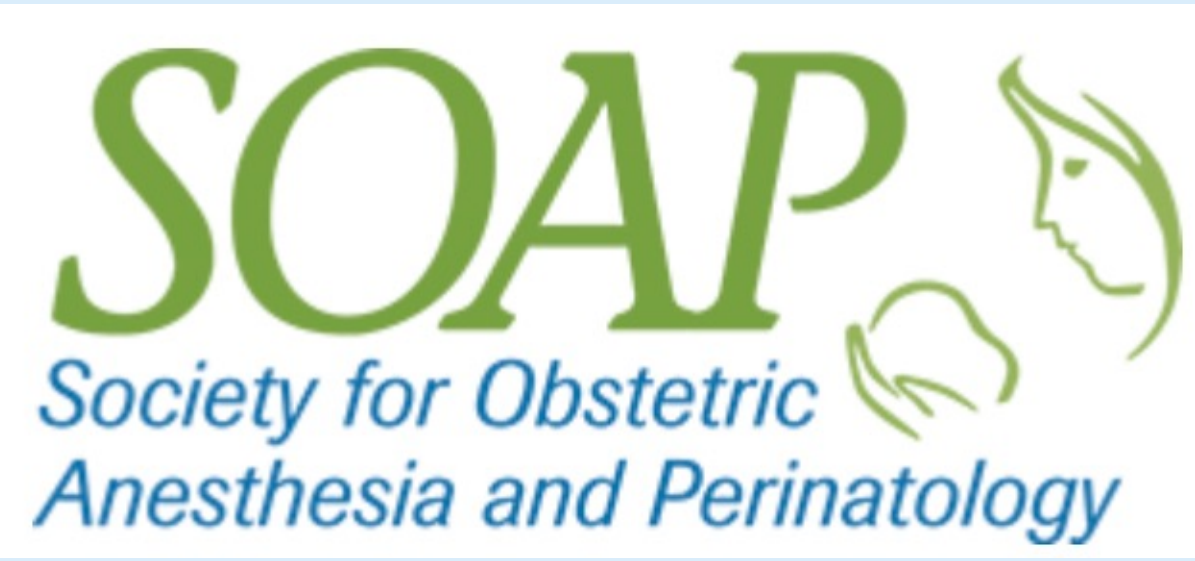




Identifying Factors that Influence Epidural Satisfaction



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Background

- Maternal satisfaction during childbirth is multifactorial, multifaceted, and influenced by 4 primary domains: control and self-efficacy, involvement in decision-making, maternal expectations, and pain level [1]
- Affects patient’s overall outcome and experience, and serves as an important indicator for the quality of a health care system
- Goal was to determine the baseline maternal satisfaction at our hospital and to identify potentially modifiable factors to improve satisfaction of the labor epidural experience

Methods

- This quality improvement study was deemed not regulated after IRB consultation
- Study period: October 2021 to November 2022
- 10-15min 30 question anonymous survey (Figure 1) provided to patients in postpartum
- Included patient demographics, pregnancy and labor characteristics, expectations and experience of the labor epidural, patient-provider interactions, and overall satisfaction based on a 5-point Likert scale (from 1- very dissatisfied to 5- very satisfied)
- Patients classified as satisfied if their response was 4 or 5
- Exclusions: Patients with walking epidurals, CSE, spinal anesthesia, or C-section
- Survey responses were Likert scale dichotomized into “top box”
- Bivariate analyses were conducted, and chi-square tests reported
- Logistic regression adjusted for age and education was used to assess association of explanatory variables with outcome “not satisfied”

Figure 1. Sample of Epidural Satisfaction Survey Questions

How satisfied were you with your epidural experience?	1. Very dissatisfied 2. Somewhat dissatisfied 3. Neither satisfied nor dissatisfied 4. Somewhat satisfied 5. Very satisfied	How well were you able to cope with your labor pain before getting the epidural	1. Not at all well 2. Not very well 3. Moderately well 4. Very well 5. Extremely well 6. Don’t know or unsure
What is the highest level of education you have completed or the highest degree you have received?	1. Less than high school 2. High school degree or equivalent (e.g. GED) 3. Some college/college degree 4. Graduate degree	Was the epidural part of your original birth plan?	1. Yes 2. No 3. I wasn’t sure 4. I don’t remember
Before getting your epidural, how much pain did you experience on a scale of 0-10?	0 (no pain) ... 5 (moderate/tolerable pain)... 10 (severe/worst pain)	Would you recommend getting the epidural procedure?	1. Definitely no 2. Probably no 3. Probably yes 4. Definitely yes
How painful was the anesthesia procedure on a scale of 0-10?	0 (no pain) ... 5 (moderate/tolerable pain)... 10 (severe/worst pain)		

Table 1. Survey Response Analysis via Univariate and Bivariate Chi-Square Test

	Variable	Categories	Satisfaction Level (n=266)		P-Value
			Not Satisfied (n=27, 10.1%)	Satisfied (n=239, 89.9%)	
Demographics	Age group		Missing= 10		0.32
		20-34	11 (45.83%)	131 (56.47%)	
		35-46	13 (54.17%)	101 (43.53%)	
	Race/Ethnicity		Missing= 11		0.72
		White	13 (54.17%)	122 (52.81%)	
		Hispanic	4 (16.67%)	57 (24.68%)	
		Black	1 (4.17%)	12 (5.19%)	
		Other	6 (25.00%)	40 (17.32%)	
	Education Level		Missing= 6		0.92
		High School	1 (4.17%)	11 (4.66%)	
		Some College	11 (45.83%)	117 (49.58%)	
		Graduate Degree	12 (50.00%)	108 (45.76%)	
Labor Characteristics	Parity		Missing= 1		0.43
		Nulliparous	14 (51.85%)	142 (59.66%)	
		Multiparous	13 (48.15%)	96 (40.34%)	
Labor Characteristics	Epidural allowed rest		Missing= 2		<0.01*
		Disagree	9 (33.33%)	23 (9.70%)	
		Neutral	0 (0%)	11 (4.64%)	
		Agree	18 (66.67%)	203 (85.65%)	
Control and Self-efficacy & Involvement in Decision-making	Baseline coping with pain				0.48
		Not well	10 (37.04%)	65 (27.20%)	
		Moderately well	11 (40.74%)	125 (52.30%)	
		Well	6 (22.22%)	49 (20.50%)	
	Planned for labor epidural				0.78
		Yes	20 (74.07%)	189 (79.08%)	
		No	3 (11.11%)	18 (7.53%)	
		Not sure	4 (14.81%)	32 (13.39%)	

	Variable	Categories	Satisfaction Level (n=266)		P-Value
			Not Satisfied (n=27, 10.1%)	Satisfied (n=239, 89.9%)	
Pain Level	Epidural procedure pain		Missing= 1		0.01*
		No pain/mild pain	19 (73.08%)	186 (77.82%)	
		Moderate pain	4 (15.38%)	49 (20.50%)	
		Severe pain	3 (11.54%)	4 (1.67%)	
	Pain level 30mins post-epidural		Missing= 1		0.09
		No pain/mild pain	16 (61.54%)	168 (70.29%)	
		Moderate pain	7 (26.92%)	64 (26.78%)	
		Severe pain	3 (11.54%)	7 (2.93%)	
	Pain pre-epidural				0.66
		No pain/mild pain	0 (0%)	2 (0.84%)	
		Moderate pain	13 (48.15%)	96 (40.17%)	
		Severe pain	14 (51.85%)	141(59%)	
Epidural Expectation & Recommendations	Pain post-epidural		Missing= 4		<0.01*
		No pain/mild pain	18 (69.23%)	205 (86.86%)	
		Moderate pain	5 (19.23%)	30 (12.71%)	
		Severe pain	3 (11.54%)	1 (0.42%)	
	Recommend epidural		Missing= 1		0.02*
		Definitely no	1 (3.70%)	1 (0.42%)	
		Probably yes	7 (25.93%)	27 (11.34%)	
		Definitely yes	19 (70.37%)	210 (88.24%)	
Epidural Expectation & Recommendations	Met expectations		Missing= 3		<0.01*
		Disagree	10 (37.04%)	22 (9.32%)	
		Neutral	1 (3.70%)	8 (3.39%)	
		Agree	16 (59.26%)	106 (87.29%)	



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Table 2. Explanatory Variables Associated with Patients Not Satisfied with Labor Epidural Experience

Variable Reported	Stepwise adjusted for age and education			
	Odds Ratio	95% CI		P-value
		Lower Limit	Upper Limit	
SEVERE EPIDURAL PROCEDURE PAIN (ref= No/low pain)	8.76	1.48	51.91	0.017*
SEVERE PAIN POST EPIDURAL (ref= No/low pain)	33.73	2.41	472.77	0.009*
EPIDURAL DID NOT ALLOW REST (ref= agree &strongly agree)	5.86	2.18	15.77	0.001*

Result

- 266 out of the 363 participants were included for analysis after exclusions
- 239 patients (89.9%) were satisfied vs 27 patients (10.1%) were not satisfied
- No significant associations between patient satisfaction and personal control/involvement in decision-making variables or other factors including patient demographics, parity, and epidural education source
- Variables representing “pain” were associated with less satisfaction: epidural procedural pain, post-epidural pain, and pain during labor course (Table 1)
- Majority of those not satisfied still reported that the epidural met their expectations, allowed them to rest after placement and would recommend an epidural to others
- Logistic regression analysis adjusted for age and education (Table 2): only those with severe “pain” variables had higher odds of reporting not satisfied (C- value 0.725)

Discussion

- Majority (89.9%) reported satisfaction with their labor epidural experience even in the setting of national supply and medication shortages during survey period
- Varying definition of satisfaction may contribute to the large range (~46-88%) for maternal labor epidural satisfaction and conflicting contributors to satisfaction [2]. Tan et al found that multiparous patients were more likely to be dissatisfied while Bélanger-Lévesque et al found the opposite [3]
- Like Tan et al, we did find an association between pain and dissatisfaction. Not satisfied parturients were more likely to report a painful epidural procedure experience, persistent labor pain post-epidural, and epidural did not allow rest.
- Wide confidence intervals in logistic regression analysis may be, at least in part, due to small sample size of 363
- Despite a 10.1% not satisfied rate, only 2 out of 27 patients would not recommend an epidural for labor analgesia
- This is a small, single institutional study and further studies are required to elucidate more modifiable factors that influence maternal satisfaction and verify our findings
- If replicated in future studies, our findings may help reframe anesthesiologists’ approach to patient education, patient expectation, neuraxial consent, and epidural (re)placement and management at our institution

References

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