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ORIGINAL RESEARCH

Qualitative Assessment of Sexual Health Impairment in Women Affected by Disk Herniation

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Background: Sexual health in women with lumbar disk herniation (LDH) in Iran is underexplored, despite its substantial impact on quality of life. This study aimed to explore the sexual health challenges of women with LDH and identify management strategies.

Methods: This qualitative study conducted in-depth interviews with seven women diagnosed with LDH and six sexual health experts. Participants were chosen according to their scores on the Female Sexual Function Index (FSFI) questionnaire to ensure a diverse representation across high, medium, and low sexual function levels. A conventional content analysis approach was used to analyze data during collection.

Results: The analysis identified two main categories and 11 subcategories. The first category, "Challenging sexual relationships with back pain", included six subcategories: pain during sex, sexual desire disorder, orgasmic dysfunction, reduced frequency and duration of sexual intercourse, and post-sexual dysfunction. The second category, "Coping strategies and advice", included five strategies: improving communication, applying pain-relief techniques, choosing appropriate sexual positions, seeking partner support, reducing penetration time, and promoting mental health and spiritual well-being.

Conclusion: This study highlights the interrelation of sexual pain and mood disorders has led to a significant reduction in both the frequency and duration of sexual intercourse, resulting in many women being unable to achieve orgasm. Tailored interventions that focus on the physical, emotional, and relational aspects of sexual health are crucial for improving the overall well-being of these women.

Keywords: lumbar disk herniation, sexual health, female sexual function, qualitative study

Introduction

Lumbar disc herniation (LDH), occurs when the soft inner core of a spinal disc protrudes through its outer fibrous layer, resulting in considerable pain and functional limitations. The L4-L5 and L5-S1 regions are most commonly affected, being particularly vulnerable to mechanical stress from daily activities and aging.[1] Herniation in these areas often compresses nerves, leading to symptoms like lower back pain (LBP), sciatica, numbness, and weakness. These symptoms can vary from sharp, debilitating pain to milder discomfort, such as a persistent ache or tingling.[2]

Lumbar disc herniation (LDH) is a prevalent condition, occurring in 5–20 cases per 1000 adults each year, mainly affecting individuals in their 30s to 50s, a period typically linked to active sexual relationships.[3] Although LDH is more commonly reported in men, women represent a significant portion of cases. Studies show that up to 42.4% of low back pain patients are women, with nearly 40.4% of them diagnosed with LDH.[4]

Sexual health is crucial for overall well-being, covering physical, emotional, and psychological aspects of relationships. Despite its importance, it is often overlooked in medical research. Studies on LDH have primarily examined its physical and functional effects, with little focus on sexual health. This is because discussing sexual health is controversial and there are barriers in this area from both the patient and the physician.[5] An open culture needs to be created where staff and patients see the patient holistically – not as a disability or a symptom – and staff can feel comfortable raising sexuality as an issue.[6] Discussion of the potential consequences of lumbar disc herniation on sexual health in women is

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less well-established than in men. Advanced education for healthcare professionals is needed to improve sexual health counseling.[7] This is notable, considering that sexual dysfunction has been reported in 53.8% to 100% of women with LDH in various studies.[8–11] Researches in Iran by Moradi et al and Nikoobakht et al found sexual dysfunction rates of 81% and 71%, respectively, among women with LDH.[12,13]

The relationship between LDH and sexual dysfunction is complex. Factors such as lower back pain, leg pain, nerve compression, and pain medication side effects can hinder sexual activity, leading to physical difficulties, psychological distress, and emotional intimacy disruptions.[14] Sexual dysfunction in chronic back pain is not only associated with pain, but also with psychological disorders such as depression. In addition, emotional intimacy, sexual intimacy, and mental health are closely related. Therefore, one of the risk factors for sexual dysfunction is the level of empathy between couples and the presence of a supportive sexual partner. Patients with back pain need the support of their partners and professionals to maintain their sex life.[15]

Little is known about the experiences of women with LDH, particularly in culturally specific contexts like Iran, where sexual health discussions are often taboo. This study addresses the knowledge gap regarding the sexual health challenges faced by married women with LDH in Iran. Through qualitative content analysis, it aims to comprehensively understand these women's experiences, highlighting the personal, social, and cultural factors influencing their sexual lives and coping strategies. By focusing on this underexplored area, the study contributes to the broader field of sexual health and seeks to inform clinical practices and interventions tailored to this population's unique needs.

Methods

Study Design and Setting

This qualitative study was part of a broader research project titled: "Developing a Guideline for Improving Sexual Function among Married Women with Lumbar Disk Herniation: A Mixed-Methods Study." The primary aim was to explore and analyze sexual health challenges among married women with lumbar disk herniation (LDH) from the perspectives of both the affected women and sexual health experts. The research was conducted in health centers affiliated with Fasa University of Medical Sciences and Shiraz University of Medical Sciences, located in the southeastern region of Iran. This context provided a unique opportunity to address a critical but underexplored aspect of women's health in the region, with the ultimate goal of informing culturally appropriate and evidence-based interventions.

Participants

Participants were selected through purposeful sampling. Two groups participated in this study. The first group consisted of women with lumbar disc herniation whose sexual function was measured using the FSFI questionnaire in a quantitative study[12] and whose sexual function scores were in the upper, middle, and lower ranges of scores. They were eligible for this qualitative study, according to the inclusion criteria listed below. The second group includes specialists with specialized expertise in sexual health and extensive experience supporting women with lumbar disk herniation were recruited through purposeful snowball sampling.

The researcher initially contacted eligible women, provided detailed information about the study, and invited them to participate. Women who met the inclusion criteria were gradually enrolled in the study.

Healthcare professionals with specialized expertise in sexual health and extensive experience supporting women with lumbar disk herniation were recruited through purposeful snowball sampling. This method ensured the inclusion of a diverse group of experts, whose multidisciplinary perspectives contributed valuable insights to the study. These professionals included gynecologists, obstetricians, physiotherapists, physical medicine and rehabilitation specialists, sexual and reproductive health experts, family counseling experts, midwives, and social medicine specialists from Fasa, Shiraz, and Tehran. Their diverse backgrounds and practical experience in sexual health counseling or sex therapy enriched the study with multidisciplinary insights.

Inclusion and Exclusion Criteria

The inclusion criteria for this study were as follows: participants from the quantitative study[12] who scored within the upper, middle, or lower ranges of the Female Sexual Function Index (FSFI) questionnaire,[16,17] demonstrated a willingness to participate, were married, and had engaged in sexual activity within the past six months. Additional criteria included no self-reported underlying medical conditions affecting sexual function, no use of medications known to influence sexual function, no reports of spousal impotence, and not being pregnant or breastfeeding at the time of the study. Participants were excluded if they expressed an unwillingness to continue with the interviews at any stage. All participants provided written informed consent prior to their involvement, and those who chose to withdraw their cooperation during the interview process were excluded from further participation.

In the expert group, the inclusion criteria for the study were having experience in providing sexual counseling to women with lumbar disc herniation and willingness to participate in the study.

Data Collection

We had the phone numbers of women who had participated in the previous quantitative study,[12] and using them, we contacted women who met the inclusion criteria for the present qualitative study. When inviting individuals for interviews, the researcher aimed to ensure maximum diversity in age, socioeconomic status, education, occupation, and place of residence. Sampling and data collection continued until data saturation was achieved.

The data collection involved semi-structured, in-depth interviews conducted by the first author, a PhD candidate in Reproductive Health (See Figure 1 for the interview guide). All interviews were conducted in Persian. During the initial phone contact, the researcher introduced herself and explained the study's objectives. Upon agreement to participate, the time and location of the interview were arranged based on the participant's preference. Before the interviews, written informed consent was obtained from all participants.

Interviews with women and experts were conducted individually at mutually agreed-upon locations. For experts, the interviews were similarly coordinated via phone and informed written consent was obtained beforehand. With participants' permission, all interviews were audio-recorded.

The interviews began with introductory questions to create a comfortable atmosphere and build rapport. This was followed by open-ended questions to encourage participants to share their experiences, after which the discussion

Questions for women with LDH	How would you describe your experience with sexual activity following the diagnosis of a herniated disc?
	How your sexual life has changed since being diagnosed with lumbar disc herniation (LDH)?
	What challenges have you experienced as a result of these changes? How has this condition affected your sexual and marital relationship overall?
	Have you tried any strategies or approaches to address these challenges? If so, which ones worked for you?
	What role has your husband played in helping you navigate these difficulties?
Questions for experts	What sexual concerns do women with lumbar disk herniation commonly share with you, and what services do you offer to address them

Figure 1 Guiding questions for married women with LDH and experts in Iran.
Abbreviations: LDH, lumbar disk herniation.

progressed to specific questions aligned with the study's objectives. For instance, women were asked about changes in their sexual relationships after experiencing lumbar disk herniation, the challenges they encountered, and the strategies they used to address these issues. Experts were asked questions such as: "What sexual concerns do women with lumbar disk herniation commonly share with you, and what services do you offer to address them?" Additional information is presented in Figure 1.

Probing questions were used as needed to encourage deeper discussion. Interviews continued until participants had no further information to share. In cases where participants experienced fatigue or when data saturation was not achieved, follow-up sessions were arranged with the same participants.

In addition to audio recordings, the researcher took detailed notes to document participants' emotions, facial expressions, tone of voice, and body language during the interviews. The audio recordings were transcribed verbatim in Persian as soon as possible after each interview. Initial data analysis and coding were conducted before the subsequent interview. The transcribed texts were reviewed by the study supervisors, and their feedback was incorporated to refine the interview process and enhance data collection in subsequent sessions.

Accuracy of the Findings (Rigor)

To evaluate the veracity of the findings acquired through this research, we have applied five criteria delineated by Johnson,[18] encompassing credibility, confirmability, dependability, transferability and authenticity (Table 1).

Table 1 Rigor Assessment of the Qualitative Study of Sexual Function in Married Women with LDH

Accuracy of The Data Acquired Through This Research	Criterion
Long-term engagement and immersion Peer review by academic colleagues: 1. Conducting scientific sessions with experts not directly involved in the current study. 2. Presenting preliminary research findings at national and international conferences and symposiums. Peer Review by Participants Diverse data sources: 1. Interviews with married women with LDH. 2. Interviews with midwife experts from comprehensive health centres. 3. Interview with reproductive health specialist 4 Interview with Senior expert in midwifery consultation 5. Interview with physiotherapist 6. Interview with physical medicine and rehabilitation specialist 7. Specialist in social medicine and sexual health fellowship	Credibility
Comprehensive reporting of all work stages Obtaining confirmation from research team members, and sexual health specialists	Confirmability
1. Continuous comparative analysis. 2. Peer review. 3. External oversight.	Dependability
Selection of participants with maximum diversity	Transferability
1. Each identified category includes at least one relevant document. 2. Purposeful sampling. 3. Diversity of participants in the research for data collection and analysis.	Authenticity

Notes: Credibility: The researcher ensures and imparts to the reader supporting evidence that the results accurately represent what was studied; Guba and Lincoln (1994),[19] Confirmability: The researcher ensures and communicates to the reader that the results are based on and reflective of the information gathered from the participants and not the interpretations or bias of the researcher. Guba and Lincoln (1994),[19] Dependability: The researcher describes the study process in sufficient detail that the work could be repeated; Guba and Lincoln (1994),[19] Transferability: The researcher provides detailed contextual information such that readers can determine whether the results are applicable to their or other situations; Guba and Lincoln (1994),[19] Authenticity: Authenticity in qualitative research refers to the genuineness, realness and quality of experiences or phenomena being studied; Johnson and Rasulova (2017),[18].
Abbreviation: LDHLDH, lumbar disk herniation.

Data Analysis

The data analysis process was conducted systematically and continuously using the inductive content analysis method outlined by Elo and Kyngäs.[20] Preparation Phase: In the initial phase, the researcher immersed herself in the data by reading the transcripts multiple times to ensure a deep understanding. Key segments or "semantic units" relevant to the research focus were identified. After each interview, the audio recordings were transcribed verbatim and converted into textual format. The researcher determined the unit of analysis and began coding the data immediately after transcription. Both participants' own words and phrases, as well as terms deemed appropriate by the researcher, were used to label the codes. To ensure accuracy, the initial coding was reviewed by a senior research supervisor. Additionally, for member checking, a transcript from an interview with a woman with LDH and one with a sexual health expert were returned to the respective participants for verification and validation. Organizing Phase: In this phase, open coding was performed by re-reading the interview transcripts and assigning titles to meaningful segments of text. After analyzing several interviews, the researcher began grouping codes into preliminary categories. This process was iterative, with new codes and categories being added as additional interviews were analyzed. Over time, the categories were refined by merging similar ones and reducing their overall number. This led to the formation of broader, more cohesive main categories. Since no preexisting theoretical framework directly aligned with the research objectives, categories were inductively generated directly from the raw data. Reporting Phase: In the final stage, the coding process and the methods used to ensure rigor were comprehensively documented to enhance transparency and guarantee the replicability of the research. This meticulous approach ensured that the findings were both credible and grounded in the participants' experiences.

Findings

Data collection for this study took place between 2 January 2024 and 8 July 2024 and included 13 interviews conducted in two distinct groups: married women with lumbar disc herniation (LDH) and healthcare professionals with experience in providing sexual counseling to married women with LDH. Ten women were initially invited to participate, but two declined due to unwillingness, and one interview was discontinued at the participant's request. Ultimately, seven interviews were conducted with women with LDH, each lasting between 20 and 60 minutes, with an average duration of 40 minutes. Additionally, six interviews were conducted with healthcare professionals, with durations ranging from 30 to 60 minutes, averaging 45 minutes (Table 2).

The analysis process involved identifying 124 primary codes, which were condensed into 85 refined codes. These codes were organized into 11 subcategories based on thematic similarities. A comparative analysis of the subcategories resulted in the development of two overarching categories (Table 3).

Table 2 Demographic Characteristics of Study Participants

Participants	Age	Education	Occupation	Duration of LDH (Year)	Severity of LDH	LDH Site	FSFI Score
P1	43	Secondary	Housewife	10	Bulging	L5-S1	31.7
P2	34	University	Employee	10	Bulging	L3-L4	28.5
P3	30	University	Employee	5	Protrusion	L5-S1	30.7
P4	41	University	Employee	15	Extrusion	L5-S1	6.7
P5	43	University	Employee	10	Protrusion	L5-S1	12.1
P6	30	University	Housewife	4	Protrusion	L4-L5	11.8
P7	47	Primary	Housewife	5	Protrusion (with previous discectomy)	L4-L5	25.5

(*Continued*)

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Table 2 (Continued).

Participants	Age	Education	Occupation	Work experience length	Workplace
H1	36	Master's degree	Midwife	10	Private
H2	41	Bachelor's degree	Physiotherapist	16	Private
H3	43	Bachelor's degree	Midwife	19	Government
H4	36	Physical medicine and rehabilitation specialist	Doctor	2	Government
H5	40	Reproductive health specialist	University faculty	13	Government
H6	53	Social Medicine Specialist and Sexology Fellowship	Doctor and University faculty	23	Private

Abbreviations: LDH, Lumbar disk herniation; P: Women with LDH, H: Health Care Provider.

Table 3 Categories and Sub-Categories Obtained in the Study

Categories	Sub-Categories
Challenging sexual relationships with back pain.	Pain during sex Sexual desire disorder Orgasmic disorder Decreased frequency and duration of sexual intercourse Post-sexual dysfunction
Coping strategies and recommendations	Improving Communication Pain relief Techniques Selecting an appropriate sexual position: Support from Partners Decreased the duration of penetration during sexual intercourse Promoting mental health and spiritual well-being

Challenging Sexual Relationships with Back Pain

Based on the participants' experiences in this study, these challenges include pain during or after intercourse, sexual desire and orgasm disorders, decrease in the frequency and duration of sexual activity, alongside post-sex complications. A major contributing factor to sexual dysfunction in these individuals is the fear and anxiety surrounding back pain, which can lead to long-term stress and depression. Many patients feel embarrassed to discuss these issues with their partners or healthcare providers.

Pain During Sex

The predominant complaint among women participants was pain during sexual intercourse

> Some positions that bend my back cause severe pain, making sex very difficult to tolerate. (P3-30 years old)

> I felt a lot of pain in my pelvis and lower body during sex. Certain positions made the pain worse, while others were a bit more bearable.. (P6- 30 years old)

Painful sexual positions vary among individuals. For instance:

> They reported pain during intercourse in various positions, including supine and prone, as well as back and knee pain, which made bending or extending their legs difficult. Additionally, they could not sleep on the affected side in the lateral position due to pain. (H2- with 16 years of experience)

> We use the lateral or supine position as it is less painful than the lithotomy position. (P2-34years old)

This pain, restricts the variety of positions and range of motion explored during sexual activity.

> They reported pain during intercourse and difficulty in using various positions. Their leg mobility was limited, and they also experienced knee pain (H3- with 19 years of experience)

> A herniated disc limits the range of movements and positions during intercourse, potentially reducing variety, although it does not necessarily affect frequency or desire. (P3-30 years old)

Some participants highlighted that daily chores and work stress, intensified their pain during intercourse:

> Working long hours at home often led to increased pain during intercourse. (P7-47 years old)

> My back pain worsens with my daily activities; after busy workdays, having sex that night exacerbates the pain. (P3-30years old)

Sexual Desire Disorder

Sexual desire disorder emerged as the second most common complaint after pain. Persistent pain decreased libido, strained relationships and induced anxiety, making sexual activity unappealing.

> My herniated disc significantly decreased my libido due to pain. (P6- 30 years old)

> My back pain led to depression and reduced libido. (P1- 43 years old)

> The decline in sexual desire is mainly due to how pain affects women's daily activities, resulting in diminished satisfaction and quality of intercourse. (H6, 23 years' experience)

Many women refrain from discussing sexual issues with their partners due to shame, cultural factors, a lack of emotional and sexual intimacy, insufficient understanding of their own and their partners' sexual needs, poor communication skills, and the expectation that partners should intuit their desires and concerns. This often leads to dissatisfaction in their sexual relationships and increased pain during intercourse. Individuals without positive emotional and sexual interactions, generally sustained their lower levels of desire. So Societal and interpersonal factors also contribute:

> My husband's suspicious behavior has made it impossible for me to discuss our sex life with him. I prefer silence and find his comments unbearable, which has gradually diminished my libido. (P4- 41 years old)

Women frequently engage in sexual activity without genuine desire, often out of obligation:

> My pain made me uninterested in a relationship, and I only had sex for my husband's sake. (P1- 43 years old)

> Even if sex happens, many women in our society view sexual activity as an obligation to their spouse, leading to such interactions being driven more by duty than by genuine desire. (H5- with 13 years experiences)

Individuals may occasionally utilize their problems and health issues as a rationale to abstain from engaging in sexual activity.

> Considering that middle-aged people usually suffer from discopathy and sex doesn't mean much to them, at that time, as a way to escape from sex, it becomes a privilege for them rather than an obstacle. (H4- with 2 years experiences)

Orgasmic Disorder

Some women reported difficulties achieving orgasm due to severe pain, low self-esteem, or inadequate sexual knowledge.

When I was in pain and focused on it, I couldn't concentrate enough to reach orgasm. (P6- 30 years old).

Unfortunately, I often don't orgasm, and my husband is unaware of this. Additionally, we skip foreplay before penetration. (P4- 41 years old)

Reduced Frequency and Duration of Sexual Activity

Women frequently reported a decline in sexual activity after the onset of LDH. Pain during intercourse led to shorter durations and decreased frequency, which often resulted in vaginal dryness and heightened discomfort. These pains led to a decline in our sexual relationships over time. (P5- 43years old).

I just wanted the penetration to be shorter and asked my husband to shorten the duration of intercourse. (P2- 34 years old)

These pains led to a decline in our sexual relationships over time. (P5, 43 years old)

Post-Sexual Dysfunction

Many women with herniated discs reported discomfort in the lower back and hips following sexual activity, which disrupted their sleep and mobility the next day.

I have a herniated disc on my left side, which causes significant hip pain for a few days after intercourse, making it difficult to walk. (P4- 41 years old)

Coping Strategies and Recommendations

Participants identified several strategies to address sexual challenges, focusing on communication, appropriate positioning, and pain management:

Improving Communication

While LDH may initially diminish women's libido, those who maintain in positive emotional and sexual interactions with their partners, often tend to experience an improvement in libido-related disorders over time.

We recommend enhancing sexual conversations between couples. This requires improving emotional intimacy, sexual intimacy, and sexual knowledge between partners. (H5, 13 years' experience)

Our strong friendship enhanced our sexual relationship. If my husband hadn't been so understanding of my back pain and if we had spent our time arguing, our lives would have been much more chaotic! (P1- 43 years old)

His attention and concern for my pleasure and pain, significantly alleviate my discomfort. After every sexual encounter, he checks in to see how I felt and if I had any discomfort. This open communication has definitely brought us closer, even with my herniated disc. (P3- 30 years old)

Support from Partners

Husbands played a significant role in alleviating their spouses' pain through emotional and physical support.

My husband supported me by abstaining from sex when I was in pain. He closely followed my treatment plan, often putting my needs before his own. (P1- 44 years old)

My husband used to massage my lower back before sex, which helped alleviate my pain during intercourse. (P2- 34 years old)

Pain Relief Techniques

Methods for relieving discomfort during sexual intercourse for individuals with discopathy focus on reducing pressure and alleviating pain during the activity. Regular exercise, hydrotherapy, and using heat therapy before and after intercourse were helpful for some participants.

> I exercise regularly and perform back corrective movements like the rocking or cat stretch daily. I find hydrotherapy very effective in alleviating pain. I avoid sexual activity during painful episodes, or I use a hot water bottle before and after. If the pain is severe, I take painkillers. (P2- 34 years old)

I use a hot water bottle before and after sex and take painkillers if needed. (P2, 34 years old)

Selecting an Appropriate Sexual Position

Women emphasized the importance of positions tailored to their condition. Recommended positions include reclining on the back with supportive pillows or towels, lying on the side and minimize movement during intercourse.

> Positions where my back is flat on the floor are comfortable for me. (P3, 30 years old) Standing position, significantly alleviates my pain during sex, as it exerts minimal pressure on my back. Lying on my side also helps reduce my discomfort. (P5- 43 years old)

Decreased the Duration of Penetration During Sexual Intercourse

Participants reported that prolonged penetration frequently led to heightened discomfort, which prompted them to reduce its duration. To mitigate this issue, they chose to forgo the use of condoms and engaged in prolonged foreplay. Prolonged foreplay prior to penetration has been shown to facilitate these women's orgasms by enhancing their readiness and reducing discomfort, thereby contributing to a more satisfying sexual experience.

> When I wanted to end the penetration sooner, he wouldn't use a condom because it would make the sex last longer. (P2- 34 years old)

> The man can considerably reduce the woman's discomfort by prolonging foreplay and enhancing emotional intimacy, while shortening penetration time. (H1- 10 years' experience)

Promoting Mental Health and Spiritual Well-Being

Participants enhanced their mental and spiritual well-being through the practice of positive thinking and affirmations, listening to soothing music, engaging in reading, participating in group sports, walking, practicing mindfulness, employing distraction methods to mitigate pain, and consuming calming herbal teas.

> I believe that good things must first occur in my mind. Using positive affirmations helped me feel calmer, relax my body, and reduce my stress levels. (P6- 30 years old)

Clinical Implications

Healthcare professionals, particularly neurosurgeons, often overlook sexual health concerns in women with LDH.[7] Participants stressed the importance of integrating sexual health into patient care:

"It is recommended that physicians conduct a brief sexual history and perform initial screenings during consultations. Continuing education programs should train practitioners in addressing sexual health concerns." (H5, 13 years' experience)

By addressing these challenges, the study provides valuable insights into improving the quality of life and sexual well-being of women with lumbar disc herniation.

Discussion

This study is the first qualitative investigation in Iran into the sexual health of women with lumbar disc herniation, examining their challenges in sexual relationships and coping strategies for sexual dysfunction. Sexual relationships are complex processes influenced by the nervous, endocrine, vascular, and musculoskeletal systems, as well as psychosocial factors and medication effects.[21] The findings support existing bio-psycho-social models of pain and sexual dysfunction, highlighting the interaction of physical, psychological, and social factors in determining sexual health.

The predominant experience reported by the women in this study was pain related to sexual activity. Most of them had decreased sexual desire. The mood disturbances and depression associated with the condition negatively affected the couples' sexual interactions, with the frequency and duration of sexual intercourse decreasing, and many women not experiencing orgasm.

Previous research on sexual dysfunction in individuals with chronic pain, particularly lumbar disc herniation (LDH), has reported pain as a major barrier to sexual activity in individuals with musculoskeletal conditions, and has also highlighted decreased libido and orgasmic difficulties as common problems among women with chronic pain, and supports the findings of this study. For example, In Çokar study, more than half of the patients with chronic low back pain (CLBP) experienced a decline in sexual desire, satisfaction, frequency of intercourse, and libido.[15] Srikandarajah identified the key outcomes of Cauda Equina Syndrome (CES) through a transparent international consensus process that included healthcare professionals and CES patients. Among the sixteen outcomes, sexual dysfunction was categorized under autonomic function, while pain from abnormal sensations fell under non-autonomic function, and low mood and depression were classified under quality of life.[22] A systematic review study revealed that the prevalence of sexual dysfunction in this population ranged from 26.6% to 100%. The most common sexual disorder among women was sexual desire and arousal disorder (35% to 60%), dissatisfaction with sexual activities was reported by 37% to 69% of women.[5]

While this study is consistent with most theoretical models, it also revealed unexpected findings that female-specific perspectives are not present in traditional models of pain and sexual health. The finding that some women engaged in sex despite pain, out of a sense of duty to their partners, was surprising and contradicts assumptions that pain leads to outright avoidance of sexual activity. Women's experiences, such as feeling obligated to engage in sex despite pain, suggest a need for more gender-sensitive frameworks. This may be influenced by cultural expectations around marital duties or a lack of awareness about alternatives to penetrative sex.

Our research suggests that the presence of pain and fear of pain exacerbation significantly influence the occurrence of sexual dysfunction in women with LDH. Other studies have also shown that sexual challenges experienced by patients with CLBP include fear of pain exacerbation, decreased frequency of sexual activity, decreased duration of sexual intercourse, and decreased sexual satisfaction.[15,23] The role of pain and fear-avoidance behavior is consistent with existing pain models that suggest that fear of pain during sexual activity can perpetuate sexual dysfunction. Participants' avoidance of sexual activity due to fear of back pain exacerbation reflects these theoretical frameworks.[24] Studies suggest that the prevalence of depressive symptoms in patients with CLBP is 20–25%, which is significantly higher than in the general population.[25] Factors such as depression, kinesiophobia, and catastrophic thinking linked to CLBP contribute to sexual issues. Therefore, as participants in our study also noted, the impact of psychological disorders, such as anxiety, low self-esteem, and depression, is consistent with sexual health theories that emphasize the importance of psychological well-being in maintaining healthy sexual relationships. Therefore, it is essential to assess psychosocial factors alongside physical and pain-related concerns during treatment planning. Encouraging patients to address their sexual concerns and providing guidance on managing pain during sexual activity is crucial.[15]

Participants in our study emphasized that promoting mental health is a critical strategy for enhancing sexual function in women with lumbar disc herniation, and key informants emphasized the need for informed psychological support. O'Connor also highlights the need for psychological support. Her study found that the mental health of many women with cauda equina syndrome is severely affected, and that loss and grief are integral components of the CES experience, suggesting that strategies for coping with these emotions should be available. In addition, interventions should include psychological strategies aimed at addressing concerns about incontinence, negative self-perception, and reduced self-esteem, which are crucial for nurturing and maintaining interpersonal relationships. Women report that sexual issues and sexual function are not adequately addressed by health professionals. Rehabilitation should include a multidisciplinary focus on sexuality after CES.[6]

Adjusting sexual positions for the woman's comfort was recommended. Lithotomy was identified as the most painful position, while supine and side-lying were the most comfortable In the Çokar study, the supine position was found to be the most comfortable for sexual intercourse in patients with CLBP, though the study shows inconsistencies regarding the most painful position.[15] The variation may arise from discrepancies in the location and severity of disc herniation, as well as individual biomechanical factors. Several participants indicated that insufficient foreplay could exacerbate discomfort

by diminishing arousal and leading to vaginal dryness. Future research should explore the impact of foreplay and non-penetrative sexual activities on sexual satisfaction and pain alleviation.

Women participating in our research encountered difficulties within their spousal relationships; those who reported high levels of emotional intimacy demonstrated improved sexual function. Sexual health experts also believe that better couples' relationships can improve sexual performance. Similarly, in O'Connor's investigation, women mentioned alterations in their relationships following the onset of cauda equina syndrome. O'Connor's findings shed light on the detrimental effects of CES on women's sexuality, encompassing both direct and indirect consequences.[6] Partner communication and support are crucial aspects of interpersonal relationship models that focus on shared understanding and mutual adjustment in response to physical health challenges.[26]

As key informants in our study emphasized, sexual health is rarely addressed by healthcare providers during spine care. This has been noted in other studies, and it appears that the profession as well as the type of surgery plays a role in discussing sexual health during consultation. Thirty-five percent of healthcare providers believed that patients should initiate discussions about sexual health, and the majority of respondents (61.4%) reported that they rarely or never discussed sexual dysfunction with their patients. A significant majority of physicians (71.9%) agreed that more emphasis should be placed on the sexual health of spine patients in the training of junior healthcare professionals. Integrating education on sexual health communication into healthcare providers' curricula is essential.[7] In one study, training of surgeons was not sufficient to sensitize them to recording sexual dysfunction as a complication associated with cauda equina syndrome. This suggests that despite the importance of sexual function for long-term outcomes, education alone is not sufficient and more comprehensive interventions are needed.[27] Conversely, participants in Hall's study indicated that they felt ignored by healthcare professionals, leading to feelings of hopelessness, perceived injustice, and social isolation.[28]

So In our study, healthcare providers highlighted the importance of managing sexual issues in women with LDH, through a team approach. O'Connor also considers a multidisciplinary approach is essential to effectively address the physical, emotional, cognitive, and behavioral implications associated with sexuality within the rehabilitation process.[6]

Conclusion

The findings of this study highlight the profound and multifaceted impact of lumbar disc herniation (LDH) on women's sexual health, emphasizing the urgent need for targeted, practical interventions. Comprehensive care requires addressing the physical, psychological, and sociocultural dimensions of sexual dysfunction associated with LDH. Effective strategies might include tailored pain management plans that integrate pharmacological treatments, physiotherapy, and ergonomic sexual aids, alongside counseling programs designed to support women and their partners in navigating the unique challenges posed by LDH. The results underscore the importance of integrating sexual health into routine clinical assessments and suggest practical strategies such as individualized pain relief techniques, improved partner communication, and recommendations for adaptive sexual positions. Open and honest communication between partners, supported by culturally sensitive approaches, is critical to addressing diverse experiences and beliefs regarding sexual health. Furthermore, incorporating sexual health assessments into standard healthcare practices and developing evidence-based clinical guidelines for healthcare professionals can ensure consistent and systematic support for women affected by LDH. A holistic approach—one that considers physical, emotional, and relational aspects of health—is essential for achieving meaningful improvements in the quality of life for these women. Healthcare providers must adopt a patient-centered perspective, focusing not only on disabilities or physical symptoms but also on the individual's overall well-being. Training programs should aim to equip healthcare professionals with the skills and confidence needed to address sexual health as an integral component of clinical care, ensuring that this critical aspect of women's health is neither overlooked nor stigmatized.

Strengths and Limitations

This study provides a unique contribution by identifying post-sexual dysfunction—such as next-day pain and mobility issues—an area that has received limited attention in previous research. It also highlights the significant influence of sociocultural dynamics, including women's feelings of obligation toward their husbands, which are often absent from Western-centric studies but are particularly relevant in more traditional cultural contexts. Such sociocultural factors likely

contributed to participants' reluctance to openly discuss sexual difficulties with their partners, a phenomenon less commonly reported in studies conducted in Western settings.

The study addresses critical gaps in the literature by amplifying the voices of women with lumbar disc herniation (LDH) and sexual dysfunction, emphasizing the importance of developing targeted, culturally informed interventions. By examining how cultural norms shape sexual health experiences and communication, this research expands the scope of existing studies, which often lack contextual specificity. These findings underscore the need for culturally sensitive approaches that acknowledge the complex interplay between physical health, relational dynamics, and cultural expectations, ultimately advancing a more inclusive and comprehensive understanding of sexual health in diverse populations.

Our study focused exclusively on women with lumbar disc herniation (LDH) and healthcare experts, excluding the perspectives of male partners. Incorporating partners' viewpoints could have offered a more comprehensive understanding of the relational and sexual dynamics affected by LDH. Future research should aim to include the perspectives of partners to better capture the bidirectional impact of LDH on intimate relationships. Additionally, exploring cross-cultural comparisons would provide deeper insights into how sociocultural norms and beliefs shape sexual health experiences, thereby enhancing the generalizability and applicability of findings across diverse populations.

Data Sharing Statement

The data sets used and/or analyzed during the current study available from the corresponding author on reasonable request.

Ethical Statement

The study was conducted according to the guidelines of the Declaration of Helsinki and approved by the ethics committee of Tarbiat Modares University, Tehran, Iran (ethics code: IR.MODARES.REC.1401.168). All the authors have approved their consent for the publication of this work. Before participating in the study, written informed consent was obtained from the women and oral consent was obtained from the experts participating in the study. Also, consent to use the audio recorder during the interview was obtained from each participant. The participants informed consent included publication of anonymized responses/direct quotes.

Consent to Participate

Written informed consent was obtained from all participants prior to their inclusion in the study.

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Author Contributions

All authors made a significant contribution to the work reported, whether that is in the conception, study design, execution, acquisition of data, analysis and interpretation, or in all these areas; took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; have agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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Disclosure

The authors report no conflicts of interest in this work.

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