CHILDBIRTH FEAR INFLUENCE ON DELIVERY PROCESS AND THE CHOICE OF ANALGESIA METHOD

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Key words: childbirth, fear of childbirth, complications of delivery, pain of delivery, pain relief.

Summary
Labor, as a life event, is characterized by tremendous physiological and psychological changes that require major behavioral adjustments in a short period of time. These changes may negatively impact the state of the pregnant woman and the fetus and may even complicate pregnancy and childbirth. Clinically significant fear of childbirth is estimated to affect 20-25% of pregnant women and the prevalence of pathological fear is thought to be 6-10%.

Objective. To examine the influence of fear of childbirth on the process of delivery and the choice of analgesia.

Methods. The study composed of two stages was carried. During the first stage of this study 245 low-risk pregnant women in their 3rd trimester of pregnancy completed A version of The Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ) and the fear of childbirth was evaluated. During the second stage of the study medical records (including information about the exact time of labor, the beginning of labor, duration of labor, labor progress, mode of delivery, the medicinal pain relief used during delivery) of 189 respondents were examined. Statistical analysis was carried out using SPSS 17.0.

Results. Study showed that the majority of respondents (47.8 %) experienced moderate fear, 34.7% respondents suffered from severe fear, 16.3% respondents experienced mild fear, while 1.2% respondents suffered from pathological fear. Severe fear was more common in unemployed, single women and women with lower education. The fear of childbirth intensifies closer to the birth. Statistically significant links between the fear of childbirth and the beginning of spontaneous labor, premature rupture of membranes, induced labor and the use medicinal pain relief have been found. The study could not show an important connection between the mode of delivery and the fear of childbirth. However, respondents who had vacuum delivery were experiencing higher level of fear of childbirth than those respondents who had spontaneous delivery or caesarean section.

Conclusions. Pregnant women experience moderate or severe fear of childbirth closer to the birth. Greater fear of childbirth increased the risk of protracted and inducted labor and using medicinal pain relief during the labor. The fear of childbirth is not connected with the mode of delivery.

Introduction
Relations between women’s psychological condition, mode of delivery, development of the fetus and women’s state after childbirth receive more and more scientific proof. Fear is natural and helps women in psychological preparation for changes, however increased fear may have influence on understanding of childbirth pain, mode of delivery and the choice of analgesia [13]. More than 90% of the tension and stress of the pregnancy period is related to childbirth [3]. Clinically significant fear of childbirth is estimated to affect 20-25% of pregnant women and the prevalence of pathological fear is thought to be 6-10% [10]. Previous population-based studies of S. Raisenen and others have found that fear of childbirth complicates 7.6–17.8% of pregnancies [8].

It was determined, that respondents experiencing intense childbirth fear usually have longer deliveries [1], childbirth fear is often associated with labor dystocia (obstructed or prolonged labor), during which labor is often induced. Inducement of labor is often associated with depression in women right after giving birth. Intense childbirth
fear is often associated with emergency caesarian section [7], which results with after birth depression lasting up to half a year after giving birth [6].

Understanding and responding to pregnant woman’s beliefs and attitudes is an important focus of international maternity health policy. Such terms as „woman centered care“ and „informed choice“ reflect that in addition to the physiological aspects of pregnancy and birth, there are psychological, psychosexual, and psychosocial aspects unique to the individual life experiences of pregnant women. It is essential to take these aspects into account in order to optimize improve the childbirth outcomes and experiences [4].

**Study objective** - examine the influence of fear of childbirth on the process of delivery and the choice of analgesia.

**Study material and method**

The quantitative research was conducted using questionnaire and document analysis (childbirth medical record) methods. During the first stage of the study low-risk pregnant women in their 3rd trimester of pregnancy completed A version of The Wijma Delivery Expectancy/Experience Questionnaire (W-DEQ) and the fear of childbirth was evaluated. The construct of this questionnaire is childbirth fear, which is determined by the means of the woman’s cognitive appraisal regarding the delivery process (during labor W-DEQ A version and W-DEQ B version after giving birth)[12]. Questionnaire consists of 6 questions and 33 statements. 6 factors were assessed: 1) fear, 2) negative appraisal, 3) loneliness, 4) lack of self-efficacy, 5) lack of positive anticipation, 6) concerns for the child. Statements were valued by 6 point Likert scale.

During the second stage of the study medical records (including information about the exact time of labor, the beginning of labor, duration of labor, labor progress, mode of delivery, the medicinal pain relief used during delivery) were examined.

Statistical analysis was carried out using SPSS 17.0. Normal data distribution was examined applying the *Kolmogorov-Smirnov* test. For comparison of averages of data with normal distribution among two independent groups *Student* criterion was used. If no normal distribution is present and for low values nonparametric *Mann-Whitney* criterion was used. For evaluation of more than two groups with normal distribution *ANOVA* method was applied, without normal distribution - *Kruskal-Wallis* criterion. For comparison of fear factors when they cannot be assumed to be normally distributed, unparametric *Wilcoxon* criterion was used.

Two ways of presenting data are used: if normal distribution is present - average±standard deviation, if not - average(median).

To distinguish relations between different data (with abnormal distribution) *Spearman* correlation method (*r* coefficient) was used.

Statistical hypothesis significance levels used in the study: when p<0,05 (*) – significant, when p<0,01 (**) - very significant, when p<0,001 (***) - extremely significant and p>0,05 (ns) - statistically insignificant. The inner validity of the questionnaire was calculated using the *Cronbach Alpha* coefficient. Study results show that W-DEQ questionnaire overall inner validity is high - *Cronbach Alfa* = 0,906.

**Results**

245 out of 300 questionnaires were filled and returned. Return percentage – 81,67%. Overall 245 low risk pregnant women took part in the study. Respondents were from 18 to 40 years old (age average 28,65±4,60 years, median - 29 years), according to the duration of pregnancy from 31 to 41 weeks (average 35,49±3,43 weeks, median – 36 weeks). According to age, two groups were analyzed, assigned according to the median - 118 (48,2%) younger than 29 years old and 127 (51,8%) 29 years old and older respondents, according to the week of pregnancy, also two groups - 135(55,1%) respondents pregnant up to 37 weeks and 110(44,9%) – 37 and more weeks.

Majority of respondents (53,5%) were giving birth for the first time (nulliparous), 37,1% - second time and 9,4% - more than second time, out of these respondents - 7,8% third time, 1,2% fourth time and 0,4% – sixth time. Absolute majority of the respondents (95,5%) were married or had a partner. More than half of the respondents (66,9 proc.) had a higher education, 25,7% - secondary and 7,3% basic education. According to education respondents were divided in two groups - 164 (66,9%) respondents who have higher education and 81 (33,1%) respondents who have a lower education level (basic/secondary). Majority of the respondents (76,7%) had a job, 14,7% unemployed and 8,6% were students.

After analyzing the answers of childbirth fear questionnaire total childbirth fear index was calculated. Standardized averages and their normal distributions of separate childbirth fear factors was also calculated.

In the common group of respondents total index of childbirth fear was 56,67±20,74 points. Out of possible 165 points, while 0-37 points represent mild childbirth fear, 38-65 points – moderate, 66-100 points – severe and more than 100 points – pathological fear.
Study results show that the majority of respondents (47.8%) had moderate childbirth fear, 34.7% – severe, 16.3% – mild and 1.2% – pathological fear. Since only 3 respondents had pathological childbirth fear, in this study we will be adding this number to the group of respondents with high childbirth fear.

Analysis of different W-DEQ questionnaire factors allowed us to estimate their standardized averages for comparison among themselves. When a nonconformity to normal distribution was found, unparametric Wilcoxon criterion was used.

While assessing the childbirth fear factors it was determined that respondents evaluated their self-efficacy (2.19(2.29) points) and their fear during delivery (2.14(2.17) points), most negatively of all the factors (p<0.001), at the same time loneliness (0.91(0.75) points) and concerns for the child were evaluated more positively (p<0.001) in comparison to other factors.

No significant differences were observed in the analysis of the total rate of childbirth fear in relation to experience of delivery (childbirth for the first time 55.74±20.58 points., second time 58.60±21.64 points and more than second time 54.35±18.10: p=0.513) – only a slightly increased average was observed in the group giving birth for the second time.

No significant difference was determined in the analysis of the expression of childbirth fear, that is overall distribution of childbirth fear index distribution among levels of childbirth fear according to experience of childbirth (p=0.184). In the group of women giving birth for the second time a slightly increased number of women with severe fear childbirth was observed compared to nulliparous respondents and women giving birth more than second time (severe childbirth fear giving birth for the second time 45.1 proc., first time - 30.5% and more than second time - 30.4%)

Study results show that respondents whose childbirth was timely had significantly less childbirth fear (p=0.003) compared to respondents, whose labor was induced. It was also observed that they had less childbirth fear than respondents who had premature water break (timely delivery 53.78±18.81 points, premature water break 58.0±27.57 points and induced labor 66.76±19.42 points: p=0.011) (1 pic.).

Analysis of different childbirth fear factors depending on begin of labor and mode of delivery show differences in the expression of childbirth fear. Differences of overall childbirth fear total rate average depending on the beginning of labor and mode of delivery are shown in the following figures.

1 pic. Differences of overall childbirth fear total rate average depending on the beginning of labor

2 pic. Different evaluation of childbirth fear factors depending on beginning of delivery

3 pic. Differences of childbirth fear factor evaluation in relation to labor inducement

4 pic. Evaluation of factors representing childbirth fear depending on the mode of delivery
on the beginning of labor determined that before delivery respondents whose labor was induced evaluated their self-efficacy more negatively (induced labor 2.5(2.6) points, premature water break 2.1(2.4) points and timely delivery 2.1(2.2) points: p=0.028), positive anticipation (induced labor 2.5(2.3) points, premature water break 1.8(1.7) points and timely delivery 1.4(1.2) points: p<0.001) during delivery they had more concerns for the child (induced labor 1.9(1.5) points, premature water break 1.0(1.0) points and timely delivery 0.8(0.5) points: p=0.002) compared to respondents, whose delivery was timely and respondents with premature water break, even though the positive anticipation and concerns for the child of the latter group of respondents were higher than respondents who gave a timely delivery (2 pic.).

The applied Spearman correlation method showed the duration of delivery was significantly influenced (especially in the first and second periods) by higher lack of positive anticipation (first period r=0.20: p=0.006; second period r=0.23: p=0.003; overall childbirth duration r=0.19: p=0.016) and higher concerns for the child (first period r=0.18: p=0.015; second period r=0.18: p=0.023; overall childbirth duration r=0.20: p=0.011) (1 table).

After analyzing overall childbirth fear index in respect of induced labor, a significant difference was identified (p<0.05) - respondents whose labor was induced had a higher fear of childbirth than those whose labor was not induced (60.15±21.97 points vs 53.48±20.35 points: p=0.032).

Analysis of evaluation of different childbirth fear factors in relation to labor inducement revealed that before delivery respondents whose labor was induced evaluated their positive anticipation more negatively (2.0(1.7) points vs 1.3(1.0) points: p=0.001) during labor they had more concerns for the child (1.2(1.0) points vs 0.8(0.5) points: p=0.028) compared to respondents whose labor was not induced (3 pic.).

Analysis of correlation between childbirth fear and labor inducement by artificially breaking water (amniotomy) revealed significant relations between amniotomy and overall childbirth fear index (r=0.21: p=0.004) and such factors as fear (r=0.19: p=0.010), lack of self-efficacy (r=0.20: p=0.007) and positive anticipation (r=0.21: p=0.003) and concerns for the child (r=0.18: p=0.013) - labor inducement by artificially breaking water was more commonly used when respondents had higher childbirth fear, especially related to lack of positive anticipation, lack of self-efficacy, fear and concerns for the child (2 table).

Significant relations were determined between labor induced by oxytocin and childbirth fear factors, such as lack of positive anticipation (r=0.21: p=0.003) and concerns for the child (r=0.19: p=0.008) – if the childbirth fears of

Table 1. Relations between fear of childbirth and childbirth duration

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Period 1</th>
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<th>Period 2</th>
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<th>Period 3</th>
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<tr>
<td></td>
<td>r</td>
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<td>-0.14</td>
<td>ns</td>
<td>0.04</td>
<td>ns</td>
<td>-0.05</td>
</tr>
<tr>
<td>Negative assessment</td>
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<td>ns</td>
<td>-0.14</td>
<td>ns</td>
<td>0.04</td>
<td>ns</td>
<td>-0.01</td>
</tr>
<tr>
<td>Loneliness</td>
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<td>ns</td>
<td>0.05</td>
<td>ns</td>
<td>0.04</td>
<td>ns</td>
<td>-0.01</td>
</tr>
<tr>
<td>Lack of positive efficacy</td>
<td>0.20</td>
<td>0.006</td>
<td>0.23</td>
<td>0.003</td>
<td>0.15</td>
<td>ns</td>
<td>0.19</td>
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<tr>
<td>Concerns for the child</td>
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<td>0.015</td>
<td>0.18</td>
<td>0.023</td>
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Table 2. Relations between childbirth fears and application of labor inducing measures

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<th>Indicators</th>
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<td></td>
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<tr>
<td>Overall childbirth fear index</td>
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<tr>
<td>Fear</td>
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<td>Loneliness</td>
<td>0.10</td>
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<td>Lack of self-efficacy</td>
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<td>Lack of positive anticipation</td>
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<tr>
<td>Concerns for the child</td>
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</table>

Table 3. Relations between childbirth fear and measures of pain relief

<table>
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<tr>
<th>Indicators</th>
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<th>Doloblok</th>
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<td></td>
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<td>p</td>
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<tr>
<td>Overall childbirth fear index</td>
<td>0.10</td>
<td>ns</td>
</tr>
<tr>
<td>Fear</td>
<td>-0.03</td>
<td>ns</td>
</tr>
<tr>
<td>Negative appraisal</td>
<td>-0.01</td>
<td>ns</td>
</tr>
<tr>
<td>Loneliness</td>
<td>0.13</td>
<td>ns</td>
</tr>
<tr>
<td>Lack of self-efficacy</td>
<td>-0.06</td>
<td>ns</td>
</tr>
<tr>
<td>Lack of positive anticipation</td>
<td>0.27</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Concerns for the child</td>
<td>0.18</td>
<td>0.016</td>
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</table>
lack of positive anticipation and concerns for the child are higher, oxytocin should have been used in more cases (2 table).

Assessment of the overall childbirth fear index in relation to mode of delivery no significant relations were discovered, however it was observed that respondents, whose mode of delivery was vacuum extractor assisted had higher childbirth fear levels than those respondents who had normal vaginal childbirth or cesarean section surgery (vacuum extractor assisted delivery 67,0(68,0) points, cesarean section surgery 58,19±19,48 points and normal vaginal childbirth 56,46±20,68 points: p=0,777). Significant differences might have not been determined due to the low number of vacuum deliveries n=4.

Analyzing different childbirth fear factors depending on the mode of delivery did not show significant (p<0,05) differences, although it was noticed that the respondents who had vacuum extractor assisted delivery had previously evaluated almost every childbirth fear factor worse, except for the lack of positive anticipation (4 pic.).

After analyzing the overall fear of childbirth factors depending on the use of analgesia, a significant (p<0,05) difference was found – respondents who had medicinal pain relief during the labor were experiencing higher levels of fear than those respondents who did not (59,22±22,46 points vs 52,39±18,75 points: p=0,032).

The analysis of different fear of childbirth factors depending on the use of analgesia showed that respondents, to whom pain relief was administered, assessed their confidence during delivery more negatively (1,8(1,7) points vs 1,3(1,0) points: p=0,003), stressed their loneliness more (1,0(0,8) points vs 0,7(0,4) points: p=0,006) and had more concerns about the child (1,1(1,0) points vs 0,8(0,5) points: p=0,010) compared to respondents with no analgesia used during the labor.

Significant relations were determined between childbirth fear and use of epidural anesthesia technique in the factors of lack of positive anticipation (r=0,27: p<0,001) and concerns for the child (r=0,18: p=0,016) – epidural anesthesia technique was more commonly used when the pregnant woman had higher fears during childbirth, especially fears of lack of positive anticipation and concerns for the child. Significant relation was noticed between administering Doloblok and fear of lack of self-efficacy during delivery - if the lack of self-efficacy fear is higher, usually Doloblok was administered more often (3 table).

Assessment of results

The hypothesis raised in the beginning of the study, that women experiencing less fear during childbirth give birth physiologically and without medicinal pain relief, has been confirmed. The results show, that irrespective of experience of childbirth (both nulliparous and multiparous) experience medium of high fear of childbirth. Our results are similar to those of other scientific studies. F. e. during a scientific study in Australia (using W - DEQ questionnaire) showed that almost 50% of pregnant women experienced medium fear and 26% experienced high levels of fear nearing the time of delivery [2]. Also, the percentage of respondents experiencing pathological fear differs, our result is 1,2%, meanwhile in Scandinavia about 6-10% of respondents experience pathological childbirth fear (W-DEQ total score ≥100) [12].

Analysis of respondents’ expression of childbirth fear, that is the overall childbirth fear index distribution among fear levels depending on the experience of childbirth, did not show any significant difference. Only in the group of women who were to give birth for the second time there was slightly more respondents with high levels of childbirth fear than the nulliparous women. The reason for this difference might be a negative previous childbirth experience. Therefore it is important while doing the research to separate women who had negative and positive labor experience into two different groups. We have not done this in our research.

The study conducted in 6 European countries [8] also did not find a significant link between the childbirth fear and the number of deliveries. This study showed that 11,4% nulliparous women and 11% of multiparous women experienced severe fear of childbirth. Whereas other scientists state that nulliparous women experience higher levels of childbirth fear than multiparous women [6]. What is more, Australian researchers have found links between the childbirth fear and number of deliveries – severe fear (W-DEQ total score ≥66) was experienced by 31,5 % nulliparous and 18 % multiparous women[11].

The study showed that respondents who had timely delivery experienced significantly (p=0,003) lower levels of childbirth fear than those respondents who had induced labor, also the group of timely delivery respondents experienced lower levels of childbirth fear than those who had premature water break.

Spearman’s correlation method showed that greater lack of positive anticipation had a significant impact for a longer labor duration, especially for the first and second period of labor.

After analyzing the overall childbirth fear index depending on the labor inducement a significant (p<0,05) difference was found – respondents with induced labor had experienced higher levels of
childbirth fear than those respondents with natural labor.

After analyzing the overall childbirth fear index depending on the use of analgesia a significant (p<0.05) difference was found – respondents for whom the analgesia was administered experienced higher level of fear of childbirth than those respondents with no medicinal pain relief.

In this research we could not gather information about cesarean deliveries on maternal request, because in Lithuania there is no legal basis for this kind of operation without medical indications. This is one of the flaws of our study. During the pregnancy it is advisable to determine whether or not pregnant women are planning to have cesarean section and what is the reason for this choice: the fear of childbirth or previous negative labor experience. The science shows that if these women receive psychological help in time, they tend to choose natural vaginal delivery.

Other flaw of our study was the low number of respondents, therefore, concrete conclusions about fear of childbirth and preferred mode of delivery cannot be drawn, for example, relation between childbirth by vacuum extraction and fear of childbirth because there were only four such cases in this study.

In conclusion, according to scientific studies and practical experience of other countries, the medical staff, providing first-hand ambulatory medical care services for pregnant women in Lithuania (family doctors, midwives, doctors obstetricians-gynecologists) should take note of the psycho-emotional state of pregnant women during pregnancy and especially nearing delivery.

Conclusions

1. Study results show that majority of pregnant women, both giving birth for the first time and those with previous experience of delivery, experience medium and high levels of childbirth fear. Fear increases nearing time of delivery, especially giving birth for the second time. Respondents giving birth for the second time had more negative attitudes, assessed their confidence and self-reliance more negatively, they experienced more negative thoughts about the health condition of the child, compared to women giving birth for the first time. Single respondents with lower education felt more fear of childbirth compared to respondents who have a partner and a higher education.

2. Study results also show that respondents whose delivery was timely had a significantly lower childbirth fear, estimated their self-efficacy better, had more positive anticipation and less concerns for their child, compared to the respondents whose labor was induced. It was also observed that lack of positive anticipation had a significant influence on the duration of labor, especially in the first and second periods. Respondents with higher childbirth fear had premature water break more often, more often labor was induced by oxytocin or amniotomy. While analyzing the influence of different childbirth fear factors in respect of induced labor it was determined that before delivery respondents whose labor was induced had less positive anticipation about their delivery, they had more concerns for their child compared to respondents whose labor was not induced. Respondents who feared childbirth less most often would have timely deliveries. Significant relations between fear of childbirth and mode of delivery were not identified.

3. Respondents experiencing higher levels of fear choose medicinal pain relief methods more often. Respondents, to whom pain relief was administered, assessed their confidence during delivery more negatively, stressed their loneliness more and had more doubts about the child compared to respondents without medical pain relief.

References

Raktažodžiai: gimdymas, gimdymo baimė, gimdymo komplikacijos, gimdymo skausmas, gimdymo nuskausminimas.

Santrauka