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What makes labor difficult? Predictors and features of difficult labor in women's and midwives' perspective

Co czyni poród trudnym? Predyktory i cechy trudnego porodu z perspektywy kobiet i położnych

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STRESZCZENIE

CO CZYNI PORÓD TRUDNYM? PREDYKTORY I CECHY TRUDNEGO PORODU Z PERSPEKTYWY KOBIET I POŁOŻNYCH

Cel pracy. Celem tego badania było określenie cech porodu, które czynią go „trudnym porodem" z perspektywy kobiet i położnych.

Materiał i metody. Przekrojowe, wstępne badanie oparte na analizie formularza obserwacji porodu i oceny poziomu trudności porodu opracowanego na potrzeby tego badania i wypełnionego przez położne uczestniczące w badaniu. W badaniu wzięło udział 31 położnych pracujących na sali porodowej oraz w domu narodzin w jednym ze szpitali w Warszawie oraz 152 kobiety, które rodziły tam lub w domu pod opieką jednej z położnych biorących udział w badaniu.

Wyniki. Częściej oceniały swój poród jako trudny kobiety, które korzystały ze znieczulenia zewnątrzoponowego, rodziły dzieci o większej masie a także te, które wykazywały negatywne nastawienie do porodu oraz doświadczały przedłużonego pierwszego etapu porodu. W opinii położnych, oceniane jako trudniejsze były porody z przedłużającym się drugim okresem, nieprawidłowymi wzorcami skurczów macicy oraz wydłużoną fazą utajoną i pierwszym okresem porodu.

Wnioski. Niektóre porody, pomimo tego, że są klasyfikowane jako fizjologiczne, wymagają większego wysiłku zarówno ze strony położnej, jak i rodzącej kobiety i kończą się większym poziomem zmęczenia u obojga. Predyktory trudnego porodu powinny być wykorzystywane przez personel medyczny jako wskazówki pomagające zidentyfikować kobiety zagrożone negatywnymi doświadczeniami porodowymi.

Słowa kluczowe: opieka okołoporodowa, trudny poród, doświadczenie położnych, doświadczenie kobiet rodzących

ABSTRACT

WHAT MAKES LABOR DIFFICULT? PREDICTORS AND FEATURES OF DIFFICULT LABOR IN WOMEN'S AND MIDWIVES' PERSPECTIVE

Aim. The aim of this study was to identify what are the features of 'difficult labor' in the perspective of women giving birth and midwives providing care.

Material and methods. Cross-section, preliminary study based on the analysis of the labor observation form and level of labor difficulty assessment form designed for the purpose of this study and filled in by the midwives participating in the study. The participants were 31 midwives working on the labor unit in one of the hospitals in Warsaw, Poland and 152 women who gave birth.

Results. Women who had epidural, larger babies and a negative attitude towards birth and a prolonged first stage of labor, were more likely to assess their labor as difficult. Among midwives labors with a longer second stage, abnormal uterine contraction patterns, and prolonged latent phase and first stage of labor were assessed as more difficult.

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Conclusions. Some labors, despite being classified as physiological, require more effort on the part of both the midwife and woman giving birth and end with a higher level of fatigue for both. Predictors of difficult labor should be used by healthcare personnel as a guidance to help identify women at risk of negative labor experiences.

Key words: difficult labor, midwives' experience, women's experience, intrapartum care

INTRODUCTION

For decades, childbirth evaluation focused on its biomedical aspects. Today, more emphasis is placed on women's experiences [1]. Globally, women report varied childbirth experiences, some difficult and traumatic, affecting motherhood and other life areas [2]. Understanding what makes labor difficult for women and healthcare personnel is crucial for improving maternity care. Identifying difficulties during labor, providing support, and analyzing the labor's course can help mitigate negative experiences.

Childbirth experiences vary due to women's traits, expectations, prior experiences, labor course, and outcomes [3]. Even physiological births can differ in difficulty and lead to varied experiences. Some require more effort from both midwives and women, resulting in higher fatigue and being perceived as difficult. Successful births can bring personal strength, but without support, they can become traumatic [4,5].

There are no studies on what features lead women to assess their labor as difficult, and little is known about midwives' views. Exploring 'difficult labor' from both perspectives can expand knowledge and improve prenatal care discussions. This study aims to identify features of 'difficult labor' from women and midwives' perspectives and explore differences. By doing so, we hope to contribute to understanding predictors of 'difficult labor' and how healthcare professionals can use them to minimize traumatic experiences.

METHODS

This cross-sectional study is part of a larger project examining factors influencing physiological labor and birth. Previously, we studied fetal positioning's impact on labor. This study broadens the scope to analyze perinatal and neonatal factors related to labor difficulty as assessed by midwives and women.

Conducted from February 2020 to September 2021 at St. Sophia's Specialist Hospital in Warsaw, Poland, the study involved 31 midwives aged 24-54 with 3-32 years of experience. They were trained to fill out observation forms during their shifts, covering 152 labors: 105 in the standard labor unit, 33 in the Birth Centre, and 14 homebirths.

Inclusion criteria were women over 18, single term pregnancies (37-42 weeks), and up-to-date ultrasound scans. Exclusions included induced labors (except post-date), maternal conditions (e.g., diabetes, high blood pressure), and prenatal fetal illnesses (e.g., IUGR, congenital anomalies). Women provided informed consent to participate.

Women in the study were aged 20-46 (M=31; Me=31), with 61.1% being primiparas. BMI ranged from 18.5 or below (2.5%) to over 30 (0.7%). Most had vaginal births (83.6%), with 3.3% instrumental and 13.2% emergency caesarean sections. Infant birth weights ranged from 2,450g to 4,600g (M=3503; Me=3500).

Data analysis used linear regression, r-Pearson correlation, and Kruskal-Wallis test to find predictors of difficult labor. Variables included maternal age, BMI, parity, labor induction, fetal positioning, birthweight, Apgar score, delivery mode, attitude to labor (was subjectively assessed by the midwife on a 5-grade scale "very positive", "positive", "neutral", "negative", "very negative"), perineal trauma, epidural use, blood loss, contraction patterns, and labor stage durations.

Two forms were used: labor observation and labor difficulty assessment, designed via the Delphi method. The experts included five midwives, two obstetricians. There were three rounds of evaluation of tools for observing labor and assessing the difficulty of labor, prepared on the basis of the literature. In addition, the experts were able to propose additional items, considered in rounds 2 and 3 by all experts. Three additional items were added from the original labor observation tool. Only those items for which there was a consensus of all participants (response of 'strongly agree' or 'agree' to the question on the inclusion of the item in the tool) were included in the assessment sheet – 2 items were dropped. Midwives recorded observations and assessed labor difficulty on a 1-10 scale within 5 hours post-birth. Women also assessed their labor difficulty.

The study was approved by the Institutional Review Board of the Centre of Postgraduate Medical Education (No. 4/BP/2020), following relevant guidelines and regulations, with informed consent obtained from all participants.

RESULTS

A statistically significant positive correlation was found between the midwives' assessment of labor difficulty and that of women ($r=0.63$; $p<0.05$). High values of labor difficulty accorded to labors by midwives were accompanied by high values accorded by women. In other words, labors assessed as difficult by midwives were also assessed as difficult by women.

Statistically significant negative correlations were found between assessments of labor difficulty by midwives and the number of pregnancies and births of a given woman. This means that a higher number of pregnancies and births for a given woman were associated with lower assessments of labor difficulty by midwives and women (Table 1). There was no correlation between women's age and assessment of labor difficulty. We identified differences in midwives' and women's assessment of the difficulty of a given birth in correlation with the characteristics of the birth (Tab. 1).

Tab. 1. Variables (features of labor) included in the study in correlation with the assessment of labor difficulty by woman and midwives

		Viewed by women	Viewed by midwives
Number of pregnancies		-0.20**	-0.29***
Number of births		-0.26***	-0.29***
Attitude to birth (as assessed by the midwife)		0.28***	0.14
Length of labor and pushing (in minutes)	Latent phase	0.36***	0.22***
	Stage 1	0.32***	0.21**
	Stage 2	0.51***	0.34***
	Pushing in Stage 2	0.48***	0.36***
Blood loss		0.33***	0.37***
Perineal trauma level (as viewed by the midwife)		0.34***	0.36***
Infant weight at birth		0.23***	0.15

***p<0.01; **p<0.05; *p<0.1

Tab. 2. Relationship between the assessment of labor difficulty and mode of delivery

Mode of delivery	vaginal birth		vacuum extraction		Cesarean section		
	M	SD	M	SD	M	SD	Kruskal-Wallis test (H)
Assessment by the woman	6.34	2.31	7.6	2.30	8.25	1.94	12.66***
Assessment by midwife	5.12	2.16	5.6	2.30	6.8	1.91	10.28***

***p<0.01; **p<0.05; *p<0.1

Tab. 3. Predictors of difficult labor in women's perspective

Linear regression coefficients for the dependent variable: assessment of labor difficulty by women	B	SD	β	t
(Permanent)	1.22	1.61		0.76
Infant birth weight	0.00	0.00	0.17	2.32**
Women's attitude towards birth	0.42	0.25	0.13	1.69*
Length of the first stage of labor (in minutes)	0.00	0.00	0.13	1.74*
Epidural	1.80	0.37	0.38	4.92***

Tab. 4. Predictors of difficult labor in midwives' perspective

Linear regression coefficients for the dependent variable: assessment of labor difficulty by midwives	B	SD	β	t
(Permanent)	1.56		0.45	3.47***
Abnormal uterine contraction patterns	1.19	0.28	0.27	4.18***
Length of latent phase of labor (in minutes)	0.00	0.00	0.23	3.69***
Length of the first stage of labor (in minutes)	0.00	0.00	0.22	3.59***
Length of the second stage of labor (in minutes)	0.02	0.00	0.37	5.91***

Both midwives (M=6.17; SD=1.74 v M=5.16; SD=2.25; t= -2.30; p<0.05) and women (M=7.43; SD=2.32; v M=6.43; SD=2.33; t=-2.11; p<0.05) assessed induced labors as significantly more difficult.

Both midwives (M=4.40; SD=1.78 vs M=6.13; SD=2.20; t-5.26; p<0.01) and women (M=82; SD=2.17 vs M=7.29; SD=2.30; t-4.00; p<0.01) assessed labors with right fetal positioning as more difficult than with the left fetal positioning.

Midwives (M=4.20; SD=1.87 vs M=6.19; SD=2.03; t=-6.20; p<0.01) and women (M=5.86; SD=2.01; vs M=7.20; SD=2.43; t=-3.59; p<0.01) assessed labors with abnormal uterine contractions patterns as more difficult.

Both women (M=7.00; SD=2.11 vs M=4.92; SD=1.56; t=-4.23; p<0.001) and midwives (M=8.10; SD=1.17 vs M=6.24; SD=2.33; t=-3.59; p,0.01) assessed labors that did not progress in the second stage as significantly more difficult. Both midwives (M=6.39; D=2.08 vs M=4.55; SD=1.95; t=-5.56; p<0.01) and women (M=7.88; SD=2.17 vs M=5.65; SD=2.02; t=-6.50; p<0.01) assessed labors with epidural as significantly more difficult.

An analysis of variance (ANOVA) using the Kruskal--Wallis non-parametric test with between-group comparisons (Bonferroni post-hoc) showed that there were significant differences (p<0.05) between assessment of labor difficulty by midwives and women in case of vaginal birth (VB) (lower mean difficulty) and caesarian section (CS) (higher mean difficulty) (Tab. 2).

The final predictor model for women's assessments of labor difficulty proved to be statistically significant (F=13.94; p<0.01) and is responsible for 25% of the dependent variable (corrected R2=0.25). Significant predictors (Tab. 3) of difficult labor among women were epidural, infant birth weight, women's attitude and the length of the second stage of labor.

This shows that women who had epidural, larger babies and, to lesser degree, a negative attitude towards birth and a prolonged first stage of labor, were more likely to assess their labor as difficult. The final predictor model for midwives' assessments of labor difficulty proved to be statistically significant (F=31.85; p<0.01) and is responsible for 45% of the dependent variable (corrected R2=0.45).

Significant predictors of difficult labor among midwives were prolonged first and second stages of labor and abnormal uterine contractions pattern, prolonged length of the latent and first stage of labor (Tab. 4). Midwives assessed labor as more difficult with a longer second stage of labor, abnormal uterine contraction patterns, and prolonged length of the latent phase and first stage of labor.

DISCUSSION

In our study we found a correlation between midwives' and women's perspectives of what constitute a difficult labor, while also indicating the differences in predictors of difficult labor between these groups. Our study showed that prolonged labor is the major predictor of 'difficult labor', in both women's and midwives' perspective. Research also showed that prolonged labor may result from fetal malposition, infant high birth weight and abnormal uterine contraction patterns [6]. Certain fetal positioning increases the risks of labor induction, inefficient uterine contraction patterns and prolonged labor [7]. At the same time, other studies show that prolonged labor (especially when basic physiological needs are unmet) may lead to secondary impairment of contractions [8] and further negative consequences, such as increased blood loss and higher risk of caesarean section [9]. Some studies also show that prolonged labors, particularly preceded by

induction, are assessed by women as more difficult and less satisfying [10].

In our study we found differences between predictors of difficult birth identified by midwives and women. These differences may result from the experiences and roles midwives and women have in the process of labor. For midwives, the second stage of labor requires intensive involvement, continuous presence and high level of concentration. It also involves rapid decision-making, prolonged tension and a high level of stress related to anxiety about the baby's condition [11]. Thus, prolonged second stage of labor may lead to a midwife feeling exhausted. Although the prolongation of second stage did not prove to be a significant predictor in assessments by women, in the evaluation of midwives it did. This may be due to the fact that women are not always aware of the time limit for this stage, and this state of awareness increases the tension among midwives, which is already considerable at this stage.

The situation is different for laboring women who are not always aware of the time limit for the second stage of labor. Our study showed that from their perspective, it was the prolonged first stage of labor that was the major predictor of difficult labor. This again, may be due to the differences in roles in the process. The women are often dissatisfied with the rate of progress of labor, which is usually slow at the beginning, and feel that the pain they experienced in this stage is unproductive [12]. This may lead to the feeling of exhaustion and frustration.

In our study, a prolonged latent phase was a key predictor of difficult labor for midwives. This is because women are admitted to the labor unit early, increasing the time midwives spend providing mental support and meeting physiological needs. Caring for multiple women at different labor stages can be taxing, which is why some facilities only admit women in active labor [13].

A woman's negative attitude toward labor is one of the predictors of a difficult labor assessment. Studies confirm the influence of intrapsychic factors on the experience of labor [14]. Some studies have reported that women's beliefs and attitudes are associated with strategies to cope with labor pain and experiences of labor. Women with a negative attitude are more likely to ask for epidural anesthesia and declare lower satisfaction with labor [14].

The main predictors of difficult labor (high infant birth weight, fetal positioning, and women's negative attitude towards birth) are largely beyond healthcare personnel's control. Therefore, midwives should be alert to these conditions and provide comprehensive support during labor. This includes recommending a birth environment where medical interventions like labor induction, oxytocin, and epidural anesthesia are available. At the study hospital, these predictors are also contraindications for giving birth in a midwife-led birth center or at home [15].

Midwives should use non-pharmacological interventions for difficult labor predictors. Techniques like using a ball, rebozo, manual rotation, and encouraging full pelvic mobility can correct fetal positioning and reduce labor duration [16,17]. Therapeutic touch, support from a birth partner or doula, and respectful care can also enhance women's positive attitudes and satisfaction, even during difficult labor [18,19].

In addition to recommending appropriate facilities and measures for women with difficult labor predictors, attention should be given to the postpartum period. Healthcare personnel should use these predictors to identify women at risk of negative labor experiences. While postpartum debriefing may not reduce psychological trauma, women often need postpartum consultations. Discussing both physical and emotional aspects of the birth with qualified healthcare personnel can help women and their partners understand and process the experience, preparing them for future pregnancies [20].

Limitations

As this study was conducted on a limited number of women mostly in one facility (except homebirth), it cannot be generalized to the rest of the population in Poland and beyond. More research is needed looking at the level of satisfaction among women who assessed their labor as difficult, their well-being, and how their experience impacted their reproductive plans. It would be particularly interesting to look at different labor settings and at the impact of the model of care on assessments of the level of difficulty.

CONCLUSIONS

Some labors, despite being classified as physiological, require more effort from both, the midwife and woman giving birth. These labors can end with a higher level of fatigue for both. This study, which utilized tools developed through the expert Delphi method, identified predictors of difficult childbirth. The predictors of difficult labor can provide important information for the midwife in charge about the labor, assisting her in planning intrapartum care. It is worth conducting further research among women after difficult labor, to assess their well-being, their satisfaction with labor, and its impact on their reproductive plans. It would be particularly interesting to look at different labor settings and at the impact of the model of care on assessments of the level of difficulty.

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