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Research Paper

Exploring the Role of Family Environment, Coping Strategies, and Personality Traits in Women with Low Back Pain

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ABSTRACT

Background: Low back pain (LBP) is a prevalent and disabling condition that significantly impairs quality of life, especially among women. Beyond being a physical ailment, LBP is increasingly recognized as a biopsychosocial issue, shaped by psychological, social, and environmental influences. While existing research has predominantly focused on physiological and mechanical causes, there is a growing emphasis on understanding the psychosocial dimensions contributing to its development, chronicity, and overall impact. **Aim:** The present study explores the role of family environment, coping strategies, and personality traits in women experiencing low back pain. **Methods:** The sample comprised 30 women diagnosed with low back pain and 30 women without any history of LBP (control group), aged between 25 and 55 years. Participants were recruited using purposive sampling from hospitals and clinics in Varanasi and Jaipur, ensuring a diverse demographic representation. Inclusion and exclusion criteria were applied to enhance group homogeneity. The following standardized tools were used for assessment: Family Environment Scale (Rudolf H. Moos & Bernice S. Moos), Eysenck Personality Questionnaire-Revised Short Form (EPQR-S), and the Coping Response Inventory – Adult Form (CRI-A, Rudolf H. Moos, 1988). **Results &Conclusion:** The study found significant differences between women with and without low back pain in terms of family environment, coping strategies, and personality traits. Women with LBP experienced less family support, used more maladaptive coping strategies, and showed higher neuroticism with lower extraversion and psychoticism. These findings highlight the crucial role of psychosocial factors in LBP and suggest that improving family dynamics, fostering adaptive coping, and addressing personality traits can enhance pain management. The study advocates for a comprehensive biopsychosocial approach in clinical care.

Keywords: *Family environment, personality traits, coping strategies, low back pain*

Low back pain (LBP) is one of the most prevalent musculoskeletal complaints worldwide and a leading cause of disability, particularly among women (Hoy et al., 2012). It impacts not only physical functioning but also psychological well-being and social participation. Traditionally considered a biomechanical condition, recent research increasingly recognizes LBP as a biopsychosocial issue, with psychological and

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environmental factors playing a significant role in its onset, persistence, and management (Waddell, 2004; Gatchel, Peng, Peters, Fuchs, & Turk, 2007). Among these, family environment, personality traits, and coping strategies are critical variables that influence pain perception, emotional distress, and recovery outcomes (Karoly & Ruehlman, 2006; Ramírez-Maestre & Esteve, 2014). Studies suggest that dysfunctional family dynamics, maladaptive personality traits such as high neuroticism, and avoidant coping styles may contribute to the chronicity and intensification of pain, especially in women with LBP.

Research indicates that individuals with chronic pain often report dysfunctional family dynamics such as low cohesion and high conflict (Flor, Turk & Rudy, 1989). Supportive family environments have been linked to better adjustment and reduced pain severity. Similarly, personality traits, especially high neuroticism, have been associated with an increased risk of developing chronic pain and experiencing emotional distress (Fishbain et al., 2004). On the other hand, traits like extraversion and emotional stability are protective factors.

Coping strategies are equally crucial. Lazarus and Folkman (1984) categorized coping into problem-focused and emotion-focused strategies. Studies suggest that chronic pain sufferers are more likely to use maladaptive coping such as avoidance or catastrophizing, which often exacerbate pain and disability (Jensen et al., 1991). Understanding how these factors interact in the context of LBP in women can inform more holistic and effective interventions.

METHODOLOGY

Objectives of the study:

- To examine the differences in family environment between women with low back pain and those without.
- To explore the coping strategies used by women with low back pain in comparison to a control group.
- To assess personality traits in women with low back pain and compare them with women without LBP.
- To determine the role of psychosocial variables (family environment, coping, personality) in the experience of low back pain.

Hypotheses of the study:

- Women with low back pain will report significantly lower levels of family cohesion, expressiveness, and support, and higher family conflict than women without LBP.
- Women with LBP will use significantly more maladaptive coping strategies (e.g., avoidance, emotional discharge) than women without LBP.
- Women with LBP will score higher on neuroticism and lower on extraversion and psychoticism than the control group.

Research Design: A comparative, cross-sectional study design was employed to assess psychosocial differences between women with and without low back pain.

Sample: The sample consisted of 60 women aged 25–55 years, divided into two groups: Experimental group: 30 women diagnosed with low back pain. Control group: 30 women without any history of LBP Participants were selected through purposive sampling from various hospitals and clinics in Varanasi and Jaipur to ensure demographic diversity.

Inclusion Criteria

- Females aged between 25–55 years
- For the experimental group: diagnosed with low back pain for a minimum duration of 3 months
- Willingness to participate with informed consent

Exclusion Criteria

- Women with chronic illnesses or neurological conditions
- History of psychiatric disorders
- Pregnant or postpartum women
- Those undergoing psychological therapy for pain

Procedure:

After obtaining ethical clearance and informed consent, participants were briefed about the study's purpose. The standardized tools were administered individually in a quiet setting. Data collection took approximately 30–40 minutes per participant. Confidentiality and anonymity were maintained throughout the process.

Tools Used:

- **Family Environment Scale (FES) –** *Developed by Rudolf H. Moos and Bernice S. Moos*, this tool measures family climate across several domains such as cohesion, expressiveness, and conflict.
- **Eysenck Personality Questionnaire –** Revised Short Form (EPQR-S) – Assesses three major personality traits: neuroticism, extraversion, and psychoticism.
- **Coping Response Inventory –** Adult Form (CRI-A) – *Developed by Rudolf H. Moos*, it evaluates various coping responses, including approach and avoidance strategies.

Description of the Tools:

- **Family Environment Scale (FES):** The Family Environment Scale (FES) was developed by Rudolf H. Moos and Bernice S. Moos in 1974. It is designed to assess the social and environmental characteristics of families, focusing on how family members interact and function as a unit. The scale consists of 90 true/false items, divided into 10 subscales across three main dimensions: Relationship (Cohesion, Expressiveness, Conflict), Personal Growth (Independence, Achievement Orientation, Intellectual-Cultural Orientation, Active-Recreational Orientation, Moral-Religious Emphasis), System Maintenance (Organization, Control) Scoring: Each subscale contains 9 items. Higher scores reflect a greater presence of the specific family characteristic measured by that subscale.
- **Eysenck Personality Questionnaire – Revised Short Form (EPQR-S):** The EPQR-S was developed by Hans J. Eysenck and Sybil B.G. Eysenck in 1991. It is a 48-item self-report questionnaire designed to assess three major dimensions of personality: Neuroticism (N) – emotional instability and anxiety, Extraversion (E) – sociability and liveliness, Psychoticism (P) – aggressiveness and tough-mindedness. It also includes a Lie Scale (L) to detect socially desirable responses. Scoring: The items are answered in a Yes/No format. Each dimension consists of 12 items. Scores are summed separately for each trait, with higher scores indicating stronger personality tendencies in that domain.

- **Coping Response Inventory – Adult Form (CRI-A)**: The CRI-A was developed by Rudolf H. Moos in 1988 to assess the cognitive and behavioral coping strategies individuals use in response to stressful situations. It includes 48 items, rated on a 4-point Likert scale (from "not at all" to "fairly often"), and is divided into two major coping styles: Approach Coping (Logical Analysis, Positive Reappraisal, Seeking Guidance and Support, Problem Solving), Avoidance Coping (Cognitive Avoidance, Acceptance/Resignation, Seeking Alternative Rewards, Emotional Discharge), Scoring: Each subscale has 6 items. Higher scores indicate a greater use of that particular coping strategy.

Statistical Analysis

Data were analyzed using the Statistical Package for the Social Sciences (SPSS). Descriptive statistics, including means, standard deviations, and frequency distributions, were calculated for both the demographic and psychosocial variables of the two groups. To test the research hypotheses and examine group differences, Independent Samples t-tests were used to compare the mean scores of family environment, coping strategies, and personality traits between women with low back pain (LBP) and the control group. Additionally, Pearson's Correlation Coefficient was applied to explore the relationships between psychosocial variables within the LBP group.

RESULT

Table 1: Family Environment Comparison Between Women with and Without Low Back Pain

Subjects	**Women with Low Back Pain**			**Women Without Low Back Pain**		
Variable	**Pain Intensity**	**N**	**Mean**	**Std. Deviation**	**t**	**p-value**
Family Environment	≥7 (High Pain)	30	54.80	10.29	11.33	.000***
	<7 (Low Pain)	30	26.20	9.23		

**p < .001 (Highly significant)*

Table 1: This table presents a comparison of family environment scores between women experiencing high (≥7) and low (<7) levels of low back pain. The results show a significant difference ($t = 11.33$, $p < .001$), indicating that women with higher pain intensity reported significantly more negative or dysfunctional family environments compared to those with lower pain levels.

Table 2: Personality Traits (EPQ-R) in Women with and Without Low Back Pain

Subject Variables	**Women with Low Back Pain**		**Women Without Low Back Pain**			
EPQ-R Dimension	**Pain Intensity**	**N**	**Mean**	**Std. Deviation**	**t**	**p-value**
Extraversion	≥7	30	4.23	1.36	-9.30	.000***
	<7	30	8.20	1.90		
Neuroticism	≥7	30	8.50	1.43	10.21	.000***
	<7	30	4.03	1.92		
Psychoticism	≥7	30	5.30	0.99	5.08	.000***
	<7	30	3.83	1.23		
Lie Scale	≥7	30	1.50	0.27	1.52	.136
	<7	30	1.39	0.25		

**p < .001 (Highly significant)*

Table 2: Personality Traits (EPQ-R) in Women with and Without Low Back Pain. This table compares the EPQ-R personality dimensions (Extraversion, Neuroticism, Psychoticism, and Lie Scale) between women with and without low back pain. Significant differences were found in extraversion (t = -9.30, p .001), neuroticism (t = 10.21, p .001), and psychoticism (t = 5.08, p .001). Women with high pain intensity scored significantly lower in Extraversion and higher in Neuroticism and Psychoticism. No significant difference was found in the Lie Scale ($p > .05$), suggesting similar response styles across groups.

Table 3: Comparison of Coping Strategies in Women with and Without Low Back Pain

Subject Variables	**Women with Low Back Pain**			**Women Without Low Back Pain**		
Coping Strategy	**Pain Intensity**	**N**	**Mean**	**Std. Deviation**	**t**	**p-value**
Logical Analysis	≥7	30	5.07	1.36	-9.30	.000***
	<7	30	8.10	1.16		
Positive Reappraisal	≥7	30	4.37	1.19	-9.51	.000***
	<7	30	7.47	1.33		
Seeking Guidance/Support	≥7	30	9.30	1.42	10.43	.000***
	<7	30	5.60	1.33		
Problem Solving	≥7	30	5.33	1.32	-5.60	.000***
	<7	30	7.47	1.61		

**p < .001 (Highly significant)*

Table 3: This table illustrates significant group differences in adaptive coping strategies. Women without low back pain used more effective strategies such as Logical Analysis ($t = -9.30$, $p < .001$), Positive Reappraisal ($t = -9.51$, $p < .001$), and Problem Solving ($t = -5.60$, $p < .001$). Conversely, women with high pain intensity were more likely to engage in Seeking Guidance/Support ($t = 10.43$, $p < .001$), indicating a greater reliance on external sources for help.

Table 4: Maladaptive Coping and Emotional Strategies in Women with and Without Low Back Pain.

Subjects Variables	**Women with Low Back Pain**		**Women without Low Back pain**		**t**	**p-value**
Coping Strategy	**Pain Intensity**	**N**	**Mean**	**Std. Deviation**		
Coping Avoidance	≥7	30	4.77	1.17		
	<7	30	8.08	1.25	-10.49	.000***
Acceptance & Resignation	≥7	30	4.33	1.45		
	<7	30	6.93	1.08	-7.89	.000***
Seeking Alternative Reward	≥7	30	4.37	1.19		
	<7	30	7.03	1.38	-8.03	.000***
Emotional Discharge	≥7	30	6.33	1.58		
	<7	30	6.87	1.04	-1.54	.128

**p < .001 (Highly significant); ns = non-significant*

Table 4: This table shows a comparison between maladaptive and emotion-focused coping strategies. Women without pain exhibited significantly greater use of Coping Avoidance (t = -10.49, p < .001), Acceptance & Resignation (t = -7.89, p < .001), and Seeking Alternative Reward (t = -8.03, p < .001), highlighting potential withdrawal or disengagement behaviors.

There was no significant difference in emotional Discharge between the groups ($t = -1.54$, $p = .128$), indicating comparable levels of emotional expression.

DISCUSSION

The present study aimed to explore the psychosocial and personality correlates of low back pain (LBP) in women, specifically examining differences in family environment, personality traits, and coping strategies between those with high and low pain intensity. The results offer compelling evidence of the multifaceted nature of chronic pain, highlighting the complex interplay between psychological dispositions, coping mechanisms, and family dynamics.

Consistent with previous findings, this study revealed that women experiencing high-intensity LBP reported significantly more dysfunctional family environments. A negative family environment may act as both a precipitating and perpetuating factor in chronic pain, as it influences stress levels, emotional regulation, and access to social support. Numerous studies support this association. For instance, Nilsen et al. (2021) found that individuals with unsupportive or conflict-laden family relationships were more likely to report persistent musculoskeletal pain and functional impairment. Similarly, Bujanover et al. (2022) emphasized that family stress and poor communication significantly increased pain catastrophizing and reduced treatment efficacy in women with chronic conditions.

In the domain of personality, high pain intensity was associated with higher Neuroticism and Psychoticism and lower Extraversion. These traits align with established psychological risk profiles for chronic pain. High Neuroticism has been consistently linked to increased pain sensitivity, emotional dysregulation, and negative appraisal of physical symptoms (e.g., Furnes et al., 2022; Quartana et al., 2021). The elevated Psychoticism score in this group may reflect increased hostility, aggressiveness, or interpersonal detachment—traits that can disrupt social relationships and coping efficacy. Low Extraversion, on the other hand, is associated with social withdrawal and reduced help-seeking behavior, which may further isolate individuals in pain and hinder emotional recovery (Van Ryckeghem et al., 2020).

Coping strategies emerged as a significant factor differentiating women with and without LBP. Women with low pain intensity demonstrated greater reliance on adaptive strategies such as Logical Analysis, Positive Reappraisal, and Problem Solving. These forms of coping are associated with cognitive flexibility and resilience, and have been found to mediate the effects of stress and pain in chronic conditions (Thieme et al., 2021). Conversely, the high-pain group relied more heavily on Seeking Guidance/Support, which, while not inherently maladaptive, may indicate a lower sense of self-efficacy and greater dependency on external validation or assistance. Excessive reliance on external support without internal coping capacity may hinder long-term adaptation, as found in recent work by Carpenter et al. (2023).

About maladaptive and emotion-focused coping, women with high pain intensity showed significantly lower use of Avoidance, Acceptance & Resignation, and Seeking Alternative Rewards. Although these strategies are often viewed as less effective, their presence in the low-pain group may indicate a pragmatic disengagement from uncontrollable stressors or a cognitive shift toward alternative sources of meaning and pleasure. This paradox aligns with recent findings by Eifert et al. (2022), suggesting that moderate use of disengagement strategies may serve an adaptive function in certain pain populations. Notably, no significant difference was observed in Emotional Discharge, suggesting that emotional expressiveness

may not be a central coping factor in LBP or may be influenced by cultural and personality moderators.

CONCLUSION

This study underscores the significant role of psychological and interpersonal factors in the experience of low back pain among women. Dysfunctional family environments, maladaptive personality traits, and reliance on less effective coping strategies were more prevalent in women with high pain intensity. These findings contribute to a growing body of literature that positions chronic pain as not merely a biomedical issue, but one rooted in psychosocial complexity. Future research and clinical efforts should prioritize a biopsychosocial model to improve outcomes for individuals struggling with chronic LBP.

Limitations

Despite its valuable insights into the psychosocial factors related to low back pain (LBP) in women, this study has several limitations. First, the cross-sectional design prevents causal inferences, and longitudinal studies are needed to determine the directionality of the observed relationships. Second, the small sample size of 60 women may limit the generalizability of the results, especially to other populations. Third, the reliance on self-report measures introduces the potential for response bias, though the Lie Scale results suggest minimal distortion. Fourth, unmeasured confounding variables, such as socioeconomic status, trauma history, and comorbid mental health conditions, may influence the findings. Finally, the cultural context of the study may limit the applicability of the results across different cultures. Future research should address these limitations by using larger, more diverse samples and incorporating objective measures to validate the findings.

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Conflict of Interest

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