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Perspectives on treatment decision-making across racial groups in adults with degenerative lumbar disease – A pilot study

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ABSTRACT

Introduction: Degenerative lumbar spine disease significantly impairs quality of life, yet racial and socioeconomic disparities in surgical treatment persist, particularly among BIPOC (Black, Indigenous, and Persons of Color) patients, who often experience worse outcomes and are less likely to undergo surgery despite similar or higher pain levels.

Objectives: This study explored factors that influence treatment decisions among BIPOC and Non-Hispanic White (NHW) patients with degenerative lumbar spine disease, with a focus on understanding how these factors may contribute to disparities in surgical care utilization.

Methods: An explorative qualitative study was conducted using semi-structured interviews with 20 patients (10 BIPOC, 10 NHW) considering lumbar spine surgery for spinal stenosis or disc herniation at three major academic institutions in Massachusetts. Thematic analysis identified key themes related to emotional suffering, financial concerns, support systems, and familiarity with spine surgery.

Results: BIPOC patients expressed greater anxiety about surgery, often shaped by prior negative healthcare experiences and broader systemic mistrust. Financial and occupational concerns were more significant for BIPOC patients, who frequently prioritized employment over symptom relief. In contrast, NHW patients more often cited quality-of-life goals as their primary motivator. While perception of support systems were comparable between the groups, emotional suffering was universally reported emotional suffering, with participants using terms such as "miserable," "scared," "embarrassed," and "ashamed."

Conclusion: Emotional, financial, and trust-related differences shape surgical decision-making among racially and ethnically diverse patients with lumbar spine disease. Incorporating culturally responsive communication strategies and decision aids that address patients fears, values, and social contexts may enhance shared decision-making and promote more equitable access to spine surgery.

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1. Introduction

Degenerative lumbar disease affects about 27.3 % of the US population annually and is a leading cause of low back pain [1]. Patients may pursue non-operative treatments like opioid and non-opioid analgesics, steroid injections, and physical therapy. For appropriately selected patients who continue to experience pain or disability despite conservative management, surgical intervention is both appropriate and beneficial [2,3].

Racial and socioeconomic disparities persist in the surgical treatment of degenerative lumbar disease in the U.S [4–6]. Black patients are less likely than White patients to attend spine clinics, receive physical therapy, or undergo imaging—even after controlling for income, education, and insurance status [7]. While Black, Indigenous, and Persons of Color (BIPOC) patients generally experience worse clinical outcomes and higher healthcare costs [8–10], some studies report lower rates of surgical intervention in this population [11]. However, a large observational study of 42,498 patients with lumbar disease in New York State found higher spine surgery utilization among Black patients from lower-income zip codes [12]. These conflicting findings emphasize the need to better understand the factors driving racial, ethnic, and socioeconomic variation in surgical decision-making and access.

The purpose of this study was to better understand how patients make decisions for degenerative lumbar spine disease, through an exploratory qualitative study using semi-structured interviews. It examines the lived experiences and perspectives of both BIPOC and Non-Hispanic White (NHW) patients as they considered surgical intervention.

2. Methods

2.1. Study design

This pilot qualitative study used semi-structured interviews and thematic analysis to explore factors influencing treatment decisionmaking in BIPOC and NHW patients with degenerative lumbar spine disease. The study was approved by the Mass General Brigham Institutional Review Board and followed COREQ reporting guidelines (Supplementary Table 1) [13].

2.2. Setting and participants

This explorative qualitative study included patients from Massachusetts General Hospital, Newton-Wellesley Hospital, and Boston Medical Center spine clinics who were evaluated for lumbar spinal stenosis or disc herniation between July and December 2023. Eligible participants were adults (\geq 18 years) with imaging- and providerconfirmed diagnoses of lumbar spinal stenosis (ICD, M48.06) or acute disc herniation (ICD, M51.26). Participants were purposively sampled to ensure balanced representation across racial and ethnic groups. Stratification was not based on socioeconomic or health literacy, although these factors were explored as they emerged organically from participant narratives.

Patients were identified through institutional databases and recruited during their initial clinic visits. After obtaining informed consent, phone interviews were conducted an average of 44.2 ± 11.634 days following the clinical encounter. Recruitment continued until 10 BIPOC and 10 NHW patients completed interviews. The sample size was informed by prior qualitative research indicating that 8–13 interviews per group are generally sufficient to achieve thematic saturation using a combined deductive–inductive approach [14]. Thematic saturation was evaluated iteratively during data collection and analysis, and defined as the point at which no new codes or themes emerged. This threshold was consistent with additional literature suggesting that core thematic patterns can be reliably identified with 7–10 interviews per group [15]. Patients who did not respond after three contact attempts were classified

as non-respondents (n = 15).

2.3. Interviews and interview guide

A trained staff member with no previous relationship to study participants conducted remote, semi-structured interviews after clinic visits. Interview questions, developed in collaboration with qualitative research experts at the MGH Health Decision Science Center, included 15 open-ended questions exploring patients' experiences and perspectives on back pain and treatment. Topics included impact of back pain on activities of daily living, symptoms, treatment preferences, support systems, decision-making processes, risk perceptions, and expectations for life post-surgery (Supplementary Table 2). Interviews ranged between 5 min 20 s and 27 min 14 s, with a mean duration of 13 min 29 s.

2.4. Data extraction

BIPOC and NHW patients were identified based on self-reported race and ethnicity during clinical intake. Additional clinical and demographic data, extracted from patients' medical records, included age, sex at birth, marital status, primary insurance, zip code to calculate Area Deprivation Index (ADI) [16], diagnosis, recommended treatment, utilized treatment, and treatment site. Interviews were recorded, transcribed using the Rev AI transcription service (Rev.com Inc, Austin, TX), extracted on Microsoft Excel, and stored securely. All patient, provider, and institutional data were de-identified by the interviewer prior to analysis. Transcripts were not returned to participants but were compared to audio recordings for accuracy.

2.5. Thematic analysis

We conducted a thematic analysis using a combined deductiveinductive approach to explore factors influencing patient decisionmaking. Key deductive categories included surgery-related fears, health literacy, and social support systems. Simultaneously, inductive coding allowed themes to emerge organically from participants' narratives [17]. Two researchers trained in qualitative methods independently coded the de-identified transcripts, applying both the initial deductive framework and open coding for novel content. They met regularly to compare interpretations, refine code definitions, and resolve discrepancies through discussion. A third researcher facilitated adjudication when consensus was not initially reached. Inter-coder reliability was assessed through joint coding of a subset of transcripts and was found to be high, with most discrepancies stemming from differences in code granularity rather than thematic disagreement. After confirming thematic saturation, four team members synthesized the codes into overarching themes and subthemes through collaborative discussion and axial coding.

3. Results

3.1. Participant demographic characteristics

Ten BIPOC patients (mean age, 56.3 ± 16.5 ; mean ADI, 22.8 ± 14.5) and ten NHW patients (mean age, 63.5 ± 11.0 years; mean ADI, 19.8 ± 14.0) with degenerative lumbar spine disease were interviewed between July and December 2023. 60 % of the BIPOC group were female compared to 40 % in the NHW group. Racial composition varied, with the BIPOC group consisting of 10 % White (Hispanic), 50 % Black, and 40 % "Other," while all NHW participants were White. Additionally, 30 % of the BIPOC group identified as Hispanic/Latino (Table 1).

3.2. Participant diagnosis and treatment characteristics

In the BIPOC group, 70 % were treated at BMC, compared to 10 % in the NHW group. 90 % of the NHW group were treated at MGB-affiliated

Table 1

Baseline patient characteristics.

Variable	BIPOC	NHW
No. of patients	10	10
Age, years	56.3 (16.5)	63.5 (11.6)
Sex at Birth		
Female	6 (60 %)	4 (40 %)
Male	4 (40 %)	6 (60 %)
Race		
White	1 (10 %)	10 (100 %)
Black	5 (50 %)	0 (0 %)
Other	4 (40 %)	0 (0 %)
Ethnicity		
Hispanic/Latino	3 (30 %)	0 (0 %)
Not Hispanic/Latino	7 (70 %)	10 (100 %)
Marital Status		
Single	6 (60 %)	1 (10 %)
Married/Civil Union	3 (30 %)	8 (80 %)
Divorced	1 (10 %)	1 (10 %)
Primary Insurance		
Medicaid	0 (0 %)	1 (10 %)
Medicare	3 (30 %)	4 (40 %)
Workers Comp.	1 (10 %)	1 (10 %)
Private/commercial	6 (60 %)	4 (40 %)
ADI	22.8 (14.5)	19.8 (14.8)

sites. Regarding diagnosis, 60 % of BIPOC patients had spinal stenosis, while all NHW patients had this condition. Conversely, 40 % of BIPOC patients had lumbar herniation. 80 % of BIPOC patients were recommended for surgery, compared to 50 % of NHW patients. Although treatment concordance was the same in both groups (80 %), 20 % of BIPOC patients chose conservative treatment despite recommended for surgery, compared to 10 % in the NHW group. Additionally, 10 % of NHW patients recommended conservative treatment opted for surgery instead (Table 2).

3.3. Qualitative thematic analysis

The initial deductive thematic analysis identified four overarching themes: emotional suffering and physical pain, perceptions of the support system, lifestyle considerations (including financial and occupational concerns), and familiarity with spine surgery. These themes provided a structured framework to understand patients' experiences. Through further inductive coding, each main theme was refined into more specific subthemes, deepening our understanding of the factors influencing decision-making (Fig. 1).

Key similarities and differences in surgical decision making in BIPOC and NHW patients were observed. Most patients (66.7 % BIPOC, 55.6 % NHW) reported having strong social support. The primary motivation for pursuing surgery among NHW patients was to improve quality of life (80 %), with necessity reasons (e.g., the need for surgery to get back to work for money) cited less frequently (20 %), while BIPOC patients were

Table 2

Patient clinical characteristics.

BIPOC	NHW
3 (30 %)	9 (90 %)
7 (70 %)	1 (10 %)
6 (60 %)	10 (100 %)
4 (40 %)	0 (0 %)
2 (20 %)	5 (50 %)
8 (80 %)	5 (50 %)
8 (80 %)	80 (80 %)
2 (20 %)	1 (10 %)
0 (0 %)	1 (10 %)
	BIPOC 3 (30 %) 7 (70 %) 6 (60 %) 4 (40 %) 2 (20 %) 8 (80 %) 8 (80 %) 2 (20 %) 0 (0 %)

motivated more equally by quality of life (60 %) and necessity (40 %). Concerns about surgery were prevalent in both groups, with 71.4 % of BIPOC and 66.7 % of NHW patients expressing worry about the procedure itself. However, NHW patients expressed significantly greater concern about recovery from surgery (83.3 % vs. 16.7 % in BIPOC). While pain was a common source of emotional distress for 50 % of patients in both groups, NHW patients more frequently reported additional distress related to limitations in social activities and changes in mood compared to BIPOC patients (Table 3).

3.3.1. Theme 1: emotional suffering

All 20 patients reported emotional suffering in addition to pain, with prior negative healthcare experiences contributing to fear and concern about surgery. The emotional burden, often exacerbated by intense pain that disrupted daily life, motivated many to seek treatment. Patients described feelings of frustration, misery, and powerlessness, and some expressed deeper emotions such as embarrassment, shame, hopelessness, and fear that their condition would never improve (Table 4A, excerpts 1–7).

More BIPOC patients expressed anxiety, fear, and concern about surgery than NHW patients. Among BIPOC patients, concerns often focused on the severity of surgery (2) and the risks associated with anesthesia (2 BIPOC, 1 NHW) (Table 4A, excerpts 8 and 9). One BIPOC patient expressed a general mistrust of the healthcare system, while another described heightened anxiety linked to past trauma, both of which affected their decision-making (Table 4A, excerpts 10 and 11). Patients from both groups worried that surgery might not alleviate their debilitating pain, citing the complexity of their conditions and potential for surgical error. (Table 4A, excerpts 12 and 13). Those who did not express fear about surgery typically reported trust in their surgeon (1 BIPOC, 3 NHW) or acceptance of the associated risks (Table 4A, excerpts 14 and 15).

Five participants (3 BIPOC and 2 NHW) reported that previous negative clinical experiences impacted their current treatment decisions. BIPOC patients (3/3) preferred conservative pain management over surgery (Table 4A, excerpts 16 and 17), whereas both NHW (2/2) were eager to proceed with surgery—one due to dissatisfaction with a prior surgeon's recommendation, and the other because of worsening pain following an unsuccessful procedure (Table 4A, excerpt 18).

3.3.2. Theme 2: financial and occupational concerns

Motivations for pursuing treatment varied between groups. BIPOC patients more frequently cited financial and occupational needs as motivations (Table 4B, excerpts 1 and 2), while NHW prioritized improving quality of life for recreational activities and daily tasks (Table 4B, excerpts 3 and 4). BIPOC patients were particularly concerned about their back condition affecting their ability to work, especially in physically demanding jobs. Patients with Limited English Proficiency (LEP) faced added social vulnerabilities outside of clinic (Table 4B, excerpts 5 and 6).

3.3.3. Theme 3: perception of support system

Most BIPOC and NHW patients viewed their support systems as strong. These perceptions did not influence their treatment decisions. Support was categorized into emotional/decisional support (10 patients), defined as input from family and friends in treatment decisions (Table 4C, excerpts 1 and 2), and physical/perioperative support (11 patients), characterized by assistance with activities of daily living during recovery (Table 4C, excerpts 3 and 4). BIPOC patients more often reported poor emotional/decisional support (4 *vs.* 1), but this did not affect their decision to pursue surgery.

3.3.4. Theme 4: familiarity with spine surgery

Familiarity with spine surgery was similar across groups, with three patients having prior experience (2 BIPOC, 1 NHW) and seeking additional information (1 BIPOC, 2 NHW). Patients used a variety of methods

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Fig. 1. Thematic analysis of patients' perspectives of shared decision-making in spine care.

Table 3

Patient perspectives of spine surgery.

Variable	BIPOC	NHW
Has strong social support	6/9 (66.7 %)	5/9 (55.6 %)
Motivation to pursue surgery		
To improve quality of life	6/10 (60 %)	8/10 (80 %)
For necessity reasons (e.g., finances)	4/10 (40 %)	2/10 (20 %)
Concerns of patient journey		
Worried about surgery	5/7 (71.4 %)	4/6 (66.7 %)
Worried about recovery from surgery	1/6 (16.7 %)	5/6 (83.3 %)
Source of emotional distress		
Pain	5/10 (50 %)	5/10 (50 %)
Activities of daily living	4/9 (44.4 %)	5/9 (55.6 %)
Occupation	5/8 (62.5 %)	3/8 (37.5 %)
Restriction in social life	2/6 (33.3 %)	4/6 (66.7 %)
Mood	1/6 (16.8 %)	5/6 (83.3 %)

to enhance their understanding, including online research, personal experience, and knowledge obtained from their occupations (Table 4D, excerpts 1 and 2). One LEP patient used the internet to overcome language barriers. Overall, poor health literacy was not a significant concern, as patients actively sought to fill knowledge gaps through

independent research (Table 4D, excerpt 3).

4. Discussion

This study explored the perspectives and decision-making processes of patients from different racial groups with degenerative lumbar spine disease, focusing on how these factors contribute to the observed disparities in surgical utilization and outcomes. The findings highlight the complex interplay of emotional, financial, and social factors that influence treatment decisions among BIPOC and NHW patients.

4.1. Emotional suffering and decision-making

BIPOC patients expressed higher levels of anxiety and fear regarding surgery, particularly around the severity of the surgery and risks associated with anesthesia. The heightened anxiety may reflect broader mistrust of the healthcare system, influenced by historical and ongoing disparities in access and treatment [18,19]. The concerns reported by BIPOC patients align with previous research documenting higher levels of medical mistrust and fear of discrimination among minority populations, which can reduce willingness to pursue surgical interventions

Table 4

Evidence of qualitative themes.

Table 4	(continued)

"I couldn't even sit on the toilet. I was really bad. Gosh,
depending on certain moves I made and sitting or it was just miserable. I had stopped. I couldn't do any of the
White female, aged 77)
"I want my life back." (BIPOC Participant 7; Black
"I felt as though I was losing my life, if that makes any sense." (NHW Participant 17; White female, aged
67) "Every event that I do, I question " <i>is it worth it?</i> "
because I know how much pain it's going to be That's all I think about I try not to complain too much and it's kind of embarrassing" (NHW Participant 14: White mula good 60)
"It's like it's embarrassing. It's debilitating. I'm not 20 years old, but I'm also not 60 I can't tell you from
someone that's very active like me with three little kids, it's irritating, debilitating, and it is just like you start hating the world " (NHW Participant 16;
White male, aged 43) "I just left it in God's hands right now because
there's really nothing I can do. I'm working on it though, but right now I still feel like that dead end."
(BIPOC Participant 5; Black male, aged 59) "Not being able to walk, that's huge for me. That is gigantic. That's scary actually, the possibility that
maybe this is the end of it" (NHW Participant 19;
"Everybody speak about back operation is no good, so I'm scared They say do not operate on your back
"I think the biggest part is anesthesia, honestly, is the scariest part of it, that you're going to go in, you're
going to go to sleep, and that's it. You'll never know the difference." (NHW Participant 13; White female, aged 77)
"I did have fear. That's why I said I don't want to have this surgery What I'm worried about is the process. I know how the system works I want to
do all I can while I can before the bottom line is you have to have surgery." (BIPOC Participant 8; "Other"
"So it's a lot of trauma. These decisions have a lot of trauma issues with it on my part, the fear" (BIPOC
Participant 5; Black male, aged 59) "[I'm worried about] the procedure not going correctly. Maybe it causing more pain than what I had in
the beginning before the surgery." (BIPOC
Participant 1; власк female, aged 31) "I was scared about spinal surgery in general and I was
nervous that it wasn't like a surgery you could fully recover from and go back to pormal " (NHW)
Participant 18; White male, aged 56)
"I have to trust the pro. I got a good feeling about her, and that's it. And even if something could happen, that's just life, right?" (BIPOC Participant 4:
Black female, aged 71)
"I'm old school. I trust doctors. I do I don't understand people who constantly are arguing with what a doctor says they don't trust doctors for some
reason." (NHW Participant 15; White male, aged 79) "I had in my stomach, what are those things? A long cut, years ago Everybody was bawling when they see
[it], they say, why they cut you like that? I don't know why they did." (BIPOC Participant 2; Black female aged 90)
"I've always been nervous ever since I had a spinal
tap when I was a kid, I was almost paralyzed we talking injections in the back, that reminds me of a spinal tap. We're talking paralyzed. That means a fear

Excerpt	Example
18	"I had surgery before, which was just a terrible thing.
	The doctor didn't do the job as he explained to me
	and now I have to deal with it. But because the pain
	was so much worse after the surgery, I always
	(NHW Participant 16: White male aged 43)
4B: Financial/Occupation	onal Concerns
1	"Currently, because of my injury, I'm not working. So
	that's the other reason why a little part of me does
	want to do the surgery because I've been out of
	work now for eight months." (BIPOC Participant 1;
0	Black female, aged 31)
Z	a can't really afford to be too much out of work for whatever the time is, for my back. That's out of
	the question. So I told him, let's try the injection "
	(BIPOC Participant 7; "Other" non-Hispanic male, aged
	36)
3	"I feel like I'm a hundred old man and since last week
	going to the gym has been a huge test. I live at the
	gym. Take everything for me, but not the gym." (NHW
4	Participant 16; White male, aged 43)
4	I couldn't play golf and I couldn't fide my bike.
	Walking and hiking with my kids I couldn't do any
	of that I finally just said. I'm going to have to go the
	[surgery] route." (NHW Participant 13; White female,
	aged 77)
5	"It interferes a lot with my job because I'm walking a lot
	in my job it's not like I'm in the position right now to
	just say, oh, I can jump to another job, because my
	English is limited. My experience in another job is
	bit frustrating for me, but at the same time I have to
	work because I need to survive." (BIPOC Participant
	6; Black male, 59)
6	"[The pain is difficult] especially when I go to work
	and my boss tells me that I'm going to have to be on
	top of a ladder all day I don't never give up just
	because of the pain. (BIPOC Participant 7; "Other" non-
AC: Dercention of Sunno	Hispanic male, aged 36)
1	Strong: "Of course, I consulted with my spouse and I
	have a dear friend that's a chiropractor of some note,
	and so I had her look at the MRI, had her look at the
	information and I discussed with her the options."
_	(NHW Participant 11; White female, aged 70)
2	Poor: "No, I didn't rely on anybody I want to just
	want to skip these things." (BIPOC Participant 3;
2	Other non-Hispanic remaie, aged 46)
5	out of the dark to help me. My friends all around they
	all want to help after the surgery. I cannot walk two
	flights of stairs. I have a friend who has already [offered
	to help]" (BIPOC Participant 4; Black female, aged
	71)
4	Poor: "I live alone and I have stairs, and my support
	system is basically my sister who has, she can't be here
	all day, every day But for personal care, I'm still
	curious or 1 still don't know now much personal
	White male, aged 79)
4D: Familiarity with	
Spine Surgery	
1	"Being a pediatric nurse, we have a lot of scoliosis kids
	on my floor the recovery time is a good amount
	and just the pain that they endure is a lot so I
	kind of just want to keep pushing it off" (BIPOC
n	Participant 1; Black female, aged 31)
4	I in an examiner for an insurance company. I look at
	small knowledge of these issues " (NHW
	Participant 14; White male, aged 60)
•	(Free the short the solar is an enclosure description of the solar is a second structure description of the solar is a

"Every time that I'm going in an appointment, doesn't matter what doctor, after I get out, I go into my shower and I read everything, everything, everything. [If] I see one word that I don't understand what it means,

(continued on next page)

Table 4 (continued)

Excerpt	Example
	I Google it right away. Okay. Because sometimes they use a different word for the same thing, but it's a medical word" (BIPOC Participant 6; "Other" non- Hispanic female, aged 55)

[20,21]. These emotional burdens were also reflected in patients' responses to past healthcare experiences. BIPOC participants were more likely to favor conservative treatment approaches following prior negative clinical encounters, whereas NHW participants with similar experiences were more inclined to pursue surgery as a means of improving function and quality of life. This divergence highlights the need to consider patients' emotional and psychological contexts, particularly in racially diverse populations, when discussing treatment options.

Chronic low back pain is associated with dysfunctional emotional processing, which refers to the maladaptive regulation and expression of emotions that prolong or intensity the pain experience. Consequently, clinicians are encouraged to consider emotional processing factors in patient management [22,23]. This phenomenon is consistent across different populations regardless of cultural background [24]. Emotional dysfunction, particularly pain-related fear, contributes to the chronicity of low back pain, presenting a significant barrier to recovery [25]. Improving healthcare access, utilization, and patient outcomes requires a multifaceted approach. This includes altering patients' perception of pain and building trust between BIPOC individuals and the healthcare system. Trust-building measures should involve acknowledging historical disparities, implementing proactive antiracism training, and creating safe spaces. Additionally, addressing barriers to care, improving patient-provider concordance through a diverse workforce, and fostering shared decision making are crucial steps toward better outcomes [26].

4.2. Financial and occupational concerns

Financial and occupational concerns significantly influenced treatment decisions among BIPOC patients, who often prioritized maintaining employment, particularly in physically demanding jobs. This contrasts with NHW patients, who focused more on improving their quality of life for recreational activities and daily tasks. The socioeconomic disparities underlying these differences suggest that BIPOC patients face greater economic pressures, necessitating a quicker return to work or the avoidance of costly surgeries [27]. BIPOC patients frequently reported working in physically demanding jobs with limited flexibility for accommodations in case of injury, increasing their risk of injury and complicating early intervention efforts [28]. The overrepresentation of Black and Hispanic workers in manual labor jobs jeopardizes their employment and financial stability during periods of disability and recovery [29]. However, our analysis lacks comprehensive lifestyle information, and the younger average age of BIPOC patients in our study might also explain the higher prevalence of manual labor employment [30]. The impact of financial concerns on treatment decisions may also reflect broader systemic issues, such as lower access to comprehensive health insurance and social safety nets among BIPOC populations. These factors likely contribute to the disparities in surgical rates observed in previous studies, where BIPOC patients are less likely to undergo surgery despite experiencing similar or greater levels of pain and disability [31,32].

4.3. Support systems and their role in decision-making

Support systems were generally perceived as strong among both BIPOC and NHW patients, and this perception did not significantly influence treatment decisions. However, BIPOC patients more frequently reported poor emotional or decisional support from their families and friends, which, while not directly affecting their decision to pursue surgery, may reflect broader social and cultural dynamics that influence healthcare behaviors. For instance, the lack of emotional support might exacerbate feelings of anxiety, further complicating the decision-making process for these patients [19]. The study also found that BIPOC patients were more likely to rely on their support systems for emotional and decisional guidance, which could indicate a greater need for culturally competent care that considers the social contexts of patients' lives. Health professionals should be aware of these dynamics and work to build trust and provide comprehensive, culturally sensitive support to all patients, particularly those from minority backgrounds [26].

4.4. Familiarity with spine surgery

Familiarity with spine surgery was similar across both groups, with patients seeking additional information through various methods, including online research and personal experience. Notably, health literacy did not appear to be a significant barrier, as patients were proactive in filling their knowledge gaps. However, for BIPOC patients, especially LEP patients, the process of gathering information posed additional challenges. This finding suggests that while health literacy initiatives are crucial, they must be tailored to address the specific needs of diverse patient populations, including providing resources in multiple languages and ensuring that information is accessible and understandable for all patients [33,34].

5. Limitations

This study has several limitations that may affect the interpretation of its findings. First, the sample size was relatively small, with only 20 patients (10 BIPOC and 10 NHW) included in the analysis. This limited number of participants may not fully capture the diverse experiences and perspectives of all racial and ethnic groups, reducing the generalizability of the findings. Second, the study was conducted at specific spine clinics within Massachusetts, which may limit the applicability of the results to other geographic locations with different patient demographics and healthcare systems. Third, the retrospective nature of the study and reliance on patient recall may introduce recall bias, as participants may not accurately remember all details of their clinical encounters or decision-making processes. Additionally, the study did not account for potential confounding variables, such as socioeconomic status or underlying health conditions, that may have influenced patient perspectives and treatment decisions. Finally, interviews were conducted at various points in the treatment decision process, introducing potential hindsight bias for those who had already undergone surgery and lacking information from those still deciding. Future research should aim to include larger, more diverse populations, consider longitudinal data collection, and address potential confounders to strengthen the understanding of shared decision-making processes across racial and ethnic groups.

6. Conclusions

Treatment decision-making for patients with degenerative lumbar spine disease is shaped by complex emotional, financial, and cultural factors. To address the disparities identified in this study, we recommend integrating culturally tailored decision aids that explicitly address surgical fears and contextual barriers such as work and caregiving responsibilities. Additionally, fostering patient-provider trust should be a priority in surgical counseling. Training clinicians in culturally responsive communication and acknowledging patients' lived experiences may support more informed and equitable decision-making.

Ethics approval (include appropriate approvals or waivers)

This study was approved by the Massachusetts General Hospital Institutional Review Board (Protocol #2022P003261).

Author contributions

TW, KL, MDP, KL, and ED contributed to the study conception and design. Material preparation, data collection and analysis were performed by ED, ER, MN, and EOM. The first draft of the manuscript was written by ED, ER, MN, EOM, and DH. All authors (ED, ER, MN, EOM, TC, JA, CT, MDP, KL, DH, and TW) commented on previous versions of the manuscript. All authors (ED, ER, MN, EOM, TC, JA, CT, MDP, KL, DH, and TW) read and approved the final manuscript.

Data availability

The data generated and analyzed in this study will be made available upon reasonable request. Interested parties can contact the corresponding author at <u>emensah2@bwh.harvard.edu</u> for access to the deidentified dataset, subject to institutional review board (IRB) approval and data-sharing agreements to ensure the privacy and confidentiality of study participants.

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Declaration of competing interest

The authors declare the following financial interests/personal relationships which may be considered as potential competing interests: Theresa Williamson reports financial support was provided by Patient-Centered Outcomes Research Institute. If there are other authors, they declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at. https://do i.org/10.1016/j.inpm.2025.100596.

References

- Parenteau CS, Lau EC, Campbell IC, Courtney A. Prevalence of spine degeneration diagnosis by type, age, gender, and obesity using Medicare data. Sci Rep 2021;11: 5389.
- [2] Foster NE, et al. Prevention and treatment of low back pain: evidence, challenges, and promising directions. Lancet 2018;391:2368–83.
- [3] Corp N, et al. Evidence-based treatment recommendations for neck and low back pain across Europe: a systematic review of guidelines. Eur J Pain 2021;25:275–95.
- [4] Khan IS, et al. Racial disparities in outcomes after spine surgery: a systematic review and meta-analysis. World Neurosurg 2022;157:e232–44.
- [5] Cardinal T, et al. Disparities in the surgical treatment of adult spine diseases: a systematic review. World Neurosurg 2022;158:290–304.e1.

- [6] Mohanty S, et al. Racial and social determinants of health disparities in spine surgery affect preoperative morbidity and postoperative patient reported outcomes: retrospective observational study. Spine 2022;47:781–91.
- [7] Austevoll IM, et al. Decompression with or without fusion in degenerative lumbar spondylolisthesis. N Engl J Med 2021;385:526–38.
- [8] Cahill KS, Chi JH, Day A, Claus EB. Prevalence, complications, and hospital charges associated with use of bone-morphogenetic proteins in spinal fusion procedures. JAMA 2009;302:58–66.
- [9] Schoenfeld AJ, et al. Outcomes after spine surgery among racial/ethnic minorities: a meta-analysis of the literature. Spine J 2011;11:381–8.
- [10] Lad SP, et al. Racial disparities in outcomes of spinal surgery for lumbar stenosis. Spine 2013;38:927–35.
- [11] Schoenfeld AJ, Lurie JD, Zhao W, Bono CM. The effect of race on outcomes of surgical or nonsurgical treatment of patients in the Spine Patient Outcomes Research Trial (SPORT). Spine 2012;37:1505–15.
- [12] Rubery PT, Ramirez G, Kwak A, Thirukumaran C. Racial/ethnic and income-based differences in the use of surgery for cervical and lumbar disorders in New York State: a retrospective analysis. Spine J 2023. https://doi.org/10.1016/j. spinee.2023.10.012.
- [13] Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. Int J Qual Health Care 2007;19:349–57.
- [14] Coenen M, Stamm TA, Stucki G, Cieza A. Individual interviews and focus groups in patients with rheumatoid arthritis: a comparison of two qualitative methods. Qual Life Res 2012;21:359–70.
- [15] Young DS, Casey EA. An examination of the sufficiency of small qualitative samples, vol 500. Social Work & Criminal Justice Publications; 2018.
- [16] Kind AJH, Buckingham WR. Making neighborhood-disadvantage metrics accessible - the neighborhood atlas. N Engl J Med 2018;378:2456–8.
- [17] Sharp CA. Qualitative research and evaluation methods. Eval J Australas 2003: 60–1.
- [18] Hammond WP. Psychosocial correlates of medical mistrust among African American men. Am J Community Psychol 2010;45:87–106.
- [19] Jaiswal J, Halkitis PN. Towards a more inclusive and dynamic understanding of medical mistrust informed by science. Behav Med 2019;45:79–85.
- [20] Hantzmon SV, et al. Race differences in patient trust and distrust from audiorecorded cardiology encounters. Patient Educ Counsel 2024;119:108083.
- [21] Musa D, Schulz R, Harris R, Silverman M, Thomas SB. Trust in the health care system and the use of preventive health services by older black and white adults. Am J Publ Health 2009;99:1293–9.
- [22] Esteves JE, Wheatley L, Mayall C, Abbey H. Emotional processing and its relationship to chronic low back pain: results from a case-control study. Man Ther 2013;18:541–6.
- [23] Du S, et al. Emotional distress correlates among patients with chronic nonspecific low back pain: a hierarchical linear regression analysis. Pain Pract 2019;19: 510–21.
- [24] Alamam DM, et al. Low back pain-related disability is associated with pain-related beliefs across divergent non-English-speaking populations: systematic review and meta-analysis. Pain Med 2021;22:2974–89.
- [25] Bunzli S, Smith A, Schütze R, Lin I, O'Sullivan P. Making sense of low back pain and pain-related fear. J Orthop Sports Phys Ther 2017;47:628–36.
- [26] Hostetter M, Klein S. Understanding and ameliorating medical mistrust among Black Americans. 2021.
- [27] Li Y, Heath A. Persisting disadvantages: a study of labour market dynamics of ethnic unemployment and earnings in the UK (2009–2015). J Ethnic Migrat Stud 2020;46:857–78.
- [28] Su H, et al. Disability phenotypes and job accommodations utilization among people with physical disability. J Occup Rehabil 2023;33:352–61.
- [29] Targetta P, Wehman P, McKinley WO, Young C. Functional vocational assessment for individuals with spinal cord injury. J Vocat Rehabil 2005;22:149–61.
- [30] U.S bureau of labor statistics. Labor force statistics from the current population survey: employed persons by detailed occupation and age. 2024.
- [31] Orhurhu V, et al. Socioeconomic disparities in the utilization of spine augmentation for patients with osteoporotic fractures: an analysis of National Inpatient Sample from 2011 to 2015. Spine J 2020;20:547–55.
- [32] Best MJ, McFarland EG, Thakkar SC, Srikumaran U. Racial disparities in the use of surgical procedures in the US. JAMA Surg 2021;156:274–81.
- [33] Paredes AZ, et al. Influence of English proficiency on patient-provider communication and shared decision-making. Surgery 2018;163:1220–5.
- [34] Twersky SE, Jefferson R, Garcia-Ortiz L, Williams E, Pina C. The impact of limited English proficiency on healthcare access and outcomes in the U.S.: a scoping review. Healthcare 2024;12.