Received: 12 February 2025 | Revised: 14 February 2025 | Accepted: 27 February 2025

DOI: 10.1111/aas.70018

RESEARCH ARTICLE

acta Anaesthesiologica Scandinavica

Parturients' perspectives on labor pain and epidural analgesia: A protocol for an explorative qualitative study

Louise Højstrup[1,2] | Søs Bohart[2] | Line Thellesen[1,3] | Kim Wildgaard[1,2]

[1]Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark

[2]Herlev Anesthesia Critical and Emergency Care Science Unit, Herlev, Denmark

[3]Department of Pregnancy, Childbirth and Postnatal care, Herlev Hospital, Herlev, Denmark

Correspondence
Louise Højstrup, Department of Clinical Medicine, Faculty of Health and Medical Sciences, University of Copenhagen, Copenhagen, Denmark.
Email: louise.hoejstrup.01@regionh.dk

Abstract

Background: Childbirth is a significant life event often accompanied by intense pain. Although pain perception is highly subjective and influenced by multiple factors, its management is frequently focused solely on pain intensity. Epidural analgesia (EA) is the most effective form of labor pain relief; however, there is limited qualitative research on which aspects of pain relief parturients perceive as successful with EA. Understanding parturients' perspectives on successful pain relief with EA can help improve patient-centered care and enhance labor pain management strategies.

Aim: This qualitative study aims to explore parturients' perspectives on successful pain management during labor with EA, identifying key aspects that contribute to their overall childbirth experience.

Methods: A qualitative, semi-structured interview study will be conducted at Herlev Hospital, Denmark. Approximately 10–15 parturients who received EA during labor will be recruited using purposive sampling within 24 hours postpartum. Interviews will be recorded, transcribed, and analyzed using Braun and Clarke's thematic analysis framework. Data collection will continue until sufficient information power is reached.

Ethical Considerations: The study has been approved by the Danish Data Protection Agency (case no. P-2025-18241) and adheres to the Declaration of Helsinki. Informed consent will be obtained from all participants, and data will be anonymized to ensure confidentiality.

Expected Outcomes: The study is expected to generate new insights into parturients' experiences of labor pain and EA, contributing to the development of patient-reported outcome measures and informing future clinical practice. Findings may also support the creation of standardized pain assessment tools and influence policies on labor pain management.

Dissemination: Results will be published in a peer-reviewed journal and presented at national and international conferences to inform both clinical practice and future research.

KEYWORDS

delivery, epidural analgesia, experience, labor pain, pain relief, qualitative

1 | INTRODUCTION

This protocol outlines the process of a qualitative interview study to ensure methodological transparency and accountability to the research group internally and for external researchers.

Childbirth is widely regarded as one of life's most significant events but is often accompanied by substantial pain.[1,2] The birth experience is a multifaceted event shaped by physical, emotional, psychological, and social factors, contributing to the complexity of the associated pain experience.[3,4] Pain is defined as "an unpleasant sensory and emotional experience associated with, or resembling that associated with, actual or potential tissue damage."[5]

Labor pain is widely recognized as one of the most intense forms of pain.[1,2] Research has shown that expectations regarding pain and pain relief significantly influence how laboring women perceive pain.[6,7] Consistent with international findings, a Danish report showed that 68% of participants described their labor pain as very or unbearably painful, while 62% of parturients indicated that the pain during labor exceeded their expectations.[8]

The use of and demand for pain management during labor, as well as the availability of scientific information, are increasing. Epidural analgesia (EA) is widely recognized as the most effective method of pain relief during labor, with its demand continuing to rise.[9] In Denmark, 15,467 EAs were performed in 2022, increasing to 17,289 in 2023 despite the number of births remaining the same. In 2023, this corresponded to 36% of all intended vaginal deliveries in Denmark.[10,11]

Due to the multidimensional and subjective nature of pain perception, it is widely recognized that accurately measuring and quantifying pain is highly challenging, particularly in a labor setting where pain arises from a natural physiological process rather than pathology.[1,12–14] Pain measurement in labor settings is often not performed routinely, and studies have shown that most clinical assessments focus solely on pain intensity, with only a few utilizing multidimensional tools.[14] A standardized and clinically relevant pain assessment tool could be valuable for accurately capturing parturients' experiences, evaluating the various dimensions of labor pain, and assessing the effectiveness of pain relief strategies.[12,14,15]

In Denmark, EA is included as a national quality indicator for labor treatment, but its process measurement is limited to tracking the time from ordering to initiation.[10] This limited focus neglects other important aspects of labor pain and its management, such as effectiveness, patient satisfaction, and overall impact on the childbirth experience.

Numerous studies have explored pain experiences, expectations, and expressions of pain as well as decision-making regarding pain relief methods.[6,16–19] As stated in a systematic review by Lally et al., there appears to be a discrepancy between parturients' expectations and their actual labor experience, toward underestimating the pain. Emphasizing the importance of fostering more realistic expectations about pain and a better understanding of pain relief, rather than the promise of a completely painless labor, could help bridge this gap.[20,21]

As many studies rely on quantitative surveys, which are limited by predefined answer choices, there remains a lack of in-depth understanding of which aspects of labor pain matter most to parturients and their experiences with EA during labor.[18–20,22–24] Gaining in-depth insights through open-ended questions could ultimately improve the overall childbirth experience and enhance maternal satisfaction by enabling more effective, patient-centered pain management.[9,12,25]

2 | AIM OF STUDY

The objective of this qualitative study is to explore parturients' perspectives on successful pain management during labor with EA, aiming to identify key aspects and generate new insights.

3 | METHODS

The study was approved by the Danish Data Protection Agency at Borgergade 28, 1300 Copenhagen K (case no. P-2025-18241). Date of approval: January 3, 2025.

4 | STUDY DESIGN

A qualitative, semi-structured interview design will be employed to collect data. The study will adopt an explorative qualitative approach, focusing on generating new insights into parturients' perspectives on successful pain management during labor with EA.

- *Evaluation and Developing Phase*: The questions in the interview guide will be reviewed and refined for aspects such as clarity, flow, and relevance following the five-step framework by Kallio et al.[26] The interview refinement process will consist of three rounds of initial test interviews, each conducted by L.H. Each round will include two to three parturients who represent the study population. After each round, feedback will be collected, and adjustments to the interview guide will be made. This iterative process will continue until consensus is reached within the research group.
- *Interviews*: Approximately 10–15 interviews will be conducted. The number of interviews will be guided by Malterud's concept of "information power," ensuring data collection continues until sufficient depth and breadth of information are achieved.[27,28]

5 | PARTICIPANT RECRUITMENT

Participants will be selected using criterion-based purposive sampling. L.H. will identify potential participants, and healthcare personnel at the postnatal ward will obtain their consent to be contacted by the research team. Eligibility criteria will include:

- Age ≥ 18 years
- Fluency in Danish

- Vaginal singleton birth within the previous 24 hours
- Received EA during labor
- Provision of informed consent

Exclusion criteria will include planned or emergency cesarean deliveries, administration of EA for medical conditions, or expected multiple births.

On days with multiple referrals for inclusion, a pseudorandomized selection approach is used: the candidate with the lowest last digit in the personal identification number (CPR number) is chosen first. If multiple candidates share the same last digit, selection is based on the lowest second-to-last digit. If multiple candidates still have identical numbers, selection proceeds by the alphabetical order of surname.

Eligible participants will be provided with written information and a consent form, which include authorization to access data from their personal medical records.

The recruitment period will last 3 months, from January 2025 to March 2025.

6 | SETTING

The interviews will be conducted face-to-face by L.H. at the maternity ward at Herlev Hospital, a large academic medical center in the Capital Region of Denmark, which handles approximately 5000 births annually. In this department, midwives manage uncomplicated births independently, while obstetricians and anesthesiologists are involved only in cases of complications. Medical doctors specializing in anesthesia, obstetrics, and neonatology are present at the hospital at all times.[29]

Interviews will take place in the parturient's private hospital room without disturbance, with only the parturient, the researcher and potentially the participant's partner/relative and newborn present.

7 | DATA COLLECTION

Data will be collected through in-depth, semi-structured interviews guided by a flexible interview framework designed to address the study's aims. The interview guide will be developed using the five-step framework by Kallio et al., including identifying research objectives, conducting a literature review, developing an initial set of questions, refining questions through expert feedback and pilot testing, and finalizing the guide based on iterative revisions.[26]

Key questions include the parturients' experience of pain, pain relief with EA, and priorities of importance during delivery.

Example of key questions from initial test interviews, Round 1 (translated from Danish into English):

1. Which aspects of the pain affected you the most during labor?
2. How did your experience of pain change after receiving epidural anesthesia?
3. Which expectations regarding pain relief with the epidural were met?
4. Which expectations regarding pain relief with the epidural were not met?
5. Which effect of the epidural had the greatest significance for your overall childbirth experience?
6. What do you think would have improved your experience of pain and pain relief during labor?

The interviews will be digitally recorded to ensure accurate data capture, and field notes will document nonverbal observations such as gestures and expressions. Each interview is expected to last approximately 20–30 min. Participants will provide brief demographic information after the interview, including age, ethnicity, education, parity, and previous experiences with EA, followed by a debriefing session.

Participants will be provided with contact information for the interviewer, in case any questions arise after the interviews.

8 | DATA ANALYSIS

The recorded interviews will be transcribed using a secure AI model and manually reviewed for accuracy by the first author. Transcripts will be anonymized and uploaded to NVivo-14 for qualitative analysis.

In NVivo, an inductive thematic analysis will be conducted following Braun and Clarke's methodology. This process will involve systematically familiarizing oneself with the data, generating initial codes, identifying recurring patterns to develop themes, refining and defining these themes through an iterative process, and finally synthesizing the findings into a comprehensive report.[30]

Two researchers (L.H. and S.B.) will independently analyze the data before meeting to review themes. The entire research team will then finalize theme definitions and names. Data analysis will continue until sufficient information redundancy is achieved. It is estimated that at least 10 interviews are required.[27]

If possible, non-participation and the reason for people refusing to participate or drop out will be registered.

9 | ETHICAL CONSIDERATIONS

This study will adhere to the Declaration of Helsinki. Participants will receive verbal and written information detailing the study's purpose, inclusion criteria, and their right to withdraw until publication.

Confidentiality will be maintained by omitting names and other identifying information from transcripts and analyses. Written informed consent will be obtained from all participants. Data is analyzed after anonymization.

10 | DISSEMINATION OF RESULT

The study findings will be published in a peer-reviewed journal and presented at national and international conferences.

11 | DISCUSSION

The results of this study are expected to provide valuable insights into the subjective experiences of labor pain and the use of EA for pain relief during childbirth. By exploring the aspects that are most salient to parturients in their experiences of pain and pain relief, the study aims to address critical gaps in our understanding of how labor pain is perceived, managed, and assessed in clinical settings. The generated insights are expected to inform the development of patient-reported outcome measures that are sufficiently objective to guide the further development of a standardized assessment tool for measuring the quality of pain management strategies, specifically focusing on EA-mediated pain relief during labor.

On a broader scale, the findings may influence policy and practice by highlighting the importance of integrating patient perspectives into care, reducing disparities in access to effective pain management, and improving the overall labor experience. Furthermore, the study is anticipated to inspire future research, such as investigations into the alignment between healthcare professionals' and parturients' expectations regarding labor pain and its assessment.

AUTHOR CONTRIBUTIONS

K.W. conceived the study idea and, along with L.T., provided extensive clinical expertise. L.H. designed the research protocol and conducted the interviews. L.H. and S.B. performed the qualitative data analysis and thematic coding. All authors contributed to refining the interview guide and methodology. All authors reviewed and approved the final manuscript.

ACKOWLEDGMENTS

This study has not received funding, and the authors declare no conflicts of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ORCID

Louise Højstrup https://orcid.org/0009-0003-6228-8433
Søs Bohart https://orcid.org/0000-0002-1502-4916

REFERENCES

1. Melzack R. The myth of painless childbirth (The John J. Bonica lecture). *Pain*. 1984; 19:321-337. doi:10.1016/0304-3959(84)90079-4
2. Melzack R, Taenzer P, Feldman P, Kinch R. Labour is still painful after prepared childbirth training. *CMAJ*. 1981;125:357-363.
3. Raja SN, Carr DB, Cohen M, et al. The revised International Association for the Study of Pain definition of pain: concepts, challenges, and compromises. *Pain*. 2020;161:1976-1982.
4. Lowe NK. The nature of labor pain. *Am J Obstet Gynecol*. 2002;186:16-24.
5. IASP. Terminology. 2024 https://www.iasp-pain.org/resources/terminology/#pain
6. Aksoy H, Yücel B, Aksoy U, Acmaz G, Aydin T, Babayigit MA. The relationship between expectation, experience and perception of labour pain: an observational study. *Springerplus*. 2016;5:1766. doi:10.1186/S40064-016-3366-Z
7. Atlas LY, Wager TD. How expectations shape pain. *Neurosci Lett*. 2012;520:140-148.
8. Wadland P, Sveigaard S, Jensen G. Undersøgelse af fødendes smerteoplevelse, kendskab til epidural smertelindring og tilfredshed med smertelindringen. *Ugeskr Laeger*. 2003;165:4527-4530.
9. Anim-Somuah M, Smyth RMD, Cyna AM, Cuthbert A. Epidural versus non-epidural or no analgesia for pain management in labour. *Cochrane Database Syst Rev*. 2018;5: CD000331. doi:10.1002/14651858.CD000331.pub4
10. Cueto T, Iversen F, Andersson B, Eskildsen F. Dansk Kvalitetsdatabase for Fødsler (DKF) Årsrapport 2023 [Internet]. Aarhus. 2024 www.rkkp.dk
11. Cueto H T, Iversen P F, Andersson C B, Eskildsen L F. Dansk Kvalitetsdatabase for Fødsler (DKF) Årsrapport 2022. 2023 Accessed February 3, 2025. www.rkkp.dk
12. Carvalho B, Cohen SE. Measuring the labor pain experience: delivery still far off. *Int J Obstet Anesth*. 2013;22:6-9.
13. Labor S, Maguire S. The Pain of Labour. *Rev Pain*. 2008;2:15-19. doi:10.1177/204946370800200205
14. Zhang EW, Jones LE, Whitburn LY. Tools for assessing labour pain: A comprehensive review of research literature. *Pain*. 2023;164:2642-2652.
15. Angle P, Landy CK, Charles C, et al. Phase 1 development of an index to measure the quality of neuraxial labour analgesia: exploring the perspectives of childbearing women. *Can J Anaesth*. 2010;57:468-478.
16. Lally JE, Thomson RG, MacPhail S, Exley C. Pain relief in labour: A qualitative study to determine how to support women to make decisions about pain relief in labour. *BMC Pregnancy Childbirth*. 2014;14:1-10.
17. Fernandes S, Galacho J, Borrego A, Pereira D, Lança F, Ormonde L. Impact of Labor epidural analgesia on maternal satisfaction and childbirth expectations in a tertiary Care Center in Portugal: A prospective study. *Acta Med Port*. 2021;34:272-277.
18. Attanasio L, Kozhimannil KB, Jou J, McPherson ME, Camann W. Women's experiences with neuraxial Labor analgesia in the listening to mothers II survey: A content analysis of open-ended responses. *Anesth Analg*. 2015;121:974.
19. Toledo P, Sun J, Peralta F, Grobman WA, Wong CA, Hasnain-Wynia R. A qualitative analysis of parturients' perspectives on neuraxial labor analgesia. *Int J Obstet Anesth*. 2013;22:119-123.
20. Morgan B, Bulpitt CJ, Clifton P, Lewis PJ. Effectiveness of pain relief in labour: survey of 1000 mothers. *Br Med J*. 1982;285:689-690.
21. Lally JE, Murtagh MJ, Macphail S, Thomson R. More in hope than expectation: A systematic review of women's expectations and experience of pain relief in labour. *BMC Med*. 2008;6:1-10.
22. Riley ET, Harkins J, Carvalho B, Evers A, Mehta S. Survey of the factors associated with a woman's choice to have an epidural for labor analgesia. *Anesthesiol Res Pract*. 2010;2010:1-8.
23. Hakala M, Rantala A, Pölkki T. Women's perceptions of counselling on pain assessment and management during labour in Finland: A cross-sectional survey. *Midwifery*. 2022;114:103471. doi:10.1016/j.midw.2022.103471
24. Echevarria GC, Grant GJ, Chung Y, Lax J. Survey of nulliparous parturients' attitudes regarding timing of epidural analgesia initiation. *J Clin Anesth*. 2017;41:106-111.
25. Ditosto JD, Leziak K, Yee LM, Badreldin N. Individuals' experiences of having an unplanned cesarean birth: A qualitative analysis. *Am J Perinatol*. 2022;41:106-109.
26. Kallio H, Pietilä AM, Johnson M, Kangasniemi M. Systematic methodological review: developing a framework for a qualitative semi-structured interview guide. *J Adv Nurs*. 2016;72:2954-2965.

27. Malterud K, Siersma VD, Guassora AD. Sample size in qualitative interview studies: guided by information power. *Qual Health Res*. 2016;26:1753-1760.
28. Morse JM. The significance of saturation. *Qual Health Res*. 1995;5: 147-149.
29. Herlev Hospital. Godt behandlet [Internet]. Accessed February 3, 2025. https://www.herlevhospital.dk/
30. Braun V, Clarke V. *Thematic Analysis: a Practical Guide*. SAGE Publications Ltd.; 2022.

How to cite this article: Højstrup L, Bohart S, Thellesen L, Wildgaard K. Parturients' perspectives on labor pain and epidural analgesia: A protocol for an explorative qualitative study. *Acta Anaesthesiol Scand*. 2025;69(4):e70018. doi:10.1111/aas.70018