Original Article

Efficacy of Cognitive Behavior Therapy in the Treatment of Chronic Pelvic Pain in Women: A Feasibility Pilot Study

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ABSTRACT

Objective: The current study was conducted to determine the efficacy of Cognitive Behavior Therapy for Chronic Pain (CBT-cp) in women presenting with Chronic Pelvic Pain (CPP).

Study Design: Randomized Controlled Trial (RCT) research study

Place and Duration of Study: This study was conducted at the Department of Obstetrics and Gynecology, Nishtar Hospital, Multan, Pakistan, from July 2024 to September 2024.

Methods: In the present study, 60 women aged 18-46 years were enrolled out of 83 found eligible. Thirty women were assigned to each arm of RCT including intervention (CBT) arm and control arm. The CBT arm received weekly sessions of CBT each for 50 minutes by a qualified therapist. The Impact of Female Chronic Pelvic Pain Questionnaire (IF-CPPQ) was used as the outcome measure at the baseline, post therapy and follow up.

Results: A total of 56 female patients completed the study; 27 were in the CBT group and 29 were in the Control group. The CBT group demonstrated lower mean CPP scores, whereas the Control group showed higher mean CPP scores. The t-test results were statistically significant for the CBT group. While, the CPP scores did not differ significantly from baseline in the Control group.

Conclusion: This RCT indicated that CBT-cp is an effective non pharmacological intervention for CPP reduction in women. Participants in the CBT-cp intervention group reported significant post-therapy improvement in pain intensity, whereas the Control group showed no change.

Key Words: Chronic Pelvic Pain, Cognitive Behavior Therapy, Pelvic Pain, Randomized Controlled Trial, Women

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INTRODUCTION

Chronic Pelvic Pain (CPP), which refers to persistent pain of at least 06 months' duration in the pelvic region, is often long-lasting and can significantly affect an individual's quality of life. The U.S. Pain Foundation defines chronic pain as pain that has not gone away or recurs frequently even after six months have passed. Although men can be affected by CPP, women are more likely to be affected, with a prevalence of between 5.7% and 26.6%. Up to 70% of patients with CPP have a non-gynecological cause of their pain. It is found in 8.8% of Pakistanis, 5.2% of Indians, and 43.2% of Thailand population. In Pakistani society, 15.75% women suffer from chronic pain, and 93% never visited a pain specialist.[1-4]

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The cause of CPP and its risk factors are not fully understood. The psychological system is usually implicated in unexplained cases of CPP in women and have a significant impact on CPP. Psychological factors (such as perspectives on pain and its effects on mood and sleep) are essential in CPP conceptualization.[5-7] Pain management has become a priority in healthcare sector worldwide. About half of the women receiving CPP treatment mention having experienced sexual, physical, or mental trauma in the past. Even though CPP is quite common, the illness is still mostly undiagnosed and untreated. Appropriate assessment is necessary for high-quality pain management.[8-10]

Cognitive Behavioral Therapy (CBT) is a structured, time-limited psychotherapy. Cognitive Behavior Therapy focuses on changing negative thought patterns, alleviating pain-related distress, and encouraging healthier coping mechanisms including enjoyable activities, ultimately improving both daily functioning, overall well-being and quality of life. [11,12-15]

In Pakistan, CPP is still underdiagnosed and undertreated due to a lack of knowledge, the stigma associated with pelvic pain, limited pain management facilities, and financial problems. Pharmacological interventions are frequently employed but they often fail to address the psychological causes linked to CPP, which negatively impact prognosis. Trained mental

health professionals are limited, and Pakistani healthcare settings typically lack psychological services for CPP. The topic of younger women' experiencing unexplained CPP remains taboo and stigmatized. That is why, women avoid seeking psychological help for CPP. Although CBT is available in Pakistan, it remains limited, and it is not a primary mode of treatment for CPP.[16,17] The objective of this study is to determine the efficacy of Cognitive Behavior Therapy for Chronic Pelvic Pain (CPP) in women.

METHODS

This study employed a Randomized Controlled Trial (RCT) to assess the efficacy of Cognitive Behavior Therapy (CBT) for the treatment of Chronic Pelvic Pain (CPP) in women. Participants were randomly assigned to the intervention (CBT) or the control group. The study was conducted over 12 weeks from July 2024 to September 2024.

The participants were 18-46-year-old women with CPP and were recruited from the Department of Obstetrics and Gynecology, Nishtar Hospital, Multan, Pakistan. A total of 60 participants were enrolled based on the eligibility criteria out of 83 participants and were randomly assigned to two groups. Randomization was done using online available research randomizer. The allocation concealment technique was used to prevent selection bias.

The women of reproductive age, women with CPP having no pathological or anatomical causes, women with Overactive Bladder Syndrome, and women with Vulvodynia were included in the study. The women experiencing perimenopause or menopause, women with medical, gynecological, or hormonal abnormalities, women with mental disorders, and women with substance abuse were excluded.

Of the 60 participants in the CBT and Control groups, 4 (6.67%) dropped out of the study before completing the post-intervention assessment. Reasons for dropout were declining to participate, dissatisfaction with the intervention, and chronicity itself. The participant recruitment flow chart is shown in a CONSORT diagram (Figure 1).

The Impact of Female Chronic Pelvic Pain Questionnaire (IF-CPPQ)

The Impact of Female Chronic Pelvic Pain Questionnaire (IF-CPPQ) was used to assess CPP. Items are rated on a five-point scale. The five subscales are psychological impact, occupational impact, relationship impact, sexual impact, and emotional impact. All the subscales had good reliabilities (*r* between .72 and .91), and Cronbach's alpha was .64 overall. The minimum score is 0, and the maximum score is 104 on IF-CPPQ. [18] The Cronbach alpha of the Urdu translated version was .92.

Intervention

The participants of the intervention group received weekly CBT sessions, lasting 50 minutes, for 12 weeks. The intervention was delivered by a qualified Principal Clinical Psychologist. The CBT sessions format was followed, which included psychoeducation, identification and evaluation of automatic thoughts about pain, cognitive restructuring for pain, behavioral techniques, deep breathing and relaxation techniques, pain coping strategies and assigning homework tasks.

Statistical Analyses

Descriptive statistics were analyzed with t-tests to assess the efficacy of CBT for pain reduction in women with CPP.

Ethical Considerations

Ethical approval was obtained from the Departmental Research Committee (DRC) of The Islamia University of Bahawalpur. The study was also registered with the U.S Clinical Trial Registry through ClinicalTrials.gov Identifier: NCT06445790. All participants signed written informed consent.

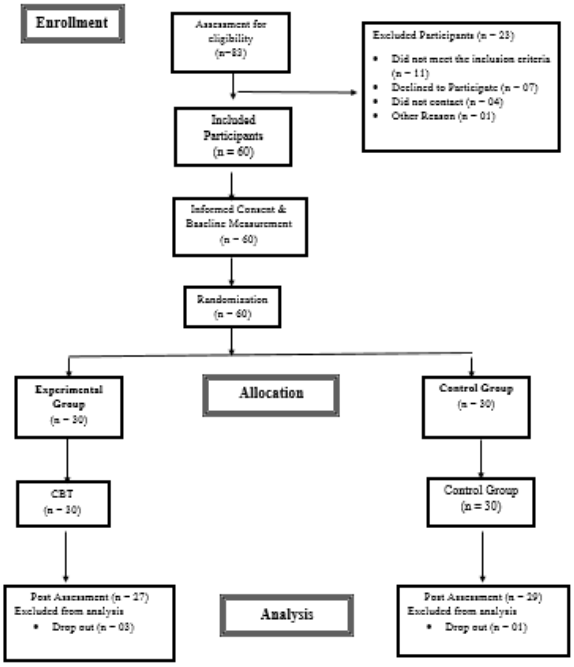

Figure No. 1: CONSORT Diagram

RESULTS

Table No. 1: Frequency Distribution of Demographic Variables (n=56)

Therapy Groups	CBT-cp (n=27)		Control Group (n=29)	
Demographic Variables	**F**	**%**	**F**	**%**
Age Groups				
18-30	18	66.67	20	68.96
31-46	9	33.33	9	31.04
Education				
Matric or Below	5	18.51	3	10.35

Inter	3	11.11	5	17.24
BS	17	62.97	18	62.06
MPhil/PhD	2	7.41	3	10.35
Occupation				
Student	3	11.11	3	10.35
House Wife	13	48.14	13	44.82
Working Women	11	40.74	13	44.82
Marital Status				
Single	13	48.15	14	48.28
Married	13	48.15	13	44.82
Divorced	1	3.70	2	6.90
No of Children				
N/A	13	48.14	15	51.72
Issueless	1	3.70	2	6.90
1-2	9	33.34	7	24.13
3-5	2	7.41	4	13.80
5+	2	7.41	1	3.45
Site of Pain				
Lower Abdomen	18	66.66	19	65.51
Pelvic Bone	9	33.34	10	34.49
Duration of Pain				
6 months-1year	11	40.75	13	44.83
2-5 years	9	33.33	7	24.13
6-10 years	2	7.40	6	20.69
10+ years	5	18.52	3	10.35
Pain Intensity				
Mild	11	40.75	12	41.37
Moderate	15	55.55	14	48.28
Severe	1	3.70	3	10.35
Previous Treatment				
No Treatment	15	55.55	12	41.37
Pain Killers	12	44.45	17	58.63

Table 1 shows the frequency distributions of the demographic variables. There were 56 participants, 27 in the CBT-cp group and 29 in the Control group. Both groups were comparable in terms of demographic characteristics.

Table 2 shows the descriptive statistics. The mean age of participants was 29 and 28 years, for the intervention and control groups, respectively. The participants in the intervention and control groups had a mean duration of 4.87 years and 4.73 years, respectively. The minimum age for participants of both groups was 18 years while the maximum age of participants was 46 years for the intervention group and 45 years for the control group.

Table 3 shows the descriptive statistics for the therapy groups of the study. The mean CPP scores were decreased for the intervention group while, the control group showed higher mean CPP scores.

Table 4 shows the results of the paired-samples t-test, computed to assess the efficacy of intervention group. The post-therapy scores of CPP were significantly lower than baseline scores with a medium effect size, while the CPP scores did not differ significantly for the control group.

Table No. 2: Descriptive Statistics (n=56)

	CBT Group (n=27)				**Control Group (n=29)**			
	M	**SD**	**Min**	**Max**	**M**	**SD**	**Min**	**Max**
Age	29.10	7.68	18	46	28.40	6.99	18	45
Duration of Pain	4.87	5.34	1	18	4.73	5.19	1	15

Table No.3. Descriptive Statistics of Therapy and Control Groups (n=56)

Pre-Therapy		
Variables	**Chronic Pelvic Pain**	**N**
Treatment Groups	**M (SD)**	
CBT therapy	41.96 (14.26)	27
Control	41.17 (16.71)	29
Post Therapy		
Variables	**Chronic Pelvic Pain**	**N**
Treatment Groups	**M (SD)**	
CBT therapy	13.0 (4.29)	27
Control	42.17 (17.66)	29

Table No. 4: Comparison of Treatment Efficacy (n=56)

CBT Therapy Pair (n=27)							
Variables	**Difference M (SD)**	**t**	**df**	**p**	**LL**	**UL**	**Cohen's d**
Chronic Pelvic Pain	28.96 (13.26)	11.34	26	.000	23.71	34.21	4.44
No Therapy Pair (n=29)							
Variables	**Difference M (SD)**	**t**	**df**	**p**	**LL**	**UL**	**Cohen's d**
Chronic Pelvic Pain	-1.0 (2.87)	-1.87	28	.07	-2.09	.09	-.70

DISCUSSION

The present study was a feasibility, pilot study to assess the efficacy of CBT-cp for CPP in Pakistani women. The participants of CBT group showed a highly significant mean reduction in CPP from pre- to post-therapy, compared with the Control group, with a moderate effect size (Cohen's d = 4.44). On the other hand, the Control group showed no significant change in pain score (Cohen's d = -.70). This study's results show that CBT-cp was effective in reducing pain intensity. Such findings are consistent with previous literature showing that psychological interventions, particularly CBT-cp, are effective in the treatment of CPP.[11,15] One more study's result also showed moderate effects of CBT for pain reduction.[19]

After CBT administration, the CBT-cp group mean CPP decreased from M = 41.96 (SD = 14.26) to M = 13.0 (SD = 4.29), while the mean score of the control group remained stable, M = 41.17 to 42.17 (SD = 16.71 to 17.66), suggesting the effective role of the intervention. The t-test revealed a statistically significant effect for the CBT-cp group, with a moderate effect size (Cohen's d = 4.44). In contrast, the control group's minor change was not significant (Cohen's d = -.70). This aligns with the previous research that showed CBT-cp improves coping mechanisms and modifies how pain is perceived.[11,12,20,21,22] Other studies also found CBT-cp had a moderate to significant effect in reducing pain severity and functional impairment, especially in CPP.[23] However, some studies indicate that the effectiveness of CBT-cp varies depending on the length of intervention and patient adherence.[24]

In Pakistan, there is limited research available on the role of CBT for CPP management. According to one study, individuals who received pharmacological intervention with CBT showed significant decreases in the severity of CPP.[16] This study demonstrated its efficacy and feasibility despite cultural barriers. Similarly, CBT significantly reduced symptoms of anxiety, stress, and depression in patients with CPP in another Pakistani study.[17]

Limitations and Recommendations

The lack of blinding in CBT trials may introduce performance and reporting bias. In this study, an RCT with a single intervention cannot determine whether the other intervention might be more effective. Blinding strategies in CBT groups can also minimize bias in outcome measures. Future research should compare CBT with other psychological and pharmacological treatments and lifestyle interventions.

Implications

The Cognitive Behavior Therapy could become a key component of multidisciplinary pain management, especially for CPP. Cognitive Behavior Therapy could serve as a guideline for managing CPP, particularly in cases without underlying pathology and where medical treatments are insufficient.

CONCLUSION

The findings of this RCT concluded that CBT-cp is an effective intervention for reducing CPP in Pakistani women. Participants in the CBT intervention group reported significant post-therapy improvement in pain intensity as compared to control group. These results highlight the importance of CBT as an evidence-based approach to alleviating the burden of CPP in women.

Author's Contribution:

Concept & Design or acquisition of analysis or interpretation of data:	Bushra Akram, Ahmad Bilal
Drafting or Revising Critically:	Bushra Akram, Ahmad Bilal
Final Approval of version:	All the above authors
Agreement to accountable for all aspects of work:	All the above authors

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