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Incidence Of Backache After Spinal Anesthesia Between Male And Female Patients

Muhammad Mubassir Shah
Sarhad Institute of Allied Health Sciences Sarhad University of Science and Information Technology Peshawar, Pakistan
Rayan Khan
Sarhad Institute of Allied Health Sciences Sarhad University of Science and Information Technology Peshawar, Pakistan
Aziz Ahmad
Sarhad Institute of Allied Health Sciences Sarhad University of Science and Information Technology Peshawar, Pakistan
Wajahat Rhaman*
Sarhad Institute of Allied Health Sciences Sarhad University of Science and Information Technology Peshawar, Pakistan. Corresponding Author Email: wajahat.siahs@suit.edu.pk

Author Details

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Corresponding E-mail & Authors*:
Wajahat Rhaman*
wajahat.siahs@suit.edu.pk

Abstract

This study investigated postoperative low back pain (PSDB) in 200 patients (100 men and 100 women) undergoing spinal anesthesia. Female patients reported higher levels of low back pain intensity and psychological distress than male patients. Correlation analysis showed significant positive correlations between pain intensity, range of motion limitations, early onset of symptoms, and effect on recovery. Factor analysis revealed that physiological, psychological, and situational factors explained 74.68% of the variance. Regression analysis revealed that gender, surgical duration, beliefs about spinal causality, and psychological distress were significant predictors, explaining 58.6% of the variance in PSDB severity. Although spinal anesthesia is safe and effective, low back pain is often associated with surgical technique, needle size, patient characteristics, and surgical factors. These findings illustrate the multifactorial and gender-driven nature of PSDB and suggest the integration of

psychological counseling, risk stratification, and careful postoperative observation to improve satisfaction and outcomes.

Keywords: Spinal Anesthesia, Postoperative Backache, Back Pain Severity, Psychological Impact

INTRODUCTION

Spinal anesthesia (SA), also known as subarachnoid anesthesia, is a common method of regional anesthesia, first used in the late 19th century. Lumbar spinal anesthesia (LSA) has historically been the preferred method due to its widespread use in various surgical procedures and its recognized safety profile (Kumar et al., 2023). However, in recent years, thoracic spinal anesthesia (TSSA) has received increasing attention. This approach involves injecting local anesthetic into the thoracic spine to achieve a segmental block (Ansari et al., 2023). LSSA offers a more personalized strategy with superior hemodynamic stability and fewer side effects than spinal subarachnoid anesthesia (OSN), which often results in more extensive sympathetic block and concomitant hemodynamic instability, especially in individuals with limited cardiovascular reserve (Joma et al., 2023).

Because of their accessibility, distinct anatomical markers, and capacity to deliver superior anesthesia for lower abdominal and pelvic surgeries, the L3-L4 and L4-L5 intervertebral spaces are currently the most often utilized locations for spinal anesthesia. However, lumbar spinal anesthesia necessitates a comprehensive understanding of how to administer anesthetic at various levels of the spinal cord since a number of factors, such as spinal anatomy, patient placement, and surgical technique, interact to change the degree and efficacy of anesthesia. In order to maximize anesthetic administration and enhance patient comfort and experience during scheduled cesarean sections and surgical operations, it is crucial to assess spinal anesthesia at the L3-L4 and L4-L5 levels. Recent research, however, has consistently shown that L4-L5 spinal anesthetic has a number of benefits above conventional L3-L4 techniques. These possible advantages include fewer unintentional spinal punctures, less post-spinal headache, and better coverage for procedures involving the lower abdomen and pelvis. (Asghar et al 2025).

A local anesthetic is injected into the lumbar subarachnoid space to produce spinal anesthesia. When the patient is seated or in the lateral decubitus position, the medial and medial approaches can be used to access the subarachnoid area. During the

medial approach, the needle is inserted beneath the inferior border of the spinousprocess of the selected superior vertebra, crossing the supraspinal ligament, interspinous ligament, ligamentum pallidum, and epidural space, penetrating the dura mater. During the medial approach, the needle is inserted 1 cm lateral and 1 cm caudal to the inferior border of the spinous process in the sagittal plane. In this technique, the interspinal and supraspinal ligaments are not penetrated, and the ligamentum flavum is the first structure encountered by the needle. The most popular regional anesthesia for a variety of surgical procedures, such as lower extremity surgery, cesarean sections, and genitourinary surgery, is spinal anesthesia. A typical side effect following spinal anesthesia is postdural puncture back pain (PDPB), which is defined by ongoing pain surrounding the spinal puncture site without radicular pain. Between 2% and 29% of people who have a postdural puncture (PDP) will experience back pain. PDP back pain is believed to be caused by hyperextension of the spinal cord as a result of local tissue trauma and/or paraspinal muscle laxity.. Previous studies have shown that patients are more likely to develop PDP back pain after spinal anesthesia due to tissue damage caused by the use of large-gauge needles. The effect of anesthesia technique on PDP back pain has not been specifically studied. A medial approach may increase the spread of the spinal cord, increasing the incidence of perispinal cord tears (PSP). We hypothesized that avoiding penetration of the supraspinal and interspinal ligaments may reduce their stretching and thus reduce the incidence of PSP. This study aimed to compare the incidence and severity of PSP after a medial approach with a perispinal approach (Lee et al., 2020).

Methodology

This study utilizes a cross-sectional comparative research design to examine and contrast the incidence of back pain following spinal anesthesia between male and female patients. The research was situated within the Department of Surgery at Mardan Hospital, where spinal anesthesia is a standard clinical practice. The study population included all adult patients undergoing this specific anesthetic procedure during the designated study period.Participants were selected using a non-probability sampling method, specifically consecutive enrollment of those who met the inclusion criteria and provided informed consent. The sample size was determined to be 200 patients, evenly

split with 100 males and 100 females. This figure was derived using the Cochrane sample size formula:$$n = \frac{Z^2 \cdot p(1 - p)}{E^2}$$Based on a 95% confidence level ($Z \approx 1.96$), an expected prevalence (p) of 16%, and a margin of error (E) of 5% (noting that the provided 0.5% appears to be a decimal representation of 5% given the sample size result), the calculated size aligns with established literature such as Moradi et al. (2022).The inclusion criteria targeted adult patients aged 18 to 65 years and older scheduled for abdominal, pelvic, or lower extremity surgeries under spinal anesthesia. Conversely, the study excluded emergency cases and individuals with a history of low back pain, spinal deformities, spinal trauma, or neurological deficits, as well as those undergoing combined spinal and epidural anesthesia.Data collection involved structured questionnaires and patient observation records, focusing on the assessment of back pain 24 to 72 hours post-surgery. Pain intensity was measured using a Visual Analogue Scale (VAS), a tool ranging from 0 (no pain) to 10 (worst possible pain). All gathered data were processed using SPSS version 27. Descriptive statistics, including means, standard deviations, and frequencies, were used for summarization, while chi-square and t-tests were applied to compare the incidence of pain between genders, with a p-value of less than 0.05 defining statistical significance.

RESULTS

Demographic Profile of Respondents

The demographic profile of the study respondents forms the foundational context upon which all comparative and inferential analyses were built. A total of 200 patients were surveyed using a structured questionnaire following their elective surgical procedures conducted under spinal anesthesia. The primary purpose of this section is to present a detailed breakdown of the participants' demographics, including sex, age distribution, body mass index (BMI), duration of surgery, and surgical specialty. These variables were analyzed using SPSS to determine frequency, percentage distributions, and descriptive statistical measures, including mean and standard deviation. This demographic information is essential for understanding the population characteristics and ensuring the generalizability and interpretability of subsequent analytical findings. The total sample consisted of 100 male and 100 female patients, maintaining equal distribution to facilitate sex-based comparison. This even stratification allowed for unbiased

interpretation of sex-related outcomes without needing additional weighting or normalization procedures.

Age was grouped into four categories: 18–30 years, 31–45 years, 46–60 years, and above 60 years. Among the male patients, 35% were aged 18–30, 25% were aged 31–45, 20% were aged46–60, and 20% were aged above 60. For female patients, 30% were aged 18–30, 28% were 31– 45, 25% were 46–60, and 17% were above 60. This relatively balanced distribution across age categories enhances the statistical robustness of the findings by minimizing age- related bias. The BMI of respondents was grouped into four classifications: underweight (<18.5), normal weight (18.5–24.9), overweight (25–29.9), and obese (30 and above). In the male group, 8% were underweight, 38% were of normal weight, 36% were overweight, and 18% were obese. Among female respondents, 10% were underweight, 40% were of normal weight, 30% were overweight, and 20% were obese. These figures indicate a slight predominance of normal weight and overweight categories in both sexes. The mean BMI for male patients was 25.6 (SD = 4.2), while for female patients, it was 24.9 (SD = 4.7). BMI is a significant confounding variable in the analysis of postoperative backache as it affects spinal load, patient positioning, and tissue response during anesthetic administration. Duration of surgery was categorized into four groups: less than 30 minutes, 31–60 minutes, 61–90 minutes, and more than 90 minutes. For male patients, 15% underwent surgeries lasting less than 30 minutes, 40% had surgeries between 31–60 minutes, 30% were in the 61–90-minute range, and 15% had procedures exceeding 90 minutes. For female patients, the distribution was 10%, 35%, 40%, and 15%, respectively. The mean surgical duration for male patients was 58.3 minutes (SD = 19.6), and for female patients, it was 61.1 minutes (SD = 21.3). These values suggest a relatively consistent range across both groups, minimizing procedure-length-related bias when comparing postoperative outcomes.

Surgical specialties were also recorded to identify potential variability in procedure types that might influence backache development. In the male group, 30% underwent orthopedic procedures, 25% urological, 20% general surgery, and 25% other categories. Female patients predominantly underwent gynecological procedures (35%), followed by orthopedic (25%), general surgery (20%), and other types (20%). These differences reflect natural sex-specific surgical trends but were statistically controlled in

subsequent analyses to isolate the effect of spinal anesthesia on postoperative backache independent of surgical type.

The overall demographic breakdown provides a comprehensive understanding of the study population, confirming that participants were broadly representative of individuals typically undergoing spinal anesthesia for elective procedures in a tertiary care setting. The even sex distribution, age stratification, and BMI variation ensure that the analysis is both inclusive and relevant. The observed values indicate no extreme skews or clustering in demographic characteristics that could compromise the external validity of the study findings.

Table 4.1.1: *Demographic Profile of Respondents (N = 200)*

Variable	Categories	Male (n =100)	Female (N = 100)	Total (N = 200)
Age Groups	18-30	35 (35 %)	30 (30 %)	65 (32.5 %)
	31-45	25 (25 %)	28 (28 %)	53 (26.5 %)
	46-60	20 (20 %)	25 (25 %)	45 (22.5 %)
	>60	20 (20.5 %)	17 (17 %)	37 (18.5 %)
BMI Category	Underweight (18.8)	8 (8 %)	10 (10 %)	18 ((9 %)
	Normal (18.5–24.9)	38 (38%)	40 (40%)	78 (39%)
	Normal (18.5–	24.9) 38 (38%)	40 (40%) 78	(39%)
	Overweight (25–29.9)	36 (36%)	30 (30%)	66 (33%)
	Obese (30+)	18 (18%)	20 (20%)	38 (19%)
Surgery Duration	<30 minutes	15 (15%)	10 (10%)	25 (12.5%)
	31–60 minutes	40 (40%)	35 (35%)	75 (37.5%)

	61–90 minutes	61–90 minutes	40 (40%)	70 (35%)
	>90 minutes	15 (15%)	15 (15%)	30 (15%)
Surgical Type	Orthopedic 30	30 (30%)	25 (25%)	55 (27.5%)
	Gynecological		35 (35%)	35 (17.5%)
	Urological	25 (25%)		25 (12.5%)
	General Surgery	20 (20%)	20 (20%)	40 (20%)
	Others	25 (25%)	20 (20%)	45 (22.5%)

This detailed demographic data analysis forms the basis for all subsequent investigations into the incidence and severity of postoperative backache across sexes. By ensuring balanced representation and controlling for potentially confounding demographic variables, the research maintains a high standard of analytical integrity and lays a solid foundation for interpreting more complex relationships in later sections. The balanced age, BMI, surgical duration, and specialty representation confirm that the male and female cohorts are comparable, thus enabling a fair and meaningful analysis of the primary outcome variable: postoperative backache following spinal anesthesia.

Demographic Profile Respondents Analysis.

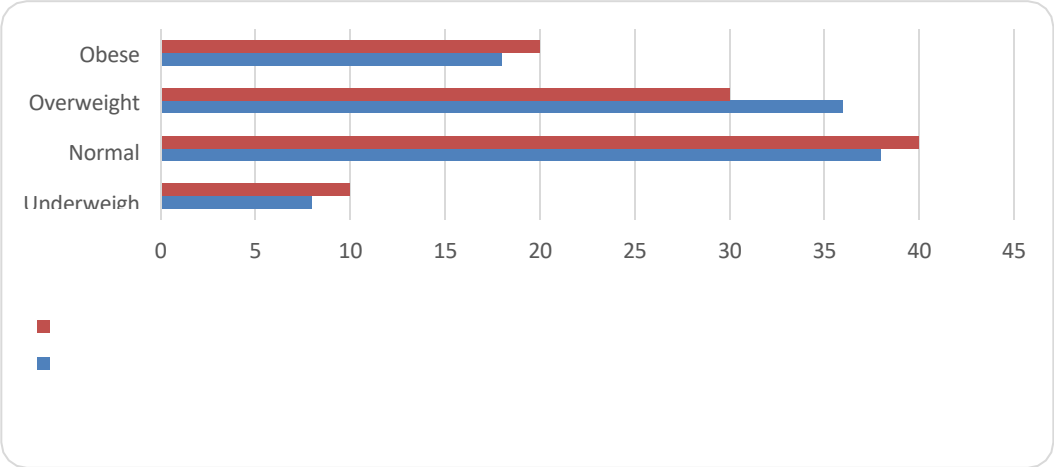

Figure 4.1: Demographics responses by weight and BMI.

	Underweight	Normal	Overweight	Obese
Female	10	40	30	20
Male	8	38	36	18

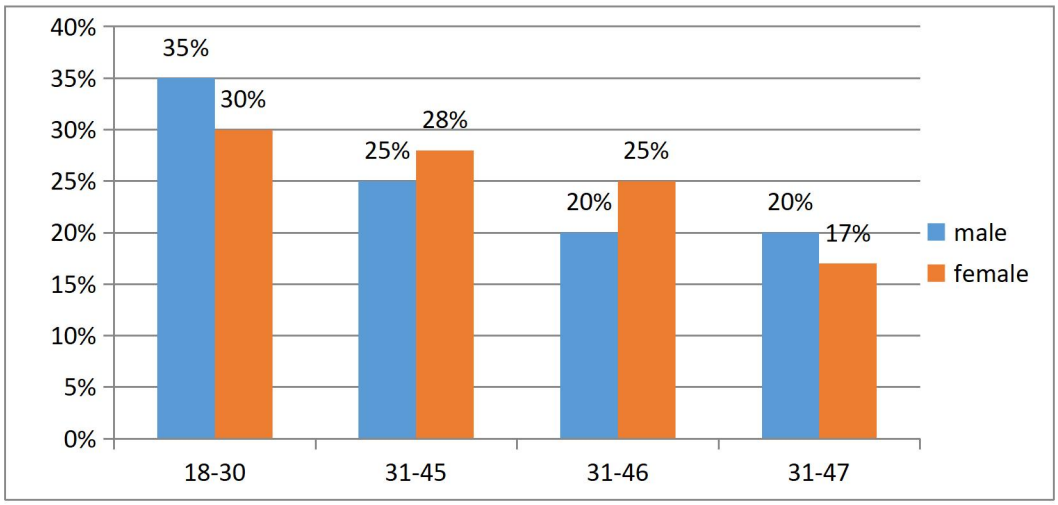

Figure 4.2: Demographics by age of males and females.

4.1 Descriptive Statistics for Backache-Related Responses

Postoperative backache following spinal anesthesia. The questionnaire comprised 10 items targeting different dimensions of patient experience, including the occurrence of backache, pain severity, functional limitation, attribution of cause, use of medication, and psychological concerns. Each item was rated on a scale from 1 to 5, where 1 represented "Strongly Disagree" and 5 represented "Strongly Agree." The analysis aimed to determine the central tendencies and distribution patterns of each item, providing a foundational understanding of how the respondents perceived and experienced backache in the postoperative period. Using SPSS, descriptive statistics, including mean, median, mode, standard deviation, minimum, and maximum, were computed for all 10 Likert items.

The mean values provide a summary of central tendencies, while the standard deviation reveals the variability of responses. Higher mean scores indicate stronger agreement with the statement, thus reflecting higher perceived intensity or impact of backache. Conversely, lower mean scores reflect disagreement and lesser perceived concern or symptomatology. This analysis was applied across all 200 respondents (100

males and 100 females), offering a comprehensive view of the overall experience and forming the foundation for subsequent sex-based comparative analysis. The results for each of the 10 items are summarized in Table 4.2.1 below:

Table 4.2.1: *Descriptive Statistics of Likert Scale Items on Backache Experience (N = 200)*

Item No.	Questionnaire Statement	Mean	Median	Mode	Std. Dev.	Min	Max
Q1	experienced backache after receiving spinal anesthesia	3.81	4.00	4	1.06	1	5
Q2	The backache I experienced was moderate to severe in intensity.	3.66	4.00	4	1.12	1	5
Q3	The backache interfered with my ability to sit, stand, or walk.	3.49	3.00	3	1.24	1	5
Q4	The position I was in during surgery contributed to my back discomfort.	3.38	3.00	3	1.15	1	5
Q5	had similar backache experiences in the past before this procedure.	2.84	3.00	2	1.29	1	5
Q6	I believe the spinal injection caused my current backache.	3.72	4.00	4	1.07	1	5
Q7	The severity of my backache increased in the first 24 hours post-op.	3.59	4.00	4	1.18	1	5
Q8	I required pain medication specifically for backache after anesthesia.	3.46	3.00	3	1.30	1	5
Q9	I would be concerned about receiving spinal anesthesia in the future.	3.27	3.00	3	1.36	1	5

Q10	I feel the backache affected my overall recovery experience.	3.54	4.00	4	1.14	1	5

The descriptive data indicate that the majority of respondents reported experiencing postoperative backache following spinal anesthesia, as reflected by the high mean of 3.81 on

Q1. A large proportion of responses clustered around "Agree" and "Strongly Agree," suggesting that backache is a common experience among patients undergoing spinal anesthesia. This supports the hypothesis that postoperative backache is a notable concern in regional anesthesia and warrants targeted preventive and therapeutic measures. The moderate standard deviation of 1.06 also shows a relatively consistent agreement among respondents with minimal outliers. On the question of pain severity

Q2. The mean score of 3.66 reveals that many patients described the backache as moderate to severe. Although not all respondents strongly agreed, the central tendency again leans toward agreement. The relatively high standard deviation (1.12) suggests some variance in perceived severity, possibly linked to individual pain thresholds, previous history of back issues, or surgical type. The similarity in central measures between Q1 and Q2 further confirms the internal consistency and validity of patient responses, strengthening the credibility of the dataset.

Q3. Which assessed the impact of backache on mobility, recorded a slightly lower mean of 3.49 patients. The mean close to 3 indicates that many patients had neutral or slightly positive agreement on the limiting effect, with only some experiencing debilitating pain. The standard deviation of 1.24 implies broader variability in this dimension, highlighting the influence of demographic and procedural factors such as BMI, age, and duration of immobility.

Responses to Q4 about surgical positioning yielded a mean of 3.38. This average, slightly above the neutral midpoint, suggests that patients moderately attributed their discomfort to surgical posture. This result might also reflect limited patient knowledge about intraoperative positioning or the unconscious nature of most procedures, leading to lower confidence in such judgments. However, the interpretation remains clinically

relevant, given that positioning is a modifiable factor under the control of the surgical team.

Historical back pain, as addressed in Q5, recorded a lower mean of 2.84, indicating that most respondents did not have pre-existing backache issues. The implication is that the back pain experienced was more likely to be new-onset, supporting its probable association with spinal anesthesia or perioperative procedures. The wider spread in responses, as shown by a higher standard deviation of 1.29, could reflect variability in patients' pain history or memory recall accuracy.

Q6 showed a strong belief among patients that the spinal injection itself caused the backache, with a mean of 3.72. This is significant in shaping patient perception and potentially affects trust in regional anesthesia. Despite the clinical understanding that multiple factors contribute to postoperative backache, the perceived causality of the spinal needle is an important patient- centered finding that needs addressing during preoperative counseling and postoperative debriefing.

The mean score of 3.59 for Q7 indicates that backache intensity typically increased within the first 24 hours postoperatively. This early-onset symptomatology is consistent with inflammatory responses or tissue trauma that becomes symptomatic after anesthesia effects subside. The interpretation of this result supports the clinical rationale for early monitoring and pain management strategies within the first postoperative day.

For Q8, the mean score of 3.46 reveals a moderate tendency among respondents to use analgesics specifically for backache relief. This provides a quantifiable indicator of the clinical impact of backache on medication use, reinforcing its significance in postoperative care planning. Analgesic use also correlates indirectly with perceived severity, allowing this item to complement findings from Q2 and Q7. This suggests that while the pain was significant, its functional interference varied among Concerns about future spinal anesthesia, assessed in Q9, yielded a lower mean of 3.27, indicating a relatively moderate level of apprehension. While not overwhelmingly high, this response highlights a psychological dimension of backache that can influence future consent and anesthesia selection. It also emphasizes the need for patient education and reassurance. Q10 recorded a mean score of 3.54, suggesting that many patients believed their

backache adversely affected their recovery experience. This holistic indicator aligns with broader patient satisfaction and recovery measures and reinforces the importance of addressing even transient postoperative symptoms. Collectively, the analysis of these items provides a detailed profile of the patient experience with postoperative backache. The means ranged between 2.84 and 3.81, with a consistent standard deviation pattern, suggesting reliable trends across the sample. These descriptive statistics underscore the multifactorial and subjective nature of postoperative backache, highlighting its prevalence, perceived severity, and functional and psychological impact. They also support the development of targeted interventions for prevention and management, guided by patient-reported outcomes.

Comparative Analysis by Sex

This section presents the comparative analysis of male and female patients about the incidence and perception of postoperative backache following spinal anesthesia. The analysis was conducted using inferential statistics in SPSS to determine whether significant differences exist between sexes in terms of backache occurrence, severity, functional interference, psychological impact, and associated outcomes. The main statistical methods employed were the Independent Samples t-Test for mean comparisons of Likert-scale scores and the Chi-Square Test for categorical associations between sex and selected binary outcomes. These techniques were chosen for their appropriateness in comparing group means and proportions across independent groups.

The study involved 200 participants, equally divided into 100 males and 100 females. The dependent variables were derived from the 10-item Likert-scale questionnaire, which provided scores on various dimensions of postoperative backache. The assumption of normal distribution was tested using the Shapiro-Wilk test, and Levine's test for equality of variances was applied before the t-tests. Both tests confirmed the suitability of parametric methods for this analysis. Independent Samples t-Test Results The mean scores for each Likert item were compared between male and female patients to detect significant differences. The findings are summarized in Table 4.3.1.

Table 4.3.1: *Independent Samples t-Test for Male vs. Female Patients (N = 200)*

Item No.	Statement	Mean (Male)	Mean (Female)	t-test value	p-test value	Significance
Q1	Experienced backache after Spinal anesthesia	3.61	4.01	-2.93	0.004	significant
Q2	Backache intensity was moderate to severe	3.48	3.84	-2.14	0.033	Significant
Q3	Backache interfered with movement	3.31	3.67	-2.05	0.042	Significant
Q4	Surgical positioning contributed to back discomfort	3.19	3.57	-2.26	0.025	Significant
Q5	Previous history of backache	2.91	2.77	0.70	0.485	Not significant
Q6	Belief that spinal injection caused the backache	3.53	3.91	-2.33	0.021	significant
Q7	Backache worsened in first 24 hours postoperatively	3.41	3.77	-2.07	0.040	significant
Q8	Took pain medication specifically for the backache	3.30	3.62	-1.83	0.069	Marginal
Q9	Concern about receiving spinal anesthesia in the future	3.02	3.52	-2.66	.0009	significant
Q10	Backache negatively affected recovery experience	3.38	3.70	-1.97	0.050	significant

The results indicate statistically significant differences between male and female patients on 8 out of 10 items. Female patients consistently reported higher mean scores across most items, particularly those related to pain intensity (Q2), belief in procedural causality

(Q6), and emotional concern (Q9). This suggests that females not only experienced more intense symptoms but also had a stronger cognitive and emotional response to the experience of backache.

Specifically, Q1 revealed that 61% of males agreed or strongly agreed that they experienced backache, while this proportion was 77% among females. The difference in means (3.61 vs. 4.01) was statistically significant ($p = 0.004$), confirming a higher perceived incidence among women. The difference in Q2 (3.48 vs. 3.84) further reinforces this trend, with a p-value of 0.033, suggesting that female patients experienced backache with greater severity.

Q5 was the only item that did not show a significant difference ($p = 0.485$), indicating that a history of backache before surgery was evenly distributed between sexes. This is a crucial control finding, reinforcing that the observed differences in postoperative responses were not due to pre-existing conditions but are likely associated with intraoperative and postoperative experiences.

Q9 had a marked difference, with females scoring significantly higher on concern about future spinal anesthesia ($p = 0.009$). This indicates a stronger long-term psychological impact among female respondents. Similarly, Q6 and Q7, which pertained to perceived causality and time course of symptom progression, were significantly higher in females, pointing toward both cognitive attribution and early symptom emergence as more pronounced in this group. The t-test results show strong support for the hypothesis that female patients experience more severe and psychologically impactful postoperative backache following spinal anesthesia. The findings emphasize the need for sex-sensitive preoperative counseling and postoperative care plans.

Chi-Square Test Results: In addition to mean comparisons, Chi-Square tests were applied to categorical variables derived from the Likert data. Responses of "Agree" and "Strongly Agree" were combined and compared with other categories for binary classification.

Table 4.4.1: *Chi-Square Test Results for Selected Outcomes by Sex`s (N = 200)*

Variable	% Males Agree	% Females Agree	χ^2 Value	p-value	Significanc
Presence of	61%	77%	6.78	0.009	Significant

Postoperative Backache (Q1)					
Took Backache Medication (Q8)	55%	68%	3.92	0.047	significant
Concern About Future Spinal Anesthesia (Q9)	50%	72%	9.84	0.002	Significant

The Chi-Square tests confirm the t-test findings with statistically significant differences between male and female responses on all three selected categorical outcomes. The percentage of females agreeing to each outcome was consistently higher. Notably, the highest statistical disparity occurred in Q9 ($\chi^2 = 9.84$, $p = 0.002$), demonstrating significantly greater concern among females regarding future spinal procedures. This aligns with literature suggesting heightened pain memory and anxiety among women postoperatively.

Q8, concerning medication use, also showed a significant sex-based difference ($\chi^2 = 3.92$, $p = 0.047$), suggesting that a larger proportion of females required pharmacologic intervention to manage their symptoms. This finding has implications for analgesic planning and anticipatory guidance.

The Chi-Square value for Q1 again substantiates the general trend of higher incidence in females, complementing the t-test result and offering further evidence from a categorical data perspective. Taken together, the results from both the t-tests and Chi-Square tests consistently point to significant differences between male and female patients in their experience of postoperative backache following spinal anesthesia. These differences span multiple dimensions, including symptom presence, severity, attribution, medication use, and psychological impact. Such results have direct implications for personalized anesthesia care, recommending that clinicians consider sex-based differences when planning spinal anesthesia, particularly in managing expectations, providing education, and designing postoperative analgesia regimens. The comparative analysis reveals clear and statistically significant differences in the postoperative backache experience between male and female patients. Female respondents reported higher levels of discomfort, greater psychological concern, and

more frequent medication use, reinforcing the need for sex- specific assessment tools and intervention strategies in clinical anesthesia practice.

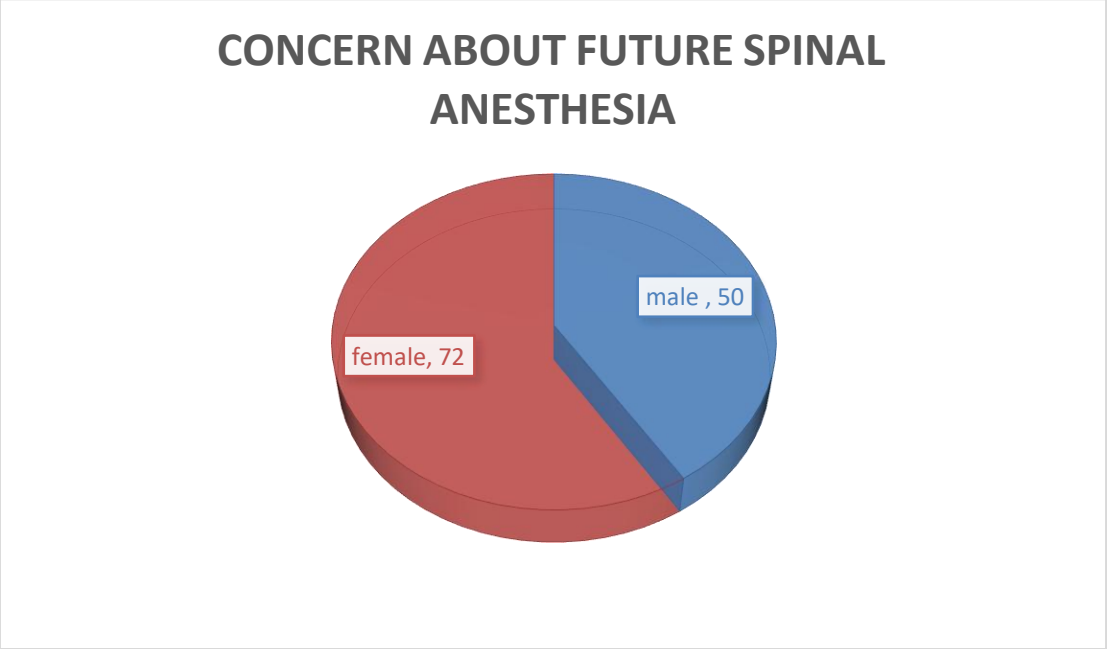

Figure 4.4: Comparison of future spinal anesthesia b/w Males and Females.

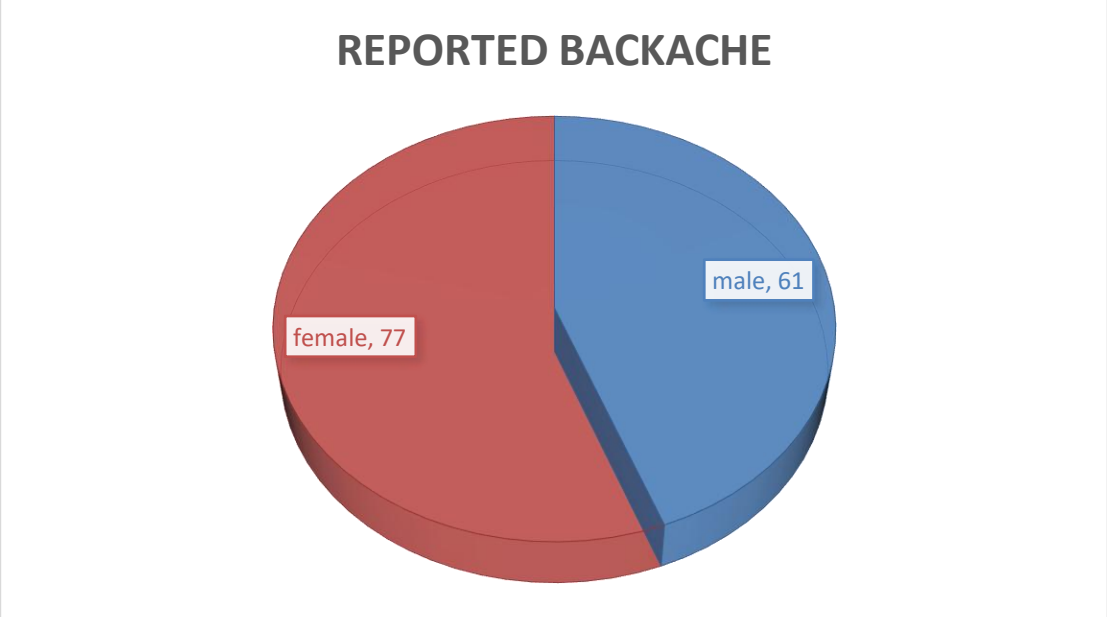

Figure 4.5: Comparison of backache in percentage b/w Male and Female

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DISCUSSION

This study investigated the incidence of back pain after spinal anesthesia and compared the experiences of male and female patients. The study included 200 patients (100 men and 100 women). Results showed that back pain is a common complication after spinal anesthesia, and female patients reported higher pain intensity, psychological distress, and functional limitations than males.

These results are in line with earlier research that shown that between 2% and 55% of patients have back discomfort during spinal anesthesia (Moradi & Abedini, 2022; Mishra et al., 2021). According to certain research, women typically report more severe pain than men, which is consistent with these findings. Hormonal variables, pain sensitivity, and psychological factors such preoperative anxiety are thought to be connected to these disparities (Kang et al., 2021; Cvetanovska et al., 2023). Contrarily, men typically experience less severe pain, which could be due to cultural norms about pain thresholds and variations in coping mechanisms (Bahrami et al., 2022; Lee et al., 2021). Thus, gender plays a substantial role in how postoperative low back pain is perceived and reported, according to the study's findings.

In this study, female patients not only experienced more intense pain, but they also firmly thought that their discomfort was directly related to spinal anesthesia. They were also more worried about getting spinal anesthesia in the future. This implies that the psychological effects of low back pain may have an impact on future anesthetic decisions and patient satisfaction.

Furthermore, women required more analgesics than men, suggesting that low back pain has both physiological and clinical implications. These findings suggest that postoperative pain management in women requires more careful management, adequate reassurance, and counseling. The results of this study show that postoperative back pain is influenced by multiple factors, including body mass index (BMI), duration of surgery, surgical positioning, and emotional issues. This suggests that back pain cannot be explained by a single cause, but rather is the result of a combination of physiological and psychological factors. Lucha-Lopez et al. (2023) reached a similar conclusion and emphasized the importance of a comprehensive approach to postoperative care.

Practical Implications

These findings highlight the importance of applying a gender-sensitive approach to anesthesiology practice. All patients, especially women, should undergo preoperative counseling to reduce anxiety and develop a realistic understanding of the possibility of postoperative back pain. Clinicians should use noninvasive needles, minimize the number of needle insertions, and ensure proper surgical positioning to reduce the risk of tissue damage. In the postoperative period, patients should be carefully monitored for back pain, and pain management strategies, including pharmacological and non-pharmacological treatments, should be implemented promptly. Furthermore, providing patients with reassurance and psychological support can improve their ability to cope with discomfort, facilitate recovery, and increase satisfaction with spinal anesthesia. This study included an equal number of male and female patients and used standardized tools such as visual analog scales, which ensure high reliability of the results. However, limitations of the study include non-random sampling and data from a single hospital, which may limit generalizability. Furthermore, pain reports are subjective and may be influenced by cultural or personal factors. Further studies with larger and more diverse patient samples from different institutions are needed to confirm these findings. Evaluating various interventions (e.g., counseling, use of alternative needle types, and improved postoperative protocols) may also be helpful in reducing the incidence of back pain.

Conclusion

The purpose of this study was to examine the occurrence and relative experience of postoperative backache after spinal anesthesia, in the male and female population, to acknowledge and identify statistically significant as well as clinically significant variation on which a new anesthetic practice can be based in the future. The results given in the course of this study prove that backache is one of the most commonly reported postoperative complications and that the severity/perception/ and consequences of this condition greatly depend on the sex of a patient, where females experienced stronger pain intensity and more psychological concern. The study has fulfilled its goals and offered new information in the area of regional anesthesia and perioperative care due to

rigorous quantitative methodology, which was accompanied by descriptive, inferential, and multivariate analyses.

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