

Reiki Therapy for Symptom Management in Children Receiving Palliative Care: A Pilot Study

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Abstract

Background: Pain may be reported in one-half to three-fourths of children with cancer and other terminal conditions and anxiety in about one-third of them. Pharmacologic methods do not always give satisfactory symptom relief. Complementary therapies such as Reiki may help children manage symptoms. **Objective:** This pre-post mixed-methods single group pilot study examined feasibility, acceptability, and the outcomes of pain, anxiety, and relaxation using Reiki therapy with children receiving palliative care. **Methods:** A convenience sample of children ages 7 to 16 and their parents were recruited from a palliative care service. Two 24-minute Reiki sessions were completed at the children's home. Paired *t* tests or Wilcoxon signed-rank tests were calculated to compare change from pre to post for outcome variables. Significance was set at $P < .10$. Cohen *d* effect sizes were calculated. **Results:** The final sample included 8 verbal and 8 nonverbal children, 16 mothers, and 1 nurse. All mean scores for outcome variables decreased from pre- to posttreatment for both sessions. Significant decreases for pain for treatment 1 in nonverbal children ($P = .063$) and for respiratory rate for treatment 2 in verbal children ($P = .009$). Cohen *d* effect sizes were medium to large for most outcome measures. **Discussion:** Decreased mean scores for outcome measures indicate that Reiki therapy did decrease pain, anxiety, heart, and respiratory rates, but small sample size deterred statistical significance. This preliminary work suggests that complementary methods of treatment such as Reiki may be beneficial to support traditional methods to manage pain and anxiety in children receiving palliative care.

Keywords

Reiki, pediatric, palliative, symptom management, pain, anxiety

Background

Pain and anxiety are debilitating symptoms that occur frequently in children diagnosed with cancer and other life-limiting and life-threatening conditions. Pain is experienced by one-half to three-fourths of children with cancer and anxiety in about one-third of them, compromising quality of life and increasing the distress experienced by parents.¹⁻³ Pain and anxiety in children are different from adults as it is often a bidirectional mechanism between the child and the parent or other adult.⁴ Children cope with pain better when parents promote coping behaviors that are aligned with social norms.⁵ Pain and anxiety are often related especially in children and adolescents receiving palliative care for life-threatening, life-limiting illnesses such as cancer, respiratory conditions, or muscular dystrophy.^{6,7}

Palliative care helps the family set goals of care including symptom management, comfort, respite care, helping the child attend school, coordinating care, aiding in medical decision making, and making sure the family has the knowledge and

supplies required to successfully care for their child at home. For seriously or terminally ill children receiving palliative care, it is often difficult to find a balance between the desire to be pain and anxiety free and the desire to avoid pharmacologic side effects including sedation or dizziness. Pain and anxiety experienced by children do not always respond completely to pharmacologic interventions. Many parents choose to augment pharmacotherapy with complementary therapies to achieve pain and anxiety relief without excess sedation or reduction of the child's ability to interact with family and friends.^{8,9} Reiki

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therapy, a gentle, noninvasive complementary technique has shown promise in achieving this balance. In adults, Reiki has demonstrated good clinical effect but it has only recently been empirically studied in children.¹⁰ Based on adult studies, Reiki therapy is likely well suited for symptom management in children with life threatening and chronic illnesses in all phases of palliative care.^{11,12}

Reiki therapy is a relaxing energy therapy wherein the practitioner uses light touch or positions hands slightly above the body. In a recent study of 213 adults receiving Reiki therapy, participants felt Reiki was relaxing, peaceful, and calming, and they experienced at least a 50% decrease in distress, anxiety, and pain.¹³ Before 2013, there was no literature examining the use of Reiki therapy with children. Since then, 3 studies have been published: (1) a feasibility study that trained 18 parents in the use of Reiki therapy,¹⁴ (2) a double-blind randomized control trial exploring Reiki for postoperative oral pain in 38 children,¹⁵ and (3) a case study of a single child exploring the use of Reiki for relaxation and stress reduction for a child with a history of seizures.¹⁶ The first study sought to train parents in caring for their seriously ill children but did not engage the children in the research process: Furthermore, the parent interviews were informal, and the study did not have outcome measures. The parents were generally enthusiastic about learning Reiki and felt empowered to care for their children in the hospital setting.¹⁴ These results echo an earlier study by Gagnon and Recklitis¹⁷ who found that parents prefer a collaborative role in their child's cancer care and that 46% of the parents used some type of complementary therapy for symptom management during their child's cancer treatment. The second study employed a 2-group double-blinding procedure using Reiki and sham (pretend) Reiki with children receiving outpatient dental procedures. This study did not involve any type of attention control or usual care. The research protocol was not completed as many children were discharged sooner than anticipated postoperatively.¹⁵ There were no statistical differences between the 2 groups.¹⁵ A sham touch intervention still gives the child a comforting touch that may decrease their pain and possibly contribute to the lack of statistical differences between the actual and sham Reiki groups. The single-child case study found that Reiki was relaxing for the child, that no seizures occurred during the study period, and that there was a positive change in sleep patterns. The authors suggested that Reiki may be useful for children with increased stress and sleep disturbances related to illness.¹⁶

There have been no scientific studies examining the use of Reiki therapy with children receiving palliative care. To address this gap in the use of Reiki therapy in a pediatric population, this study sought to examine the feasibility and acceptability of using Reiki therapy for children aged 7 to 16 years receiving palliative care. This study had 2 main aims: to assess the feasibility and acceptability of Reiki therapy as a treatment for children receiving palliative care and to examine the effect of Reiki therapy on pain, anxiety, and relaxation (operationalized as heart rate and respiratory rate). The purpose of this article is to present the findings on the outcomes of pain, anxiety, and relaxation.

Methods

Research Design

This was a pre–post mixed-methods single group pilot study. Pain, anxiety, and relaxation (operationalized as heart rate and respiratory rate) were measured immediately pre and post each of 2 Reiki therapy sessions. Outcomes are reported using means, *t* tests, and Cohen *d* effect sizes.

Sample and Setting

A convenience sample of child–parent dyads was recruited during outpatient follow-up clinic visits from the Supportive Care Service of Children's Hospital of Pittsburgh of University of Pittsburgh Medical Center in western Pennsylvania. This hospital serves the urban population of Pittsburgh and has a catchment area that includes all of western Pennsylvania, southwestern New York, northern West Virginia, and eastern Ohio. The consultation-based palliative care service began in 2003 and currently serves over 200 patients including infants, children, and young adults who are receiving inpatient and outpatient palliative and hospice care. Dyads included a verbal or nonverbal child between the ages of 7 and 16 and a parent. Dyads were included if the parent and verbal child communicated in English or if the parent of a nonverbal child communicated in English. Consent from the parents and assent from verbal children were obtained. We received approval from the University of Pittsburgh Institutional Review Board.

Procedures

Following informed parental consent and assent from verbal children, demographic data were collected and appointments for the Reiki therapy sessions were made at the family's convenience. If the child or parent declined to participate, any spontaneous explanation was noted. The intervention consisted of two 24-minute Reiki therapy sessions in the child's home with a minimum of 1 and a maximum of 3 days between sessions. Each Reiki therapy session utilized a protocol of 12 hand positions held for 2 minutes each. The child was comfortably clothed, and parents were invited to watch the sessions. The interventionist, a pediatric nurse with 12 years of experience, noted the number of minutes for the session including any deviations from protocol or unusual occurrences in a log. Data were collected between October 2014 and June 2015.

Measures

All data were collected and recorded using a single code for each child–parent dyad. Pain, anxiety, heart rate, and respiratory rates were recorded immediately before and after each Reiki therapy session. Verbal children were presented 1 sheet of paper with the 2 pain scales followed by another sheet of paper with 2 anxiety scales. Children were to mark 1 pain score and 1 anxiety score. Two different scales were provided in the event that a child did not understand 1 of them although only 1

of the 2 scales was marked. For nonverbal children unable to self-report, the parents were given the same scales as verbal children (1 page with pain scales and 1 page with anxiety scales) and were asked to mark what they perceived to be their child's pain and anxiety levels. Parent proxy report for children is a necessity for nonverbal children and has been well-validated by research for both verbal and nonverbal children for pain, anxiety, and other symptoms.¹⁸⁻²²

Pain

The degree of pain each child was experiencing was reported through the use of either a visual analog scale (VAS) or the Wong-Baker FACES® Pain Scale (presented simultaneously on 1 page). The VAS scale is a 10-cm line with end points of “no pain” and “worst pain ever,” indicating pain levels of 0 to 10. The VAS is the gold standard for pain assessment and is reliable for adults and children as young as 5 years of age with concurrent validity of 0.61 to 0.91 and test-retest reliability of 0.41 to 0.58.^{22,23} The Wong-Baker FACES® Pain Scale has been validated over time and found highly correlated with a VAS ($\rho = .90$) for adults and children aged 5 and over.^{24,25}

Anxiety

We also used a 10-cm VAS scale with end points of “no anxiety” and “worst anxiety ever” to indicate anxiety levels and The Children's Fear Scale (presented simultaneously on 1 page), a faces-type scale for children able to self-report.^{21,23} The Children's Fear Scale has been tested for both fear and anxiety and shows good convergent validity with Children's Anxiety and Pain Scale ($r = .73$) and acceptable test-retest reliability ($r = .76$).²¹

Relaxation

Heart and respiratory rates served as proxy measures for relaxation.²⁶ Relaxation was assessed and recorded immediately pre and post each Reiki therapy session by the interventionist. Heart rate was assessed by palpation of the radial pulse for 30 seconds and multiplying by 2. Respiratory rate was assessed by observing respirations for 30 seconds and multiplying by 2.

Data Analysis

Descriptive statistics of pain, anxiety, heart rate, and respiratory rate were recorded pre and post each Reiki therapy session. The differences among time points and/or trend of change over time were explored by using paired Student *t* tests or Wilcoxon signed-rank tests. Results for verbal and nonverbal children are reported separately. Because this is a pilot study exploring acceptability and feasibility of a Reiki intervention with a new population, we set the significance at $P < .10$. Due to small sample size and lack of previous data needed to conduct a power analysis, setting a higher significance level decreases the chance of making a type II error (or accepting a false null hypothesis).²⁷ We calculated Cohen *d* effect sizes for all

Table 1. Family Demographics.^a

	Completed intervention
Child age, mean (SD)	12.6 years (2.4)
Child gender, female (%)	11 (68.8%)
Child race	
White, n (%)	15 (93.8%)
Mixed race, n (%)	1 (6.3%)
Time supportive care services, median (range)	1.58 years (48 days to 9.85 years)
Child previous complementary therapies? (yes), n (%)	6 (37.5%)
Parent age, mean (SD)	43.7 years (11.3)
Parent gender, female	16 (100%)
Parent race	
White	16 (100%)
Parent education, n (%)	
High school	2 (12.5%)
Some college	6 (37.5%)
Associate degree	2 (12.5%)
Bachelor degree	6 (37.5%)
Family income, n (%)	
<US\$10 000	1 (6.3%)
US\$10 000-20 000	4 (25.0%)
US\$20 000-40 000	4 (25.0%)
US\$40 000-80 000	2 (12.5%)
>US\$80 000	5 (31.3%)
Employment, n (%)	
Employed at least part time	11 (68.9%)
Homemaker	2 (12.5%)
Medical leave	2 (12.5%)
Unemployed	1 (6.3%)
Parent previous complementary therapies? (yes), n (%)	5 (31.3%)

Abbreviation: SD, standard deviation.

^aN = 16 dyads.

outcome variables. Analyses were conducted using IBM SPSS Statistics v22 for Macintosh.²⁸

Results

Sample

The final sample included 16 children (8 verbal and 8 nonverbal), their mothers, and 1 nurse (caregiver for a nonverbal child) totaling 33 participants (Table 1). The children as a group had a mean age of 12.6 years (range 8-16 years), and the median time with palliative care was 1.6 years (range 48 days to 9.8 years). All parents were white females with a mean age of 43.7 years (Table 1). Six (37.5%) children and 5 (31.3%) mothers had experienced a variety of complementary therapies prior to recruitment. Complementary therapies included cranial sacral therapy (1 child), low sugar diet (1 child), massage (2 children, 3 parents), meditation (1 parent), prayer (2 children, 1 parent), reflexology (1 child), Reiki therapy (1 child, 1 parent), stretching (1 child), vitamins (1 child, 1 parent), and yoga (1 child, 2 parents). Seven (44%) children had a cancer diagnosis; 4 (25%) children had a congenital condition; and 5 (31%)

children had a genetic condition. We collected data on pain and anxiety medications: 7 (44%) took daily medication, 7 (44%) took occasional medication, and 2 (12%) took no medication. The verbal and nonverbal children differed significantly on age, gender, mean time receiving palliative care, and diagnoses with the verbal children being older, the nonverbal group having more boys, nonverbal children receiving palliative care longer, and the nonverbal group having exclusively congenital/genetic conditions (Table 2). No other demographic variable was significantly different (mother's age, education, income, or employment status) for the 2 groups.

Pain, Anxiety, and Relaxation

Mean scores decreased for all outcome variables when comparing pre to post Reiki treatments for both verbal and nonverbal children but few were significant (Table 3). Statistical significance was found for decreased respiratory rate for treatment 2 (Tx2) in verbal children. For nonverbal children, there was a significant decrease for pain for Tx2 and decreased respiratory rate for the overall intervention. Effect sizes were medium to large for most outcome variables for treatments 1 (Tx1) and Tx2 for both verbal and nonverbal children as indicated by the Cohen *d* statistic (Table 3).

Table 2. Demographic Characteristics of Verbal Versus Nonverbal Children.

	Verbal children	Nonverbal children	Significance
Number of participants	8	8	
Mean age (SD)	13.75 (2.49) years	11.38 (1.77) years	<i>P</i> = .047
Gender			<i>P</i> = .011
Female	8	3	
Male	0	5	
Race			<i>P</i> = .351
White	8	7	
Mixed race	0	1	
Diagnoses			<i>P</i> < .001
Cancer	7	0	
Congenital/genetic	1	8	
Time with palliative care			<i>P</i> = .006
Mean (SD)	0.67 (0.64) years	4.57 (2.88) years	
Median	0.38 years	4.11 years	
Range	1.6 to 22 months	5.4 months to 9.8 years	
Previous complementary therapy use	3	3	<i>P</i> = 1.000

Abbreviation: SD, standard deviation.

Table 3. Outcomes for Pain, Anxiety, Heart Rate, and Respiratory Rate.

Verbal (n = 8)	Pain	Anxiety	Heart Rate	Respiratory Rate
Tx1: Mean (SD)				
Pre	1.16 (2.04)	0.53 (0.89)	87.75 (16.71)	19.25 (5.12)
Post	0.80 (1.69)	0.03 (0.07)	78.75 (14.10)	17.75 (2.49)
	<i>P</i> = .125	<i>P</i> = .125	<i>P</i> = .129	<i>P</i> = .468
	<i>d</i> = 1.04^a	<i>d</i> = 1.03^a	<i>d</i> = 1.30^a	<i>d</i> = 0.35
Tx2: Mean (SD)				
Pre	1.37 (2.13)	0.49 (0.99)	86.29 (11.80)	20.25 (3.11)
Post	1.07 (2.03)	0.26 (0.65)	85.63 (14.46)	17.25 (2.38)
	<i>P</i> = .500	<i>P</i> = .250	<i>P</i> = .768	<i>P</i> = .009^b
	<i>d</i> = 0.60^c	<i>d</i> = 0.95^a	<i>d</i> = 0.25	<i>d</i> = 2.68^a
Pre-Tx1 to post-Tx2: Mean (SD)	1.16 (2.04)	0.53 (0.89)	87.75 (16.71)	19.25 (5.12)
	1.07 (2.03)	0.26 (0.65)	85.63 (14.46)	17.25 (2.38)
	<i>P</i> = 1.00	<i>P</i> = .438	<i>P</i> = .675	<i>P</i> = .407
	<i>d</i> = 0	<i>d</i> = 0.49	<i>d</i> = 0.33	<i>d</i> = 0.67^c
Nonverbal (n = 8)				
Tx1: Mean (SD)				
Pre	0.79 (2.00)	0.77 (1.56)	99.50 (14.00)	22.63 (6.95)
Post	0.21 (0.60)	0.12 (0.30)	93.13 (16.55)	19.13 (6.45)
	<i>P</i> = .500	<i>P</i> = .250	<i>P</i> = .147	<i>P</i> = .155
	<i>d</i> = 0.71^c	<i>d</i> = 0.88^a	<i>d</i> = 1.23^a	<i>d</i> = 1.21^a
Tx2: Mean (SD)				
Pre	1.09 (1.17)	1.05 (1.80)	88.50 (8.88)	20.50 (5.32)
Post	0.37 (0.72)	0.31 (0.70)	88.25 (15.98)	18.25 (6.36)
	<i>P</i> = .063^b	<i>P</i> = .250	<i>P</i> = .941	<i>P</i> = .185
	<i>d</i> = 1.17^a	<i>d</i> = 0.88^a	<i>d</i> = 0.06	<i>d</i> = 1.11^a
Pre-Tx1 to post-Tx2: Mean (SD)	0.79 (2.00)	0.77 (1.56)	99.50 (14.00)	22.63 (6.95)
	0.37 (0.72)	0.31 (0.70)	88.25 (15.98)	18.25 (6.36)
	<i>P</i> = .750	<i>P</i> = .625	<i>P</i> = .135	<i>P</i> = .082^b
	<i>d</i> = 0.27	<i>d</i> = 0.37	<i>d</i> = 1.28^a	<i>d</i> = 1.54^a

Note: Bolded values denote medium and large effect sizes and statistical significance.

Abbreviation: SD, standard deviation; Tx1, treatment 1; Tx2, treatment 2.

^aLarge effect.

^b*P* < .10.

^cMedium effect.

To see if there was a lasting effect for the Reiki therapy, we looked at the difference from pre-Tx1 to post-Tx2. There was a decrease in mean scores for all variables but the only significant decrease was in heart rate for nonverbal children. The effect sizes for pain and anxiety for this time span were none or small for pain and small for anxiety.

The full sample ($n = 16$) was compared based on 3 demographic characteristics: verbal compared to nonverbal children, older compared to younger children, and girls compared to boys. When comparing verbal ($n = 8$) and nonverbal ($n = 8$) children, the mean values for pre and post heart rate, respiratory rate, and anxiety were higher in the nonverbal group for both treatments, but not significantly. The only significant difference was heart rate post-Tx1 for nonverbal children ($P = .083$). When comparing older (ages 13-16, $n = 7$) and younger children (ages 8-12, $n = 9$), the younger children experienced higher pre and post heart and respiratory rates for Tx1, whereas the older children experienced higher pre and post pain scores for both treatments with no significant differences. The only significant differences were for higher heart rate in younger children post-Tx1 ($P = .042$) and higher pain scores in older children for Tx1 ($P = .091$). When comparing girls ($n = 11$) and boys ($n = 5$), there were no trends and no significant differences.

Discussion

Complementary therapies such as Reiki therapy, massage, or listening to music are often included in palliative care for symptom management as they support children in managing symptoms without the side effects that are often the result of increased medications.²⁹ Parents may choose complementary therapies for their children to augment medications for symptom management. Due to the bidirectional nature of the parent-child interaction, parental reactions may influence children's symptoms, and the parental perception of the effect of Reiki therapy may influence the child's experience and symptom response.³⁰ Until recently, Reiki therapy had not been studied in children although it has been used clinically for many years without benefit of scientific evidence in major children's hospitals, hospices, and other care areas. Of the 3 previously reported studies examining the use of Reiki therapy with children,¹⁴⁻¹⁶ only 1 included more than 1 participant and measured child outcomes¹⁵; however, study execution did not proceed as designed, and outcome measures were not completed. The present study measured both subjective and objective outcomes with children. All mean values for all outcome variables for both verbal and nonverbal children decreased from pre- to post-Reiki treatment. While given the small sample in this study, caution must be noted, effect sizes are perhaps more important for a pilot study, and for Tx1 and Tx2, the effect sizes for pain and anxiety were medium to large for both verbal and nonverbal children. A larger study is needed to support the trends noted in this study.

The reactions of the nonverbal children who lack social constructs and whose reactions are purely their own without

cultural restrictions may tell the story best. The nonverbal children showed their anxiety for a new person and situation by increased mean heart rate, increased mean respiratory rate, and the mother's perception of increased general anxiety. Statistically, this difference was illustrated by a significant difference from the verbal children in heart rate for Tx1 and in decreased heart rate for the overall intervention. These children did not experience increased anxiety for Tx2.

We looked for a cumulative treatment effect for the 2 Reiki therapy sessions but while there were decreases in all outcome variables there was no statistical evidence. There could be several reasons for this, but small sample size combined with increased pain scores prior to the second Reiki treatment for 3 children (2 verbal children and 1 nonverbal child) is one explanation. Based on adult data, overall treatment effect appears to depend on whether the pain is acute or chronic, length of each Reiki treatment, and number of total treatments.¹⁰ Vitale and O'Connor³¹ found daily treatments for acute pain resulted in a statistically significant decrease in pain when compared to usual care for women posthysterectomy. Two adult studies examining chronic pain had within group statistical significance for decreased pain using 8- and 12-week interventions.^{32,33} Based on these studies, we suggest that a longer intervention, for example 2 treatments per week for 4 to 6 weeks, may be necessary to see an overall effect of the Reiki treatment for particularly painful or chronic conditions.

Overall, the results of this study are encouraging for the future study and use of Reiki therapy as an adjuvant for symptom management with children and adolescents. Further study of Reiki therapy with children receiving palliative care and other pediatric populations is worthwhile and necessary in order to provide scientific evidence of the benefit (or lack thereof) of Reiki therapy. The results of this study may help guide future studies involving Reiki therapy with children and their parents. The use of valid measures, child self-report, and the inclusion of objective outcomes are important design considerations for future work examining Reiki therapy for symptom management in ill children.

Limitations

There are several limitations to this study. A single group design with a small sample size and with no control or comparison group addresses acceptability and feasibility but limits the generalizability of the pain, anxiety, and relaxation outcomes. Small sample size also prevents the use of demographic characteristics as statistical covariates. The original target sample size was 20 children and 20 parents. However, slow recruitment in the early part of the study necessitated including nonverbal children in order to bring our total numbers to 16 children and 16 mothers within a 9-month period. A related-limitation is that we relied on parental report for pain and anxiety for the nonverbal children. Finally, because the first author was also the interventionist, the results may have been compromised. Every effort was made to have the children and mothers assess the child's pain and anxiety out of sight of the

interventionist, and objective measures of heart rate and respiratory rates were added.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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