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Applying the RE-AIM framework to evaluate integrative medicine group visits among diverse women with chronic pelvic pain

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Abstract

Background—The purpose of this study was to evaluate group medical visits using an integrative health approach for underserved women with chronic pelvic pain (CPP).

Methods—We implemented an integrative medicine program to improve quality of life among women with CPP using a group-based model that combines healthcare assessment, education, and social support. Program participants included patients from university-affiliated and public hospital-affiliated clinics. We evaluated the program with qualitative and quantitative data to address the components of the RE-AIM framework – reach, effectiveness, adoption, implementation, and maintenance.

Results—Participants of the Centering CPP program (n=26) were demographically similar to a large sample of women with CPP who sought care at Bay Area hospitals (n=701). Participants were on average 40 years of age, a majority of who were racial/ethnic minorities (76%) and had low income (68%). Women who attended 4 or more sessions (n=16) had improved health-related

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quality of life (HRQOL), including decreases in average number of unhealthy days in the past month (from 24 to 18, $p<0.05$), depressive symptoms (from 12.1 to 9.0, $p<0.05$), and symptom severity (from 4.2 to 3.1, $p<0.01$). Sexual health outcomes also improved (30.5 to 50.3, $p= 0.02$). No improvements were observed for pain catastrophizing.

Conclusions—Our pilot program provides preliminary data that an integrative health approach using a group-based model can be adapted and implemented to reach diverse women with CPP to improve physical and psychological well-being. Given these promising findings, rigorous evaluation of implementation and effectiveness of this approach compared with usual care is warranted.

Keywords/phrases

group medical visits; integrative medicine; chronic pelvic pain; pain; quality of life; underserved patients; pain management

INTRODUCTION

Chronic pelvic pain (CPP), defined as cyclic or non-cyclic pain below the umbilicus for at least 6 months (Williams, Hartmann, & Steege, 2004), severely impacts health-related quality of life and affects at least 15% of adult women in the United States (Mathias, Kuppermann, Liberman, Lipschutz, & Steege, 1996). Common surgical and pharmaceutical approaches to CPP have limited effectiveness especially over the long term (Andrews et al., 2012; Butrick, 2007). A comprehensive, interdisciplinary model of care addressing the range of medical and psychosocial aspects of CPP is recommended (Butrick, 2007; Daniels & Khan, 2010; Engeler et al., 2013; Fall et al., 2010; Gunter, 2003), but multidisciplinary pain clinics and integrative approaches are not accessible for most women with CPP (Howard, 2000). This unmet need is exacerbated among racial/ethnic minorities who have more severe pain-related symptoms and less adequate pain management compared with Whites (Green et al., 2003; Institute of Medicine, 2011).

Group medical visits (GMVs) may successfully address the challenges of providing comprehensive care for underserved patients with CPP by combining quality, efficient healthcare with educational support. GMVs, or shared medical appointments when patients with a similar condition simultaneously meet with clinicians for an extended period of time, have been used to provide ongoing care for various chronic conditions such as diabetes, pain conditions, and asthma (Geller, Orkaby, & Cleghorn, 2011; Jaber, Braksmajer, & Trilling, 2006; Maizels, Saenz, & Wirjo, 2003; Trento et al., 2002). Prior research suggests that GMVs may improve quality of life, self-efficacy, knowledge of disease, and patient satisfaction (Geller et al., 2011; Lorig et al., 2001; Scott et al., 2004); reduce healthcare utilization such as emergency room and sub-specialist visits (Scott et al., 2004); and provide cost savings (Clancy, Cope, Magruder, Huang, & Wolfman, 2003).

The Centering model of GMVs emphasizes patient empowerment through the direct involvement of patients in their own healthcare, peer education and group support and may be particularly appropriate for women with CPP (Chao, Abercrombie, & Duncan, 2012). Rigorous evaluation of Centering has demonstrated its efficacy in prenatal care where it has

been associated with better birth outcomes, increased adequacy of care, and increased knowledge and satisfaction with care among pregnant women (Lathrop, 2013). It has also been implemented among patients with chronic conditions such as diabetes (DeFrancesco & Rising, 2010). We developed a GMV curriculum entitled “Centering CPP” that combines the Centering model of GMVs with integrative medicine modalities. For this study, we evaluated the process and outcomes of implementing the Centering CPP program based on RE-AIM, a framework used to assess multiple dimensions of chronic care interventions to inform program planning (Glasgow, Klesges, Dzewaltowski, Estabrooks, & Vogt, 2006; Glasgow, Nelson, Strycker, & King, 2006; Glasgow, Vogt, & Boles, 1999; Green & Glasgow, 2006). Our focus was primarily on Reach and Effectiveness, with Adoption, Implementation, and Maintenance as secondary objectives.

METHODS

The University of California San Francisco, Committee on Human Research (institutional review board) reviewed and approved all of the study’s procedures.

Study Design and Participants

We conducted a single arm pilot to determine the feasibility and acceptability of Centering CPP, a program of integrative medicine group visits for women with CPP. Eligibility criteria for the study included being 18 years of age or older and English-speaking, receiving care from a provider at the San Francisco General Hospital or the Women’s Health Center of the University of California, San Francisco within the past year, and being diagnosed with CPP by a health care provider. Women who were non-English speaking or pregnant were excluded from the study. The study clinician (PDA) reviewed the medical records of all prospective participants to ensure eligibility. Prior to enrollment, the study coordinator screened prospective participants based on the study’s inclusion and exclusion criteria, reviewed and confirmed understanding of the study details with prospective participants, and obtained consent. Participants were offered cash incentives for each of the survey assessments completed, but not for attending the groups.

Intervention

Our intervention includes ten 2-hour group medical visits based on the three components of the Centering model: healthcare assessment, education, and social support (Rising, 1998). The overarching goal of Centering CPP is to provide comprehensive care to improve participants’ health-related quality of life through an integrative health approach (Chao et al., 2012). In Centering CPP, healthcare assessment is provided by a nurse practitioner (NP) during the group time and in the group space. Each participant has a brief individual check-in with the NP at the beginning of each session in a designated corner apart from the group with background music playing to provide privacy.

Educational topics are grouped under three broad headings: (1) understanding CPP (e.g., types of pain, causes, diagnosis, and treatment); (2) managing CPP (e.g., self care, nutrition, medications); and (3) living with CPP (e.g., managing stress, communication, sexual intimacy). Facilitators and guest experts use an integrative medicine approach to guide

participants through experiential exercises in pelvic floor therapy, mindfulness, guided imagery, and to provide information about anti-inflammatory diet and herbs. Each participant is provided with a Centering Notebook that includes educational material for at-home reference. At the beginning of each session, participants complete Self-Assessment Sheets that introduce the topics for the session and provide a springboard for the facilitated discussion. Social support was facilitated during each meeting through group sharing and discussion in a circle.

We implemented the Centering CPP program among three cohorts of women who met monthly for a total of ten months; enrollment was open to new participants through the 3rd session. We evaluated the Centering CPP program using the RE-AIM framework, which emphasizes measuring multiple dimensions of external and internal validity to assess overall impact and sustainability of a clinical intervention (Glasgow, Nelson, et al., 2006). The five components of the RE-AIM framework include individual-level impact measured through a program's reach and effectiveness and institutional or setting-level impact measured through a program's adoption, implementation, and maintenance. Data were gathered through participant surveys and a focus group and facilitator evaluation forms.

Measures

Reach—A program's reach is defined as the number and rate of participation as well as the characteristics of participants compared with non-participants (Glasgow, Nelson, et al., 2006). We assessed the reach of the Centering CPP program in two ways. First, we evaluated patient representativeness by comparing sociodemographic and clinical factors of Centering CPP participants with a large cohort of women with CPP that sought care from academic, community, and public hospital practices in the San Francisco Bay area and participated in the Study of Pelvic Problems, Hysterectomy, and Intervention Alternatives (SOPHIA) (Kuppermann et al., 2007; Kuppermann et al., 2010; Learman et al., 2011). Second, we assessed engagement of Centering CPP based on success of recruitment, participant attendance, and participant feedback on barriers.

Effectiveness—We evaluated program effectiveness, defined as impact on individual level outcomes, by comparing patient-reported outcomes before and after participating in the Centering CPP program. Outcomes were chosen based on recommendations from the Initiative on Methods, Measurement, and Pain Assessment in Clinical Trials (Dworkin et al., 2005; Turk et al., 2003), with a focus on health-related quality of life (HRQOL) using (1) an adapted version of the Endometriosis Health Profile-5 (EHP-5)(Jones, Jenkinson, & Kennedy, 2004) to assess the impact of CPP on activities of daily living, emotional functioning, and relationships; (2) number of days in the past 30 days that their physical or mental health was not good (Centers for Disease Control and Prevention); (3) the Short Form-36 (SF-36), which includes subscales of pain, physical, social, emotional functioning, and role limitations (Ware & Sherbourne, 1992); and (4) the Sexual Health Outcomes in Women Questionnaire (SHOW-Q), a validated instrument with 12 items on pelvic problems and sexual desire, frequency, satisfaction, orgasm, and discomfort (Learman, Huang, Nakagawa, Gregorich, & Kuppermann, 2008). SF-36 subscales and the SHOW-Q were transformed to 0–100 scales with 100 indicating optimal functioning. Emotional health and

attitudes were measured with: (1) the Patient Health Questionnaire (PHQ-9) (Spitzer, Kroenke, & Williams, 1999), a validated measure of depressive symptoms that consists of nine items summed to provide a 0 to 27 severity score; (2) the modified Differential Emotions Scale (DES) comprised of 20 items that form subscales of positive affect (possible range 0–35) and negative affect (possible range 0–28) (Fredrickson, Tugade, Waugh, & Larkin, 2003); and (3) the Pain Catastrophizing Scale (PCS) (Sullivan, Bishop, & Pivik, 1995), which evaluates three factors shown to have good reliability in prior studies: pain rumination (α = .85), pain magnification (α = .75), and pain helplessness (α = .86) (Osman et al., 2000).

We also obtained data on patient-centered outcomes through the Measure Yourself Medical Outcome Profile (MYMOP), which has been used in prior research in primary care settings and to evaluate the effectiveness of complementary and alternative medicine therapies (Paterson & Britten, 2000). For the baseline MYMOP, patients were asked to identify two symptoms of greatest relevance to them, to choose an activity that they were limited in doing because of their symptoms, and to rate the severity of their symptoms and activity limitation from 0 (as good as it could be) to 6 (as bad as it could be). On follow-up surveys, patients were reminded of the symptoms they had mentioned during the baseline assessment and asked to rate the current severity of those symptoms.

Implementation—Implementation, defined as intervention consistency and adaptations when delivered (Glasgow, Nelson, et al., 2006), was evaluated based on feedback from the group facilitators on adherence with the curriculum. In addition, participants were asked whether they agreed or disagreed with a series of statements about their experience with Centering CPP. Qualitative feedback was solicited through open-ended questions on the survey about overall experiences with the group and changes they would make to the program and a focus group conducted three months after the intervention.

Adoption and Maintenance—Willingness to begin a program (adoption) and sustained effects over time (maintenance) can be measured at individual, staff, or setting levels (Glasgow, Nelson, et al., 2006). For our study, adoption was operationalized as the percentage of women's health centers that were approached and were willing to implement the pilot program. We defined maintenance on the institutional level as willingness to continue Centering CPP as part of the center's ongoing program after the pilot study.

Statistical Analysis

Study data were collected and managed using REDCap electronic data capture tools hosted at the University of California, San Francisco. Research Electronic Data Capture (REDCap) is a secure, web-based application designed to support data capture for research studies, providing validated data entry, audit trails for tracking data changes, and automated export procedures to common statistical packages (Harris et al., 2009). Data were entered into REDCap after each interview and imported into Stata version 13.0 (College Station, TX: StataCorp LP) for analysis. For categorical measures, a proportion of each category was calculated and assessed by exact statistical methods for small samples. Baseline descriptive analysis was conducted using available data from all participants. Means were calculated for

continuous variables such as age and HRQOL scales. Preliminary effectiveness of the program on HRQOL measures was analyzed using paired t-tests comparing mean changes from baseline to group completion (10-month follow up) based on data from women who attended at least four sessions.

RESULTS

Reach

Of the 58 eligible women who were initially screened for the Centering CPP program, 36 women with CPP (62%) expressed initial interest and 26 enrolled in the study (45%). Participants were on average 40 years of age (range 23–63) and were from diverse racial/ethnic backgrounds with 24% Latina, 24% non-Latina White, 32% African American, 8% Asian, and 12% classified as 'other' race/ethnicity. Half had graduated from college; and 76% had incomes of less than $50,000 (Table 1). We assessed the representativeness of program participants by comparing them with women enrolled in the Study of Pelvic Problems, Hysterectomy, and Intervention Alternatives (SOPHIA) who had CPP (n=701) (Kuppermann et al., 2007; Kuppermann et al., 2010; Learman et al., 2011). Centering CPP participants were comparable to SOPHIA participants with CPP in terms of average age, racial/ethnic distribution, education and income levels and self-reported health status. Compared with SOPHIA participants with CPP, Centering CPP participants were more likely to speak Spanish as a primary language, have worse health-related quality of life, and have depressive symptoms at baseline ($p < .01$, Table 1).

Data on participant engagement were mixed. Of the 26 participants enrolled, 4 (15%) did not attend any of the group visits. Of those that attended at least one group visit (n=22), 73% attended 4 or more sessions. Participants' reasons for missing sessions included feeling overwhelmed, being in too much pain, or not having enough energy; some participants were on high doses of pain medications that impacted their ability to drive. Others commented on the long distance they needed to drive to attend the group and the pain associated with sitting for nearly two hours during the group.

Effectiveness

Sixteen participants (61%) attended 4 or more Centering CPP visits and we present findings from their data here in as-treated analyses. We observed improvements from baseline to post-intervention for most measures of HRQOL (n=16). The burden of CPP symptoms on HRQOL was reduced from 55.2 to 45.8 ($p = .01$) as measured by our adapted version of the EHP-5. SF36 subscales for role limitations due to physical health, energy/fatigue, and social functioning all demonstrated statistically significant improvements. The SF36 subscale for pain had a trend toward improvement. No differences were observed between baseline and post-intervention for SF36 subscales on physical functioning, emotional well-being, or general health. The number of unhealthy days reported in the previous month decreased from 24 to 18 ($p = .02$). Sexual health outcomes also improved (30.5 to 50.3, $p = .02$) (Table 2).

On measures of emotional functioning, women who attended 4 or more sessions had decreased severity in depressive symptoms from 11.7 to 9.0, a clinically relevant difference from minor depression to minimal symptoms ($p < .02$). However, no improvements were observed for positive affect, negative affect, or pain catastrophizing (Table 2).

Patient-centered data were gathered on the MYMOP survey in which participants were asked at baseline to identify two symptoms that were most important to them and to rate their severity. A majority (85%) described physical symptoms such as abdominal pain, or aching pelvic pain (Table 3). Just over a third of the sample mentioned emotional pain such as depression, anxiety or worthlessness. From baseline to post-intervention, women had statistically significant improvements in symptom severity (4.6 to 3.4, $p = .01$), fewer limitations in activity (4.8 to 3.3, $p < .01$), and more optimal scores on their overall MYMOP profile (4.2 to 3.1, $p < .01$).

Implementation

Facilitators completed evaluations after each group visit to assess adherence to the essential elements of the Centering model (Rising, Kennedy, & Klima, 2004). We found high consistency across the group sessions for the following elements of Centering: health assessments in the group space, patient involvement with self-care activities, facilitative leadership, implementation of core content, and opportunity for socialization. Stability of the group with respect to size was inconsistent; attendance ranged from 2–8 participants.

Based on a program evaluation form completed at the end of the groups, Centering CPP was rated high for providing education; the vast majority of participants agreed that they had learned how to reduce their pain (94%) and used information from the group in their daily lives (94%) (Table 4). Participants also agreed that the group offered emotional support (94%), was a safe place to discuss difficult issues (100%), and that they were treated with respect by the leaders (100%); and a majority (88%) would recommend the group to other women with CPP. Salient themes that emerged from qualitative data included the value of having the opportunity to interact with others who also had CPP and the validation of hearing other women's experiences with CPP. Illustrative comments are below:

> "I enjoyed meeting other women with the same medical issues as me. It's the first time I've met other women with the same problem. Exchanging experiences with them opened me up to see other possibilities concerning my health turnout, treatment and options and for me it really helped emotionally to be able to discuss with other 'experts' who live with my disease." "To be able to freely talk about what was going on. Yeah. Not being afraid, because knowing that there were women here that was experiencing the same thing I was."

Participants expressed a desire for more in-depth discussions and greater exposure to mind/body techniques. In addition, some participants in the initial group felt that the first half hour of the group – when participants engage in self-assessments, check in with the provider, and socialize with other women – was not well utilized. During subsequent groups, the co-facilitator helped women with self-assessments and engaged them in conversation with the other participants for the first half hour. Suggestions for improving the curriculum for future groups included having more meditation integrated at each session, yoga, mindfulness,

breathing exercises, and nutrition. Participants also suggested: (1) not allowing excessively late arrival to group sessions to avoid upsetting the dynamic and trust in the group; (2) meeting twice a month rather than once per month; and (3) changing the time of the sessions to accommodate work schedules.

Adoption and Maintenance

All sites that were approached about implementing the program agreed to participate, yielding a 100% adoption of the program albeit in a small number of settings that provide services focused on women's health. All sites continued the program beyond the initial pilot study and provided resources to support the program through scheduling, allocated space for group visits, and personnel to facilitate the groups. Based on lessons learned during pilot implementation, subsequent groups have been scheduled for twice a month rather than monthly. At one site, although groups were continued for another two cohorts, they are not currently implemented due in part to a change in clinical leadership and lack of funding for a co-facilitator.

DISCUSSION

Our study intervention, Centering CPP, was designed to reduce barriers to pain care, particularly for underserved patients; to foster patient self-management of pain through education and materials on pain and self-help strategies; and to provide consistent and thorough pain assessments, which are among the clinical care recommendations of the Institute of Medicine's comprehensive report *Relieving Pain in America* (Institute of Medicine, 2011). Engaging in self-management of symptoms and having a broad set of tools are critical to effectively address a complex issue such as chronic pain. As with other chronic conditions (Geller et al., 2011; Jaber et al., 2006; Maizels et al., 2003; Trento et al., 2002), group medical visits may address unmet needs of patients with CPP by providing comprehensive care and education about their health condition and how to better manage their symptoms. We found that group medical visits can be adapted and implemented to reach a diverse population of women with CPP in university-affiliated and public hospital-affiliated clinics. The group format allowed us to broaden the 'tools' available for patients through an integrative approach with topics that included medications, physical therapy, mind/body strategies (e.g., guided imagery, relaxation techniques, and breathwork), nutrition, and spirituality. Moreover, participants engaged in discussions and exercises, which facilitated skill-based learning of tools – such as pelvic floor stretching exercises, meditation, and use of herbs to decrease inflammation and promote relaxation – and had educational materials in their notebooks that could be used beyond the group sessions.

The Centering CPP program and our selected study measures focused on patient-centered outcomes including symptoms identified as most important to the women themselves. Sexual health, in particular, is a challenging and neglected area of patient-centered care that is difficult to address in most health care settings. Centering CPP included discussions with an expert in sexual health and created a safe environment for participants to ask questions and learn how to communicate with others about their pain. Participants reported sharing information learned from the group with sexual partners and some suggested that future

groups could include partners for the sessions related to sexuality because this was a big challenge for them as well as their partners. Overall, women who participated in Centering CPP showed improvements on self-reported outcomes including health-related quality of life, symptom severity, and self-management of pain.

The need for social support to address psychosocial dimensions of living with CPP, such as depression, demoralization, and isolation, has been previously explored (Culley et al., 2013; Warwick, Joseph, Cordle, & Ashworth, 2004). Qualitative results from the study suggested participants gained a strong sense of social support from this group-based program. Centering CPP uses a facilitative leadership style that fosters the patient-provider relationship and also provides an opportunity for women to regularly interact and share with others who have the same condition. This sense of decreased isolation and access to an empowering environment is all the more poignant among women who previously thought they were the only ones with CPP. Centering CPP participants expressed that hearing how other women with CPP had learned to cope with their symptoms was affirming and at times more relevant than what the “experts” might tell them.

Emotional well-being is multidimensional and is comprised of experiences of positive affective functioning as well as the absence of negative affects such as depressive symptoms. We expected to see greater positive emotion following Centering CPP participation, and although mean scores appeared to change in the hypothesized direction following the intervention, our small sample size limited our ability to detect an effect at the group mean level. We also did not see a reduction in maladaptive pain appraisals, such as pain rumination and magnification. Although the program appeared to impact important outcomes for HRQOL, improving the number of mentally healthy days may require more frequent group visits as was requested by participants.

Study limitations

A number of study limitations should be noted. First, as an exploratory pilot study, we included a number of possible outcome measures; thus, the analysis of multiple variables may have increased our likelihood of significant findings due to chance alone. Second, while we met our initial targets for recruitment in each cohort, retention of participants for Centering CPP is an important consideration for future implementation. Although we were not able to obtain direct feedback from the 15% of women who did not attend any sessions, we hypothesize that the high rate of depressive symptoms and sense of isolation among women with CPP are significant factors in the level of motivation to attend. In addition, the personal nature of the condition may serve as a hindrance for some women to participate in a group-based program. Third, the small sample size and lack of randomization to a comparison group limits our assessment of what aspects of the intervention were effective compared with simply having the benefits of time and attention from health care providers.

Conclusions

The optimal model of care for women with CPP must take into account the complexity of this chronic condition and be aligned with the needs of each woman. In addition, reach, adoption, and implementation are important considerations to assess a new program’s

feasibility on individual and setting levels. Centering CPP is an innovative, group-based model of healthcare that may address some of the challenges in the treatment and management of CPP. We found that an integrative health approach implemented through group medical visits is feasible and may address a range of physical and psychosocial patient-centered outcomes among women with CPP. Future program development of Centering CPP could focus more on mind/body approaches throughout the sessions, which may bolster the impact on mental health outcomes. To advance the evidence base for programs such as Centering CPP, additional research is needed to compare integrative medicine group visits with usual care and to assess effectiveness of specific aspects of program content compared with time and attention from a provider. Implementation factors, particularly strategies of enhancing patient engagement and participation, perhaps through options such as telehealth for participants who cannot attend in person, also warrant future research. Potential barriers and facilitators of clinic engagement, such as program costs, availability of space to hold groups, training providers to facilitate group visits, and integrative medicine expertise, are also key issues of launching and sustaining integrative medicine group visits that require rigorous evaluation.

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Table 1

Characteristics of Centering CPP Study Participants (N = 26) compared with SOPHIA participants with CPP

Characteristic	Centering CPP Participants (N=26)	SOPHIA participants with CPP (N = 701)	p
Sociodemographic Characteristics			
Age, mean ± SD	39.8 ± 11.2	43.2 ± 4.7	NS
Race/ethnicity, n (%)			
African American	8 (32)	193 (28)	NS
Latina	7 (28)	129 (18)	
Non-Latina White	6 (24)	288 (41)	
Asian	2 (8)	56 (8)	
Other	2 (8)	35 (5)	
Education, n (%)			
High school graduate or equivalent	3 (12)	132 (19)	NS
Some College	10 (38)	200 (28)	
College graduate or more	13 (50)	369 (53)	
Household Income, n (%)			
$50,000 or less	19 (76)	465 (66)	NS
More than $75,000	6 (24)	237 (34)	
Primary Language, n (%)			
Spanish	6 (23)	57 (8)	<.01
English	20 (77)	642 (92)	
Clinical Characteristics			
Self-reported health status, n (%)			NS
Poor/Fair	10 (38)	190 (27)	
Good	10 (38)	242 (35)	
Very Good/Excellent	6 (23)	266 (38)	
Health-related quality of life			
SF Physical Component Summary, mean ± SD	37.5 ± 8.3	44.8 ± 10.1	<.01
SF Mental Component Summary, mean ± SD	35.2 ± 6.1	44.7 ± 11.2	<.01
Depressive Symptoms, n (%)			
None	3 (12)	529 (76)	<.01
Other depressive symptoms	14 (53)	66 (9)	
Major depressive symptoms	9 (35)	87 (12)	

Notes: CPP = chronic pelvic pain, SOPHIA = Study of Pelvic Problems, Hysterectomy, and Intervention Alternatives, NS = no significant difference, p > 0.05

Table 2

Centering CPP Outcome Measures, Baseline vs. Post-Intervention

Outcome Measure	Baseline	Post-Intervention	Mean Difference	P-value
Health-related quality of life (HRQOL)				
CPP-specific HRQOL *	**55.2**	**45.8**	**−9.4**	**.01**
SF36, Physical functioning	61.7	61.4	−0.3	.47
SF36, Role limitations due to physical health	**11.5**	**25.0**	**13.5**	**.01**
SF36, Energy/fatigue	32.7	42.2	9.5	.05
SF36, Emotional well being	58.5	61.5	3.1	.28
SF36, Social functioning	**41.3**	**56.7**	**15.4**	**.01**
SF36, Pain	46.9	54.0	7.1	.07
SF36, General health	50.8	48.8	−1.9	.26
Unhealthy days in past month *	**23.9**	**17.5**	**−6.3**	**.02**
Physically unhealthy days *	**16.0**	**10.1**	**−5.9**	**.02**
Mentally unhealthy days *	15.2	11.3	−3.9	.15
Sexual Health Outcomes §	**30.5**	**50.3**	**19.8**	**.02**
Emotional Functioning				
Depressive Symptoms *	**11.7**	**9.0**	**−2.7**	**.02**
DES Positive Affect *	18.8	20.2	1.5	.25
DES Negative Affect *	9.2	8.5	−0.7	.30
DES Negative Affect *	9.2	8.5	−0.7	.30
Pain Catastrophization *§	23.3	22.9	−0.4	.46
PCS: pain rumination	9.4	10.9	1.4	.80
PCS: pain magnification	4.5	4.4	−0.1	.40
PCS: pain helplessness	10.5	8.6	−1.9	.23

* Lower scores indicate more optimal outcome.

§ Measures only collected for Cohorts 2 and 3, n = 10

Notes: Outcomes with statistically significant ($p < 0.05$) mean differences between baseline and post-intervention are presented in boldface. CPP = chronic pelvic pain; DES = differential emotions scale; PCS = pain catastrophization scale

Table 3

Measure Yourself Medical Outcomes Profile (MYMOP): Participants' Self-reported Symptoms and Activities

MYMOP Subcategories	Examples of patient-reported symptoms & activity limitations	N (%)
Physical pain	Abdominal pain, aching pelvic pain, cramping pelvic pain, lower back pain, intercourse pain, my body hurts	22 (85%)
Emotional pain	Worthlessness, depression, anxiety, frustration at not being able to perform	9 (35%)
Fatigue and unclear thinking	Tired/no energy, not having a clear mind	3 (12%)
Other physical symptoms	heavy menstrual bleeding, burning, vaginal muscle tightness, stinging in urethra	5 (19%)
Activities of daily living	walking, cleaning, dressing, working, cooking, sitting, sleeping,	8 (31%)
Physical activities	kite surfing, yoga, running, exercise	8 (31%)
Social & leisure activities	dinner & movies	5 (20%)
Sexual health	having enjoyable/worry-free sex	3 (12%)

MYMOP Category*	Baseline	Post-Intervention	Mean Difference	P-value
Severity of Symptom 1	**4.56**	**3.38**	**1.18**	**.01**
Severity of Symptom 2	**4.53**	**3.09**	**1.44**	**<.01**
Difficulty with Activity	**4.75**	**3.31**	**1.44**	**<.01**
Overall Wellbeing	3.00	2.54	0.46	.21
MYMOP profile	**4.19**	**3.12**	**1.03**	**<.01**

* Lower scores indicate more optimal outcome for all MYMOP categories.

Notes: Outcomes with statistically significant ($p < 0.05$) mean differences between baseline and post-intervention are presented in boldface.

Table 4

Acceptability of Centering CPP to Participants

Statements about the Centering CPP Program	Agreed N (%)
The group is a safe place to discuss difficult issues.	16 (100%)
The other members of the group including the leaders treat me with respect.	16 (100%)
I found the notebook of information helpful.	16 (100%)
I have been able to use what I have learned in this group in my daily life.	15 (94%)
The group is supportive to me emotionally.	15 (94%)
This group has helped me learn how to reduce my pain.	15 (94%)
I have adequate time with the medical provider during the group visits.	15 (94%)
I would recommend this group to other women with chronic pelvic pain.	14 (88%)
As a result of this group, I feel that I am better able to manage my chronic pelvic pain on my own.	12 (75%)
The room where the group sessions take place is comfortable.	11 (69%)
The location of the groups is convenient for me.	10 (67%)
It would be easier for me to come to the classes if childcare was offered.	3 (30%)