média	50.298	48.812	52.076	62.107	57.890
	n	42	42	42	42	42
	Standard deviation	21.1138	13.5902	7.8251	16.9941	12.9719
Total	Mean	55.000	54.073	52.748	69.336	61.542
	n	100	100	100	100	100
	Standard deviation	21.2459	15.4268	9.6067	18.0790	12.9270

Physical domain (TWD1), psychological domain (TWD2), social relationships domain (TWD3), environment domain (TWD4) and the score for each domain in experimental and control groups (TWDG).

Table 3 Normality Test (n$_1$=58, experimental; n$_2$=42, control)

	Group	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
		Statistic	df	Sig.	Statistic	df	Sig.
TWDG	Experimental	.130	58	**.017**	.961	58	.063
	Control	.147	42	**.023**	.954	42	.093
TWD1	Experimental	.089	58	.200[*]	.976	58	.298
	Control	.118	42	.155	.978	42	.579
TWD2	Experimental	.156	58	**.001**	.964	58	.079
	Control	.144	42	.029	.962	42	.174
TWD3	Experimental	.126	58	.023	.950	58	.018
	Control	.178	42	**.002**	.918	42	.005
TWD4	Experimental	.099	58	.200[*]	.980	58	.460
	Control	.118	42	.157	.977	42	.536

[*] This is a lower boundary of true significance.

[a] Lilliefors Significance Correction

Physical domain (TWD1), psychological domain (TWD2), social relationships domain (TWD3), environment domain (TWD4) and the score for each domain in experimental and control groups (TWDG).

Table 4 Levene Test and Student's t test for independent samples (n₁=58, experimental; n₂=42, control)

	Levene test for homogeneity of variances		t test for comparison of two means		
	F	Value p	t	df	Value p (one-sided)
TWDG	.028	.867	-	-	-
TWD1	1.348	.248	-3.019	98	.015
TWD2	2.349	.129	-	-	-
TWD3	.553	.459	-	-	-
TWD4	.015	.904	-2.465	98	.0075*

Physical domain (TWD1), psychological domain (TWD2), social relationships domain (TWD3), environment domain (TWD4) and the score for each domain in experimental and control groups (TWDG). Variances are homogeneous

Table 5 Mann-Whitney test (n₁=58, experimental; n₂=42, control)

Null hypothesis	Test	p value	Decision
TWDG	Mann-Whitney	0.035	Reject the null hypothesis and accept the alternative hypothesis
TWD2	Mann-Whitney	0.186	Do not reject the null hypothesis
TWD3	Mann-Whitney	0.0005	Reject the null hypothesis and accept the alternative hypothesis

Psychological domain (TWD2), social relationships domain (TWD3) and the score for each domain in experimental and control groups (TWDG).

Table 6 Correlations (n$_1$=58, experimental; n$_2$=42, control)

		TWDG	TWD1	TWD2	TWD3	TWD4
TWDG	Pearson Correlation	1	.625**	.430**	.477**	.449**
	Sig. (2-tailed)		.000	.000	.000	.000
	n		100	100	100	100
TWD1	Pearson Correlation		1	.520**	.541**	.605**
	Sig. (2-tailed)			.000	.000	.000
	n			100	100	100
TWD2	Pearson Correlation			1	.499**	.439**
	Sig. (2-tailed)				.000	.000
	n				100	100
TWD3	Pearson Correlation				1	.618**
	Sig. (2-tailed)					.000
	n					100
TWD4	Pearson Correlation					1
	Sig. (2-tailed)					
	n					100

** Correlation is significant at the 0.01 level (2-tailed).

Physical domain (TWD1), psychological domain (TWD2), social relationships domain (TWD3), environment domain (TWD4) and the score for each domain in experimental and control groups (TWDG).

Table 7 Estimated parameters of two-class latent model (n_1=58, experimental; n_2=42, control)

	Cluster1	Cluster2
Cluster Size	0.5402	0.4598
Indicators		
How would you assess your quality of life?		
Very bad	0.0002	**0.0433**
Bad	0.0744	**0.1736**
Neither good nor bad	0.1329	**0.6051**
Good	**0.6819**	0.1558
Very good	**0.1106**	0.0223
How satisfied are you with your health?		
Very dissatisfied	0.019	**0.1299**
Dissatisfied	0.2044	**0.3471**
Neither satisfied nor dissatisfied	0.296	**0.37**
Satisfied	**0.3702**	0.1523
Very satisfied	**0.1105**	0.0006
To what extent does your physical pain prevent you from doing what you want?		
Not at all	**0.3883**	0.1311
A little	0.2778	**0.3695**
Somewhat	**0.2404**	0.2178
Considerably	0.0751	**0.2815**
A great deal	0.0184	**0.0001**
To what extent do you need the health care team in your daily life?		
Not at all	**0.4245**	0.1973
A little	**0.314**	0.2184
Somewhat	0.1115	**0.1735**
Considerably	0.1496	**0.3027**
A great deal	0.0005	**0.1082**
How much do you enjoy life?		
Not at all	0.0003	**0.0649**
A little	0.0187	**0.065**
Somewhat	0.0009	**0.2164**
Considerably	0.2791	**0.3898**
A great deal	**0.701**	0.2638
To what extent do you feel your life has meaning?		
Not at all	0.0001	**0.0216**
A little	0.0002	**0.0433**
Somewhat	0.0198	**0.3247**
Considerably	0.2794	**0.4764**
A great deal	**0.7005**	0.134
How much can you focus?		
Not at all	0.0003	**0.0649**
A little	0.0192	**0.1949**
Somewhat	0.1673	**0.4124**
Considerably	**0.6658**	0.327
A great deal	**0.1474**	0.0009
How safe do you feel in your daily life?		
Not at all	0.0002	**0.0433**
A little	0.0187	**0.1302**
Somewhat	0.1865	**0.5421**
Considerably	**0.7392**	0.2625
A great deal	**0.0554**	0.022
How appropriate is your physical environment (ward)?		
Not at all	0.0061	**0.0363**
A little	0.0799	**0.2323**
Somewhat	0.2179	**0.3095**
Considerably	**0.5237**	0.3634
A great deal	**0.1724**	0.0584

Bold numbers indicate the highest probability for each line, which in turn indicates the category of each variable which characterizes the cluster.

Table 7 Estimated parameters of two-class latent model (cont.) (n_1=58, experimental; n_2=42, control)

	Cluster1	Cluster2
Cluster Size	0.5402	0.4598
Indicators		
Do you have enough energy for your daily life?		
Not at all	0.0045	**0.0817**
A little	0.0758	**0.3459**
Somewhat	0.4017	**0.4632**
Quite a lot	**0.3263**	0.0951
Completely	**0.1916**	0.0141
Are you able to accept your physical appearance?		
Not at all	0.0063	**0.1014**
A little	0.0425	**0.2328**
Somewhat	0.208	**0.3864**
Quite a lot	**0.2891**	0.1823
Completely	**0.4541**	0.0972
Do you have enough money to meet your needs?		
Not at all	0.0106	**0.1181**
A little	0.1691	**0.4755**
Somewhat	**0.5203**	0.3674
Quite a lot	**0.193**	0.0342
Completely	**0.107**	0.0048
How easy is access to the information you need to organize your daily life?		
Not at all	0.0005	**0.0212**
A little	0.025	**0.2316**
Somewhat	0.2773	**0.5224**
Quite	**0.5584**	0.214
Completely	**0.1389**	0.0108
How much opportunity do you have for leisure activities?		
None	0.0379	**0.2382**
A little	0.168	**0.4116**
Some	**0.4071**	0.2829
Quite alot	**0.3318**	0.067
Considerably	**0.0553**	0.0003
How would you rate your mobility (ability to move around by yourself)?		
Very bad	0.0002	**0.0433**
Bad	0.0191	**0.1516**
Neither good nor bad	0.1129	**0.4545**
Good	**0.4984**	0.3279
Very good	**0.3694**	0.0227
How satisfied are you with your sleep?		
Very dissatisfied	0.0191	**0.1733**
Dissatisfied	0.1495	**0.3028**
Neither satisfied nor dissatisfied	0.2221	**0.261**
Satisfied	**0.3698**	0.2616
Very satisfied	**0.2395**	0.0014
How satisfied are you with your ability to perform everyday activities?		
Very dissatisfied	0.0372	**0.0868**
Dissatisfied	0.0755	**0.3898**
Neither satisfied nor dissatisfied	0.2792	**0.4766**
Satisfied	**0.3871**	0.0455
Very satisfied	**0.2211**	0.0013
How satisfied are you with your ability to work?		
Very dissatisfied	0.0572	**0.172**
Dissatisfied	0.131	**0.5202**
Neither satisfied nor dissatisfied	**0.2773**	0.2397
Satisfied	**0.3871**	0.0672
Very satisfied	**0.1474**	0.0009

Bold numbers indicate the highest probability for each line, which in turn indicates the category of each variable which characterizes the cluster.

Table 7 Estimated parameters of two-class latent model (cont.) (n_1=58, experimental; n_2=42, control)

	Cluster1	Cluster2
Cluster Size	0.5402	0.4598
Indicators		
How satisfied are you with yourself?		
Very dissatisfied	0.0003	**0.0649**
Dissatisfied	0.0008	**0.1948**
Neither satisfied nor dissatisfied	0.0019	**0.4544**
Satisfied	**0.5733**	0.2834
Very satisfied	**0.4237**	0.0025
How satisfied are you with your personal relationships?		
Very dissatisfied	0.0001	**0.0216**
Dissatisfied	0.0005	**0.1082**
Neither satisfied nor dissatisfied	0.0198	**0.3246**
Satisfied	0.4453	**0.5208**
Very satisfied	**0.5343**	0.0248
How satisfied are you with your sex life?		
Very dissatisfied	0.0191	**0.1516**
Dissatisfied	0.1669	**0.2823**
Neither satisfied nor dissatisfied	0.2966	**0.4562**
Satisfied	**0.2411**	0.1082
Very satisfied	**0.2763**	0.0017
How satisfied are you with the support you receive from friends?		
Very dissatisfied	0.0372	**0.0868**
Dissatisfied	0.0006	**0.1298**
Neither satisfied nor dissatisfied	0.3721	**0.6285**
Satisfied	**0.5901**	0.1549
How satisfied are you with the lace you live?		
Very dissatisfied	0.0002	**0.0433**
Dissatisfied	0.0188	**0.0867**
Neither satisfied nor dissatisfied	**0.1475**	0.0442
Satisfied	0.4283	**0.78**
Very satisfied	**0.4052**	0.0459
How satisfied are you with your access to health services?		
Dissatisfied	**0.1477**	0.0875
Neither satisfied nor dissatisfied	0.0928	**0.1736**
Satisfied	0.4457	**0.6507**
Very satisfied	**0.3137**	0.0882
How satisfied are you with the transport you use?		
Dissatisfied	0.0187	**0.065**
Neither satisfied nor dissatisfied	**0.2032**	0.1311
Satisfied	0.5016	**0.7591**
Very satisfied	**0.2765**	0.0449
How often do you have feelings such as sadness, despair, anxiety or depression?		
Never	**0.151**	0.0184
Seldom	**0.4328**	0.1657
Sometimes	0.3106	**0.3745**
Often	0.1006	**0.382**
Always	0.005	**0.0594**
Do your religious beliefs, principles and personal values give meaning to your life?		
A little	0.0186	**0.0434**
Somewhat	0.1673	**0.3036**
Considerably	0.4822	**0.5644**
A great deal	**0.3319**	0.0885
To what extent do you feel your life has meaning?		
A little	0.0001	**0.0216**
Somewhat	0.0015	**0.3462**
Considerably	0.3537	**0.5631**
A great deal	**0.6447**	0.0691

Bold numbers indicate the highest probability for each line, which in turn indicates the category of each variable which characterizes the cluster.

Table 7 Estimated parameters of two-class latent model (cont.) (n_1=58, experimental; n_2=42, control)

Cluster Size	Cluster1 (0.5402)	Cluster2 (0.4598)
Indicators		
How much do your religious beliefs, principles and personal values give you strength to face difficulties?		
A little	0.0188	**0.0867**
Somewhat	0.1486	**0.2386**
Considerably	0.3717	**0.5854**
A great deal	**0.4609**	0.0893
How much do your religious beliefs, principles and personal values help you to understand the difficulties of life?		
A little	0.0373	**0.1084**
Somewhat	0.2044	**0.3471**
A lot	**0.4082**	0.4991
A great deal	**0.3501**	0.0454

Bold numbers indicate the highest probability for each line, which in turn indicates the category of each variable which characterizes the cluster.

Table 8 Estimated parameters of two-class latent model (covariates) (n_1=58, experimental; n_2=42, control)

Cluster size	Cluster 1 (0.5402)	Cluster2 (0.4598)
Covariates		
Group		
Experimental	**0.7031**	0.4352
Control	0.2969	**0.5648**
Age		
Up to 34	**0.3147**	0.1956
35 to 52	**0.3513**	0.1091
53 to 62	0.1112	**0.4351**
Over 62	0.2229	**0.2602**
Gender		
Female	0.3146	**0.5004**
Male	**0.6854**	0.4996
Education		
Cannot read or write	0	**0.0435**
Can read and / or write	**0.037**	0
1st to 4th grade	0.2416	**0.5429**
5th or 6th grade	**0.0925**	0.0653
7th to 9th grade	**0.1848**	0.0873
10th to 12th grade	**0.1852**	0.1738
University	**0.185**	0.0871
Postgraduate	**0.074**	0
Marital status		
Single	**0.2405**	0.1306
Married	0.5929	**0.7607**
Committed	**0.037**	0
Divorced	**0.074**	0
Widow/er	0.0556	**0.1087**
Questionnaire		
Self-administered	**0.6474**	0.5225
Assisted by interviewer	**0.148**	0.0435
Administered by interviewer	0.2046	**0.4340**

Bold numbers indicate the highest probability for each line, which in turn indicates the category of each variable which characterizes the cluster.

Table 9 Patient profiles (n_1=58, experimental; n_2=42, control)

Variable	*Satisfied with life* (0.5402)	*Embittered with life* (0.4598)
How do you assess your quality of life?	Good, Very Good	Very bad, Bad, Neither good nor bad
How satisfied are you with your health?	Satisfied, Very Satisfied	Very dissatisfied, dissatisfied, Neither satisfied nor dissatisfied
To what extent does your physical pain keep you from doing what you want?	Not at all, a little	somewhat, considerably, a great deal
To what extent do you need the health care team to help with your daily life?	Not at all, a little	Somewhat, a great deal
How much do you enjoy life?	A great deal	Not at all, a little; Somewhat; A great deal
To what extent do you feel your life has meaning?	A great deal	Not at all, A little; Somewhat; considerably
To what extent can you focus?	Considerably, a great deal	Not at all; Little; Somewhat
How safe do you feel in your daily life?	Considerably, a great deal	Not at all; A little; Somewhat
How appropriate is your physical environment (ward)?	Considerably, a great deal	Not at all; A little; Somewhat
Do you have enough energy for your daily life?	Enough; Completely	Not at all, A little, Somewhat
Are you able to accept your physical appearance?	Quite a lot; Completely	Not at all, A little, Somewhat
Do you have enough money to meet your needs?	Somewhat, completely	Not at all; A little
How easy is access to the information you need to organize your daily life?	Quite; Completely	Not at all, A little, Somewhat
How much opportunity do you have for leisure activities?	Somewhat, Quite, Quite	None, a little, some
How would you rate your mobility (ability to move around by yourself)?	Good, Very Good	Very bad, bad, neither good nor bad
How satisfied are you with your sleep?	Satisfied, Very Satisfied	Very dissatisfied, dissatisfied, Neither satisfied nor dissatisfied
How satisfied are you with your ability to perform everyday activities?	Satisfied, Very Satisfied	Very dissatisfied, dissatisfied, Neither satisfied nor dissatisfied
How satisfied are you with your ability to work?	Neither satisfied nor dissatisfied; Satisfied; Very Satisfied	Very dissatisfied; dissatisfied;
How satisfied are you with yourself?	Satisfied, Very Satisfied	Very dissatisfied, dissatisfied, Neither satisfied nor dissatisfied

Table 9 Patient profiles (cont.) (n_1=58, experimental; n_2=42, control)

Variables	*Satisfied with life* (0.5402)	*Embittered with life* (0.4598)
How satisfied are you with your personal relationships?	Satisfied, very satisfied	Very dissatisfied, dissatisfied, neither satisfied nor dissatisfied; satisfied
How satisfied are you with your sex life?	Satisfied, very satisfied	Very dissatisfied, dissatisfied, neither satisfied nor dissatisfied
How satisfied are you with the support you get from friends?	Very satisfied	Dissatisfied, neither satisfied nor dissatisfied; Satisfied
How satisfied are you with the place you live?	Neither satisfied nor dissatisfied; very satisfied	Very dissatisfied, dissatisfied, satisfied
How satisfied are you with your access to health services?	Very satisfied	Neither satisfied nor dissatisfied; satisfied
How satisfied are you with transports?	Neither satisfied nor dissatisfied; very satisfied	Dissatisfied, satisfied
How often do you have negative feelings such as sadness, despair, anxiety or depression?	Never, rarely	Sometimes, often, always
Do your religious beliefs, principles and personal values give meaning to your life?	Mostly	Not much, somewhat. considerably
To what extent do you feel your life has meaning?	A great deal	Not much, somewhat. considerably
To what extent do your religious beliefs, principles and personal values give you strength to face difficulties?	A great deal	Not much, somewhat. considerably
How much do your religious beliefs, principles and personal values help you understand the difficulties in life?	Considerably, a great deal	Not much, somewhat

Table 10 Patients' profiles according to covariates (n_1=58, experimental; n_2=42, control)

Covariates	*Satisfied with life* (0.5402)	*Embittered with life* (0.4598)
Group	experimental	control
Age	Up to 52	Over 52
Gender	male	female
Level of education	5th -12th grade, higher education, post-grad studies	Cannot read or write, 1st-4th grade
Marital status	Single; committed; divorced	Married, Widow(er)
Questionnaire	Self-administered, assisted by interviewer	Administered by interviewer