See page 428 for details about a podcast interview with two authors of this article.

Centering Prayer for Women Receiving Chemotherapy for Recurrent Ovarian Cancer: A Pilot Study

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Purpose/Objectives: To explore the feasibility of implementing centering prayer in chemotherapy treatment and assess its influence on mood, spiritual well-being, and quality of life in women with recurrent ovarian cancer.

Design: Descriptive pilot study.

Setting: Outpatient chemotherapy treatment suite in a large cancer center in the midwestern United States.

Sample: A convenience sample of 10 women receiving outpatient chemotherapy for recurrent ovarian cancer.

Methods: A centering prayer teacher led participants through three one-hour sessions over nine weeks. Data were collected prior to the first session, at the conclusion of the final session, and at three and six months after the final session.

Main Research Variables: Feasibility and influence of centering prayer on mood, spiritual well-being, and quality of life.

Findings: Most participants identified centering prayer as beneficial. Emotional well-being, anxiety, depression, and faith scores showed improvement.

Conclusions: Centering prayer can potentially benefit women with recurrent ovarian cancer. Additional research is needed to assess its feasibility and effectiveness.

Implications for Nursing: Nurses may promote or suggest centering prayer as a feasible intervention for the psychological and spiritual adjustment of patients with recurrent ovarian cancer.

Ovarian cancer has the highest mortality rate among gynecologic cancers, with a mean survival time of two to three years after diagnosis of stage III or IV disease; more than 21,500 American women are diagnosed with ovarian cancer annually (American Cancer Society, 2009). Despite the low survival rates associated with advanced ovarian cancer, research examining interventions that address the psychosocial or spiritual needs of women in this population has been limited. Studies have supported the investigation of spirituality's positive association with quality of life in patients with cancer (Brady, Peterman, Fitchett, Mo, and Cella, 1999; Johnson et al., 2007) as well as spirituality's clinical value in providing health care to this population (Dose, 2007). Spiritual interventions have demonstrated health benefits in several other populations, such as people with mental illness, immunosuppression, or cardiac issues, particularly during life crisis (Koenig, 2002).

Centering prayer is a structured meditation practice that helps individuals develop an awareness of their spirituality (Mauk, 1998). Pennington, Keating, and Clark (2007) described centering prayer as a method of refining intuitive faculties and opening awareness to the spiritual level of being. The concentration method (Bourgealt, 2004) is a similar meditation methodology to centering prayer. Concentration method involves focusing the mind on breathing and certain parts of the body or reciting a mantra. Mantra recital prevents the mind from wandering; therefore, the essence of this type of meditation is the surrender of intruding thoughts (Bourgealt). Little research has documented the outcomes of centering prayer. Other forms of meditation have been found to positively influence mood states, spiritual well-being, and quality of life (Cohen-Katz et al., 2005; Pipe et al., 2009; Robinson, Mathews, & Witek-Janusek, 2003). Therefore, the authors hypothesized that centering prayer would produce similar positive outcomes. Although the use of meditation has been studied in patients with cancer, no equivalent data exist on the use of centering prayer in women with recurrent ovarian cancer. As a result, this pilot study sought to explore the feasibility of implementing centering prayer in chemotherapy treatment and gauge its influence on mood states, spiritual well-being, and quality of life in women with recurrent ovarian cancer.

Methods

Setting and Sample

A descriptive pilot study was conducted in the outpatient chemotherapy unit of the Mayo Clinic in Rochester, MN. The protocol and all patient contact materials were approved by the Mayo Clinic's institutional review board. Potential participants were identified by a study coordinator. Inclusion criteria were being aged 18 years or older, able to read and understand English, diagnosed with recurrent ovarian or primary peritoneal cancer within the past six months, and expected to complete at least three chemotherapy treatments.

Intervention

Centering prayer was selected as the intervention because it can be used in virtually any location and situation and requires no special equipment or technology, which minimizes cost. After a participant is oriented to centering prayer, he or she can use the intervention independently. Most treatment for ovarian cancer occurs in the outpatient setting, often over the course of several hours; therefore, portions of the treatment time could be used for a potentially therapeutic spiritual activity.

After informed consent was obtained, centering prayer sessions were scheduled during three consecutive chemotherapy infusions occurring over nine weeks. Centering prayer sessions occurred in a private treatment room during chemotherapy infusion. Sessions were led by a centering prayer teacher who was identified and contracted for pay from the local religious community. The centering prayer teacher was credentialed in spiritual direction and trained in centering prayer practice by a teacher-mentor over several years. The teacher was oriented to the protocol and participated in developing a standardized approach that was used with each participant. The teacher periodically reviewed the approach with the study coordinator to ensure adherence to the protocol.

The initial centering prayer session included three 20-minute components: the introduction, silent centering prayer, and debriefing. During the introduction, the teacher became acquainted with the participant by learning about her personal background, spiritual and religious history, and current perspectives on her life in general. The teacher also provided information about the history, nature, and purpose of centering prayer across religious traditions; a description of its components; and instructions on how to center (see Figure 1). Information about posture, relaxation, and the practice of using a sacred word to facilitate centering was included (Pennington, 1986). The introduction was followed by an invitation to join the teacher in a period of silent centering prayer.

Step 1. Posture and Relaxation
- Sit comfortably with your eyes closed.
- Take a few moments to relax and quiet yourself.

Step 2. Choosing a Centering Word
- Choose a sacred word that best supports your sincere intention to place yourself in divine presence and action within.
- Let that word be gently present as your symbol of your sincere intention to place yourself in divine presence and action within.

Step 3. Centering on the Word
- Thoughts are an inevitable, integral, and normal part of centering prayer.
- Whenever you become aware of anything (body sensations, sense perceptions, memories, plans, reflections, thoughts, feelings, images, associations, concepts, and commentaries), simply refocus on or return to your sacred word.

Step 4. Closure
- At the end of the prayer period, remain in silence with eyes closed for a few moments.
- These additional moments enable you to gently reenter and bring the atmosphere of silence into everyday life.

Figure 1. Centering Prayer Process

Subsequent prayer sessions began with 20 minutes of preparation, followed by 20 minutes of silent centering prayer, then 20 minutes of centering prayer debriefing. The preparation included discussion of the participant's overall well-being, her assessment of her spiritual well-being using an open-ended question, inquiry about any use of centering prayer since the last session, and the participant's assessment of the benefits and burdens encountered as a result of centering prayer. The 20 minutes of debriefing included an invitation to share initial thoughts and feelings about the centering prayer experience and get feedback from the centering prayer teacher on any questions or difficulties encountered during the experience (see Table 1).

Procedures

A study coordinator administered questionnaires to participants before the start of the first session and again at the conclusion of the final session. In addition, questionnaires were mailed to study participants at three and six months after completion of the final session. The study coordinator also interviewed each participant at the conclusion of the final centering prayer session with 10 investigator-designed questions. Chart reviews determined each participant's treatment progress, side effects, and performance scores. The centering prayer teacher kept field notes of her interactions with study participants.

Instruments

The **Profile of Mood States** (McNair, Lorr, & Droppleman, 1992) is a 65-item scale in which respondents rate

six mood factors (anxiety, depression, anger, vigor, fatigue, and confusion) experienced during the past week on a 5-point scale from 0 (not at all) to 4 (extremely). The scale has good reliability and validity and has been used to assess distress and anxiety in patients with gynecologic cancer (Anderson, Anderson, & de Prosse, 1989; Costanzo, Lutgendorf, Rothrock, & Anderson, 2006; Lutgendorf et al., 2002).

The **Functional Assessment in Chronic Illness Therapy–Ovarian (FACIT-O)** (Cella, 1997) is a 39-item combination scale of the Functional Assessment in Chronic Illness Therapy–General and an ovarian-specific subscale. Subscales measure physical, social, emotional, and functional well-being as well as ovarian-specific concerns. Respondents rate statements based on their feelings during the past week from 0 (not at all) to 4 (very much). Internal consistency, test-retest reliabilities and content, construct convergence or divergence, and criteria validity have been demonstrated for the FACIT-O (Basen-Engquist et al., 2001).

The **Functional Assessment of Chronic Illness Therapy–Spiritual-Expanded (FACIT-Sp-Ex)** (Brady, Peterman, Fitchett, & Cella, 1999) is a measure of spiritual well-being consisting of 23 items that focus on meaning and peace, faith, and additional spiritual concerns. As with the FACIT-O, participants reflect on their feelings during the past week and rate the items from 0 (not at all) to 4 (very much). The scale has good reliability and has demonstrated discriminant and convergent validity (Peterman, Fitchett, Brady, Hernandez, & Cella, 2002).

Participants also completed an investigator-designed demographic questionnaire as well as a summary interview. The summary interview was composed of 10 questions that focused on participants' initial expectations on centering prayer, perception of the centering prayer experience, assessment of the benefits and limitations of centering prayer, and overall satisfaction with the experience. In addition, the teacher kept field notes on her interactions with participants.

Analysis

Descriptive statistics, including means, medians, standard deviations, ranges, and difference scores, were used to characterize the data. Correlational analyses were used to identify relationships among study variables. The current study was powered to determine preliminary feasibility and efficacy of this intervention, not to determine statistical significance. Difference scores reflect change from enrollment to the specified follow-up measurement time. A priori clinical significance was 0.5 of a standard deviation or more, which has been appropriate in determining clinically significant changes in health-related quality of life (Norman, Sloan, & Wywrich, 2003). All scores were transformed to a scale of 0–100, with high scores reflecting favorable aspects of each concept.

Researchers examined interview transcripts and field notes to identify topics and themes using methods described by Miles and Huberman (1994) that stress an iterative approach and minimize investigator bias. Research team members initially coded interviews independently, then met as a group to discuss coding differences. Codes determined by consensus were then collapsed into themes.

Results

Participants

Ten of 20 women approached for the current study agreed to participate. Ten women declined participation because of lack of interest in the nature of the study (n = 1), fatigue (n = 3), not feeling well (n = 5), and lack of time (n = 1). All ten women who agreed to participate finished all three centering prayer sessions. Participants were aged 51–74 years ($\bar{X}$ = 65.5 years, SD = 7.81). Six participants were Caucasian, and six were married or widowed. Six participants were Protestant, three were Roman Catholic, and one stated no religious preference. Six participants attended religious services three or more times monthly, and nine prayed daily. Three participants had previous experience with some form of meditation practice (see Table 2).

By the conclusion of the study intervention, disease progression had been documented in six of the ten participants. Two participants died within seven months after the final prayer session,

Table 1. Centering Prayer Sessions

Activity	Length (Minutes)	Session 1	Sessions 2 and 3
Preparation[a]	20	Rapport building Personal background Spiritual and religious history Perspectives	Well-being Spiritual well-being Use of centering prayer Benefits and burdens
Centering prayer	20	Posture and relaxation Choosing a word Centering on the word Closure	Posture and relaxation Choosing a word Centering on the word Closure
Debriefing	20	Thoughts, feelings Feedback Teacher observations Participant questions	Thoughts, feelings Feedback Teacher observations Participant questions

[a] Session 1 opened with a general introduction.

Table 2. Characteristics of Study Participants

Characteristic	Range	$\bar{X}$	SD
Age (years)	51–74	65.5	7.81

Characteristic	n
Race	
Caucasian	6
Not available	4
Marital status	
Married	4
Divorced	3
Widowed	2
Never married	1
Employment status	
Full-time	4
Unemployed	6
Religious affiliation	
Catholic	3
Protestant	6
No preference	1
Religious services attended (per month)	
Less than 1	2
1–2	1
3–4	4
More than 4	2
Never	1
Prayer frequency	
Multiple times daily	3
Once daily	6
Every few days	1
Currently receiving spiritual support from chaplain	
Yes	3
No	7
Current level of spiritual support is adequate.	
Yes	3
No	1
Somewhat	4
No response	2
Previously used centering prayer	
Yes	–
No	10
Previously used meditation	
Yes	3
No	5
No response	2

N = 10

and seven additional participants died 10–29 months after the final prayer session. To date, one participant is still living. Of those who completed the final session, two died prior to completing the six-month follow-up questionnaire.

Perceptions of Centering Prayer

Several themes related to physiologic and psychosocial benefits and barriers emerged from analysis of participants' interview responses. Physiologic benefits were noted by eight participants. Specific benefits included feeling relaxed (n = 5), feeling calm (n = 8), feeling in tune with one's body (n = 8), and having ease of breathing (n = 8). Eight of 10 noted psychosocial benefits, including feeling peaceful (n = 8), having a sense of spiritual presence (n = 8), and feeling a sense of relinquishment or letting go (n = 5). Barriers to centering were noted by all participants and included difficulty maintaining concentration (n = 6), high self-expectations (n = 4), and environmental factors, such as noise and lack of privacy (n = 6). Most participants (n = 7) reported improved ability to use centering prayer over time.

The teacher's field notes on her interactions with study participants were analyzed to determine participant usage of centering prayer. Five participants used centering prayer between chemotherapy sessions and found it beneficial. One participant attempted centering prayer between chemotherapy sessions but found it burdensome. Four participants did not attempt centering prayer between chemotherapy sessions because of lack of time (n = 2), fatigue (n = 1), and inability to concentrate (n = 1).

Influence of Centering Prayer on Mood, Quality of Life, and Spiritual Well-Being

Mood: The Profile of Mood States subscale scores showed that participants had the most difficulty with lack of vigor ($\bar{X}$ = 32), fatigue ($\bar{X}$ = 54), anxiety ($\bar{X}$ = 64.5), and depression ($\bar{X}$ = 79.5) at enrollment. Participants showed a decrease in anxiety from enrollment to postintervention ($\bar{X}$ difference score = 10) and continued to reflect decreased anxiety at three and six months postintervention ($\bar{X}$ difference score = 11.99, 10, respectively). Depression and anger levels decreased at the end of the intervention ($\bar{X}$ difference score = 9.4, 6.1, respectively); however, the decreases were not maintained, as increased levels of anger were found six months postintervention ($\bar{X}$ difference score = –13). Vigor declined by the end of the intervention ($\bar{X}$ difference score = –11.3) (see Table 3).

Quality of life: FACIT-O results indicated that participants' physical, functional, and emotional well-being were compromised at the time of enrollment in the study. Emotional well-being improved three months after the completion of the intervention ($\bar{X}$ difference score = 11.4) but was not maintained at six months ($\bar{X}$ difference score = 6.5). Social well-being was favorable on enrollment ($\bar{X}$ = 80.7) and diminished at the end of the intervention ($\bar{X}$ difference score = –4.5) but remained favorable across time. No other subscale scores changed significantly over time (see Table 4).

Spiritual well-being: Results of the FACIT-Sp-Ex showed an improvement in faith subscale scores immediately postintervention (difference score = 10.2), which was maintained over time. Total spiritual well-being significantly improved three months postintervention (difference score = 6.3). In addition, meaning and peace

Table 3. Mood as Measured by the Profile of Mood States—Difference Scores From Enrollment

	Enrollment (N = 10)		Completion (N = 9)		Three Months Postintervention (N = 8)		Six Months Postintervention (N = 7)	
Subscale	$\bar{X}$	SD	Difference	SD	Difference	SD	Difference	SD
Anxiety	64.5	16.06	+10	14.39[a]	+11.99	14.87	+10	12.25
Vigor	32	17.67	–11.3	22.01[a]	+1.3	24.89	–5.7	16.94
Fatigue	54	27.57	–1.9	26.45	+0.6	17	–2.5	26.6
Depression	79.5	20.74	+9.4	17.41[a]	+5.6	26.78	+6.7	23.8
Confusion	80.5	11.89	–2.9	10.75	+0.6	6.78	–2.1	9.06
Anger	86.5	14.35	+6.1	11.12[a]	+3.1	9.61	–13	18.98[a]
Total score	66.2	15.22	+2	12.25	+3.9	12.69	–0.7	11.37

[a] Difference scores represent a clinically significant difference (> 0.5 SD) as described by Norman et al. (2003).
Note. Scores were transformed to a 0–100 scale, with high scores favorable.

subscale scores significantly improved at three and six months postintervention (difference scores = 7, 10.7, respectively) (see Table 5).

Discussion

Feasibility

All 10 participants in the current study showed receptivity to centering prayer. This rate of consent is much higher than that found in cancer-therapeutic clinical trials, in which participation may be as low as 10% (Rummans et al., 2006). However, 10 women declined participation in the study, which may indicate that centering prayer is not universally attractive. Eligible participants were approached at a time of high stress when additional requests for time, energy, and attention may have seemed overwhelming. However, the study sample had a high frequency of personal prayer practice, which may have motivated them to participate.

Most participants reported improvement in their ability to use centering prayer and described physiologic and psychological benefits. Over time, most participants were able to overcome identified environmental and concentration barriers. The finding is consistent with other meditation interventions in which improved confidence was shown over time (Beddoe & Murphy, 2004; Cohen-Katz et al., 2005). The intervention is innovative in that it was performed in the chemotherapy treatment suite and was practiced subsequently by some participants at home or between treatment appointments. Teaching and practicing centering prayer while participants were receiving chemotherapy treatment may have increased the feasibility and

Table 4. Quality of Life as Measured by the Functional Assessment of Chronic Illness Therapy–Ovarian Subscales—Difference Scores From Enrollment

	Enrollment (N = 10)		Completion (N = 9)		Three Months Post-intervention (N = 8)		Six Months Post-intervention (N = 7)	
Subscale	$\bar{X}$	SD	Difference	SD	Difference	SD	Difference	SD
Physical well-being	64.3	24.82	+3.2	20.62	+6.8	29.8	+6.1	34.75
Social well-being	80.7	15.73	–4.5	8.79[a]	–0.7	14.74	–4.3	14.9
Emotional well-being	61.7	23.74	+5.1	18.64	+11.4	14.76[a]	+6.5	21.37
Functional well-being	61.7	23.74	–5.5	12.40	+3.1	16.7	–3.6	19.33
Ovarian concerns	65.4	15.05	+1	10.82	+3.7	7.88	+1	8.21
Total score	72.3	11.18	–0.2	10.41	+4.6	11.96	+1	13.15

[a] Difference scores represent a clinically significant difference (> 0.5 SD) as described by Norman et al. (2003).
Note. Scores were transformed to a 0–100 scale, with high scores favorable.

Table 5. Spiritual Well-Being as Measured by the Functional Assessment of Chronic Illness Therapy–Spiritual-Expanded—Difference Scores From Enrollment

	Enrollment (N = 10)		Completion (N = 9)		Three Months Post-intervention (N = 8)		Six Months Post-intervention (N = 7)	
Variable	$\bar{X}$	SD	Difference	SD	Difference	SD	Difference	SD
Total score	76.4	17.12	+3	8.64	+6.3	10.13[a]	+7	14.89
Meaning and peace	70.3	16.1	+2	15.04	+7	9.71[a]	+10.7	21.21[a]
Faith	73.1	24.27	+10.2	11.54[a]	+10.2	17.02[a]	+9.8	11.87[a]
Additional spiritual concerns	82.1	16.95	+1.1	7.09	+4.2	10.6	+3.2	13.51

[a] Difference scores represent a clinically significant difference (> 0.5 SD) as described by Norman et al. (2003).
Note. Scores were transformed to a 0–100 scale, with high scores favorable.

impact of the intervention. For example, if participants can overcome the environmental distractions of the chemotherapy suite (e.g., noise, activity), they may be more likely to practice at home, despite unavoidable distractions.

The same centering prayer teacher instructed all participants to maintain consistency within the current study; the intervention could be delivered in various ways by chemotherapy nurses or other members of the healthcare team in general practice.

Influence of Centering Prayer on Mood States, Quality of Life, and Spiritual Well-Being

In the absence of a control group, the authors sought comparative insights from other studies regarding expected changes in spiritual well-being, mood, and functional quality of life over time. In other studies of women with recurrent ovarian cancer receiving chemotherapy, the type of treatment regimen, poor response to chemotherapy, and experiences with more than two previous chemotherapy regimens were associated with poorer quality of life. Patients with stage IV disease reported poorer emotional and functional quality of life than those with stage I–II disease. In addition, those with recurrent disease reported worsening emotional well-being over time (Le et al., 2004). In another study, extensively treated patients with ovarian cancer reported significantly poorer physical, emotional, and functional well-being than those who had completed limited treatment. Extensively treated patients also reported more overall distress, with higher anxiety and total mood disturbance than those receiving less treatment (Costanzo et al., 2006). Only one study of women undergoing palliative chemotherapy for recurrent ovarian cancer showed improvement in emotional well-being over a few months (Doyle, Crump, Pintilie, & Oza, 2001). Therefore, most studies of women receiving chemotherapy for recurrent ovarian cancer suggest that quality of life diminishes over time and with advanced disease. In the current study, total FACIT-O scores remained about the same despite disease progression, and overall emotional well-being, anxiety, depression, and faith improved after the use of centering prayer.

Participants experienced routine difficulty with physical functioning, emotional well-being, vigor, and anxiety as they began chemotherapy treatment for recurrent disease. Favorable social well-being scores were documented on the FACIT-O at enrollment, indicating an expected level of social support at the time of recurrence and treatment. The benefit of social support during this time period has been well-documented (Clark, Bostwick, & Rummans, 2003; Devine & Westlake, 1995; Fawzy, Fawzy, Arndt, & Pasnau, 1995; Goodwin et al., 2001; Meyer & Mark, 1995). The extent to which social support contributed to and interacted with centering prayer to produce favorable outcomes is not known and warrants additional study.

The change in anger scores at six months postintervention was surprising. However, the change resulted from two participants whose anger scores increased by almost 45 points. The importance of this finding should be explored in future studies.

Limitations

Interpretation of results should be viewed with caution because the small number of study participants and the absence of a control group limit the ability to assert that the results stem from the intervention versus normal adjustment over time. The sample was homogenous, with mostly Caucasian and Christian women who attended religious services three or more times a month (60%) and prayed at least daily (90%). Frequency of religious practice may be unique to this study sample, limiting the applicability to other populations.

Implications for Nursing

Oncology nurses manage the physical and nonphysical care of patients with cancer. Specific aspects of quality of life and spiritual well-being are salient issues for women with recurrent ovarian cancer. These dimensions of health are relevant particularly for oncology nurses and other staff who design and implement interdisciplinary care for patients with recurrent ovarian cancer and their social support systems.

Although all oncology nurses do not have time to provide spiritual interventions, it is feasible in some settings. In most settings, nurses are well-positioned to offer information about an intervention such as centering prayer as a possible resource for relaxation, coping, and stress reduction. As part of a comprehensive nursing assessment, the spiritual domain is assessed and potential interventions offered. The intervention could be made available through a professional or volunteer resource, as a part of a class or other educational program, or in an electronic format, such as CDs or DVDs. The approach places the nurse in a familiar role as facilitator of care and provider of resources.

Oncology nurses and other healthcare professionals may sometimes hesitate to introduce spiritual interventions such as centering prayer to patients during a time of high stress. Patients' environments can be distracting and they often are perceived as too debilitated to participate. However, participants in the current study were open to learning and practicing the technique, despite numerous apparent challenges. For the purposes and scope of the current study, a professional minister and certified centering prayer teacher delivered the intervention. Future investigations could include the involvement of nurses who refer patients to a spiritual intervention as a coping resource.

Conclusions

Centering prayer appears to be a feasible spiritual intervention for women with recurrent ovarian cancer receiving chemotherapy. Findings suggest that the intervention may have some influence on mood and spiritual well-being. Given the known course of this disease and expected declines in quality of life, additional research on spiritual interventions is warranted.

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