

Factors predicting birth satisfaction in Hungary

Zsofia Borbala Nagy, Caroline Lafarge

Abstract

Birth satisfaction is influenced by demographic, obstetric and cognitive factors. Little research exists on birth satisfaction in Hungary, despite this country displaying high rates of medical interventions during childbirth. A cross-sectional study was conducted online with 78 Hungarian women. Participants completed the Birth satisfaction and the Birth beliefs scales alongside a demographic and obstetric questionnaire. Birth satisfaction was associated with parity, place of birth, pain management methods, delivery mode and adherence to birth plan as well as beliefs in birth as a medical process, but not with self-efficacy or birth beliefs as a natural process. However, when considered together, none of the variables predicted birth satisfaction, implying that other factors may be at play. Given the limited research on birth satisfaction in Hungary, these results contribute important foundations for further research.

Introduction

From a medical point of view, childbirth is a complex and risky experience in a woman's life. In 2017 globally, 810 women died in childbirth every day (World Health Organisation [WHO], 2019). Despite a drop of 38% between 2000 and 2017, on average eight maternal deaths occur per 100 000 live births in Europe (Roser and Ritchie, 2019). Traumatic births are also common with 1.5 million European women reporting having experienced a traumatic birth in 2020 (Devotion CA18211, 2020). Furthermore, as many as 21% of women do not have positive birth experiences (Henriksen et al., 2017). Depression, fear of childbirth, and history of abuse are associated with negative birth experiences (Henriksen et al., 2017).

Several elements have been shown to influence birth experience. Obstetric factors such as mode of delivery affect birth experience (Handelzalts et al., 2017). Evidence suggests that women who had unplanned modes of delivery (emergency C-section, vacuum extraction) report more negative birth experiences than those with no unplanned interventions (elective C-section, spontaneous vaginal delivery; [Handelzalts et al., 2017]). Induction of labour may also impact birth experience; however, research is inconclusive. Some studies show that labour induction is associated with less positive experience (Kallianidis et al., 2019). Others suggest that women who deliver vaginally post-induction do not have worse birth experience than those who have spontaneous vaginal deliveries (Schaal et al., 2019). Pain management may also contribute to birth experience. Epidural analgesia has been linked to negative birth experiences (Fenaroli et al., 2019). However, the causal relationship is unclear, given that epidurals tend to be used when the pain is intense. Birth setting may also influence birth experience, but again, research is inconclusive. Some studies indicate that home births are associated with higher birth satisfaction (Fleming et al., 2016) whilst others show that women giving birth in health facilities are more satisfied than those delivering at home (Takayama et al., 2019).

Concerning psychological factors, having a birth plan and the extent to which it is adhered to also affect birth experience. Afshar et al. (2017) found that women who had a birth plan were less satisfied and felt less in control of their birth experience. Thus, setting expectations and then not meeting them, might lead to dissatisfaction. Confidence in one's ability is another factor to consider. Sánchez-Cunqueiro, Comeche and Docampo (2018) found that higher self-efficacy during labour resulted in a more positive childbirth experience.

Birth cognitions also influence birth experience. Preis and Benyamini (2017) suggested that women develop two sets of beliefs about birth: beliefs about birth as a medical or a natural process. They established that women who score higher on birth beliefs as a natural process tend to have more positive birth experience than those who score high on birth beliefs as a medical process. They tend to have more positive expectations, consider birth as a controllable event and view pain as inherently part of delivery. Consequently, they tend to choose more natural modes of delivery and pain management methods, and less medicalised places of delivery, whereas women who score high on birth beliefs as a medical process tend to do the opposite (Preis et al., 2019).

Little research on birth satisfaction has been conducted in Hungary, despite being one of the most medicalised European countries regarding childbirth. In 2018, 41% of deliveries were c-sections - far above the 10-15% rate the WHO recommends – and episiotomies occurred in 55% of vaginal births, despite being contraindicated for routine use (Engler et al., 2021). Hungary is also of interest because of the widespread healthcare corruption in this country (European Commission, 2017), with 60% of women offering cash payments to their obstetricians (Baji et al., 2017).

The mixed findings regarding factors contributing to birth experience and the paucity of evidence in the Hungarian context warrant further research. This study aims to examine the factors that influence birth satisfaction in Hungary considering demographics, obstetric and cognitive (birth beliefs, self-efficacy) factors.

Method

This study used a retrospective, cross-sectional design to assess factors predicting birth satisfaction. The outcome variable was birth satisfaction, and the predictors were birth beliefs, self-efficacy, demographic and obstetric variables. Participants were 78 women, after 19 discontinued the survey (completion rate = 80.4%). To be eligible, women had to be 18 years old or over, fluent in English, and had given birth in the past 10 years.

Birth satisfaction was measured with the revised Birth Satisfaction Scale (BSS-R, Hollins-Martin and Martin, 2014). The BSS-R contains 10 items rated on a 0-4 (strongly disagree to strongly agree) scale. It has three subscales - quality-of-care provision, women's personal attributes and stress experienced during labour - and an overall birth satisfaction scale. Example items include: "*The delivery room staff encouraged me to make decisions about how I wanted my birth to progress*" (quality-of-care provision), "*I felt out of control during my birth experience*" (women's personal attributes), and "*I thought my labour was excessively long*" (stress experienced during labour). Some items are reverse-coded. Higher scores indicate higher satisfaction. The scale has good internal reliability with Cronbach's alpha values between 0.64 and 0.79 (Hollins-Martin and Martin, 2014).

To examine birth beliefs, the Preis and Benyamini's Birth Belief Scale (BBS; 2017) was used. The BBS contains 11 items, rated on a 1-5 (strongly disagree to strongly agree) scale, and comprises two factors: beliefs about birth as a medical process, and as a natural process. Examples of medical beliefs include: "*Often, a woman's body structure does not allow her to give birth naturally*". Examples of natural beliefs include "*Labour should be allowed to proceed at its own pace.*" Higher scores mean a stronger belief on each subscale. Cronbach's alpha values indicate good internal reliability (birth beliefs as a medical process: $\alpha=0.79$, birth beliefs as a natural process: $\alpha=0.70$ [Preis and Benyamini, 2017]).

Self-efficacy was measured using the 10-item General Self-Efficacy Scale (GSES, Schwarzer and Jerusalem, 1995), scored on a 1-4 (not at all true to exactly true) scale. Example statements include: *"I can remain calm when facing difficulties because I can rely on my coping abilities."* Higher scores indicate higher self-efficacy. The scale displays high internal validity with Cronbach's alpha values between 0.76 and 0.90 (Schwarzer and Jerusalem, 1995).

Demographic data included age, marital status, ethnicity, and education level. Questions were also asked about number of pregnancies and children. Obstetric data regarding their most recent delivery covered: date of birth, setting (hospital or other), pain management methods (none, natural methods, TENS machine, gas and air, pethidine, or epidural), whether they had a birth plan and what extent they adhered to it, attendance to birth preparation courses, delivery mode (vaginal, vaginal with instruments, C-section planned/ unplanned), and whether labour was induced.

Data were collected online between March and April 2022. The recruitment advert was shared on social media. It provided basic information about the study and the link to the survey. Participants were presented with an information sheet and a consent form. The questionnaire took approximately 15 minutes to complete. The research was approved by the University of West London Psychology Ethics Committee. Participants' potential for distress was considered, and the debrief sheet contained contact information for support services.

Results

Altogether 78 women participated in the study. Their profile is displayed in Tables 1 and 2. Participants' age ranged between 21 and 50 years old at data collection (Mean = 35.7; SD=5.87). Most were White, married/in a relationship and highly educated. Most were

multiparous, had given birth in a hospital, had a vaginal birth) and had not been induced.

Just under half had a birth plan and, of those, most adhered to it moderately or greatly.

Table 1. Demographic characteristics.

Variables	N (%)
<i>Age</i>	
< 35	41 (52.6%)
> 35	37 (47.4%)
<i>Marital status</i>	
Single/divorced	4 (5.1%)
Married/in a relationship	73 (93.6%)
<i>Ethnicity</i>	
White	68 (87.2%)
Others	7 (9.1%)
<i>Education</i>	
A levels or below/equivalent	2 (2.6%)
First degree	28 (35.9%)
Postgraduate degree	44 (56.4%)

Table 2. Obstetrics characteristics.

Variables	N (%)
<i>Parity</i>	
Primiparous	29 (37.2%)
Multiparous	49 (62.8%)
<i>Setting</i>	
Hospital	67 (85.9%)
Other	11 (14.1%)
<i>Pain management</i>	
None	14 (17.9%)
Low intensity	33 (42.3%)
High intensity	31 (39.7%)
<i>Delivery mode</i>	
Vaginal birth	50 (64.1%)
C-section planned	10 (12.8%)
Unplanned intervention	18 (23.1%)
<i>Induction</i>	
Yes	22 (28.2%)
No	56 (71.8%)
<i>Birth plan</i>	
Yes	37 (47.4%)

No	41 (52.6%)
<i>Adherence to birth plan</i>	
A great deal	13 (35.1%)
A moderate amount	12 (32.4%)
A little	7 (18.9%)
Not at all	5 (13.5%)

The scales' internal reliability was high with Cronbach alpha values between .70 (birth as a natural process) and .88 (self-efficacy).

Birth satisfaction by demographic and obstetric variables

As most variables were not evenly distributed, non-parametric tests were used to examine differences in birth satisfaction according to obstetric and demographic variables (see Table 3).

Table 3. Differences in birth satisfaction by demographic and obstetric variables.

		Birth satisfaction Mean (0-40)	Mann Whitney (U)	Kruskal Wallis (H)
Total		25.27		
Age	< 35	25.12	717.50	
	> 35	25.43		
Pain management	None	26.36		8.90*
	Low intensity	27.48		
	High intensity	22.42		
Parity	Primiparous	22.45	952.00*	
	Multiparous	26.94		
Delivery mode	Vaginal	27.26		12.83**
	C-section planned	22.30		
	Unplanned intervention birth	21.39		
Setting	Hospital	24.04	628.00***	
	Other	32.73		

Birth plan	Yes	24.95	769.50	
	No	25.56		
Birth plan adherence	A great deal	28.54		11.97**
	A moderate amount	26.58		
	A little	22.57		
	Not at all	15.00		
Labour induction	Yes	23.59	718.50	
	No	25.93		

* $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

The results show significant differences in birth satisfaction according to: 1) parity (U=952, $z=2.50$, $p=.012$, $r=.28$) with multiparous women more satisfied than primiparous ones; place of birth (U=628, $z=3.73$, $p<.001$, $r=.42$), with those delivering outside a hospital setting more satisfied than those who delivered in hospitals; 2) pain management methods (H(2)=8.90, $p=.012$), with participants who used high intensity pain management methods less satisfied than those using low intensity ones ($p=.003$); 3) delivery mode (H(2)=12.83, $p=.002$) with women who had a vaginal delivery more satisfied than women who had unplanned intervention(s) or planned C-sections ($p=.001$ and $p=.028$ respectively); 4) adherence to birth plan (H(3)=11.97, $p=.007$) with women who adhered to their birth plans to *a moderate amount* more satisfied than those who did *not at all* ($p=.023$) and women who adhered to it *a great deal* more satisfied than those who did *not at all* ($p=.002$) or only *a little* ($p=.019$). There were no significant differences in birth satisfaction according to whether women had a birth plan or not (U=769.5, $z=.11$, $p=.912$, $r=.012$), or whether labour had been induced or not (U=718.5, $z=1.14$, $p=.254$, $r=.012$), or age (U=717.5, $p=.681$, $r=.04$).

Relationship between birth satisfaction, and demographic obstetric and cognitive variables

To determine the predictors of birth satisfaction, correlation analyses were run. The results (see Table 5), show that birth beliefs as a medical process was the only variable

significantly, negatively correlated with birth satisfaction ($r = -.31, p = .005$), indicating that the higher the beliefs in birth as a medical process, the lower the birth satisfaction. Birth beliefs as a medical process were negatively correlated with the stress experienced during birth ($r = -.31, p < .05$), and personal attribute ($r = -.39, p < .05$), meaning the higher the beliefs as a medical process, the lower the satisfaction with the *stress experienced* and the *personal attributes* during birth. Birth beliefs as a natural process positively correlated with satisfaction with the *quality-of-care* provision during childbirth: $r = .23, p < .05$. Moreover, self-efficacy was negatively correlated with satisfaction with personal attributes, $r = -.31, p < .05$. Age did not correlate with any variables. As expected, the birth satisfaction subscales positively correlated with birth satisfaction overall and with each other.

Table 5. Correlation between birth satisfaction and birth beliefs, self-efficacy and age.

	Birth as medical process	Birth as natural process	Self-efficacy	Age	Stress experienced	Personal attributes	Quality-of-care provision	Overall birth satisfaction
Birth beliefs as a medical process	-	-.51**	.01	.03	-.31**	-.39**	-.09	-.31**
Birth beliefs as a natural process	-	-	.04	-.13	.20	.03	.23*	.20
Self-efficacy	-	-	-	.11	-.15	-.31**	-.03	-.15
Age	-	-	-	-	-.05	.17	-.07	-.05
Stress experienced					-	.66**	.40**	.88**
Personal attributes					-	-	.24*	.74**
Quality-of-care provision					-	-	-	.69**

* $p < 0.05$ ** $p < 0.01$

To examine what predict birth satisfaction, a hierarchical multiple linear regression was conducted. Results based on the correlations and tests of difference informed the predicting variables used in the regression analyses. Obstetric variables (pain management methods, delivery mode, parity, setting, and adherence to birth plan) were entered first (Model 1), and birth beliefs as a medical process second (Model 2). Table 6 shows that Model 1 was a good fit for the data ($F(5,31)=3.18, p<.05$) and explained 23.3% of variance in birth satisfaction. The addition of birth beliefs as a medical process accounted for a slight loss in variance (0.9%), resulting in a slightly weaker ANOVA coefficient $F(1,30)=2.72, p<.05$ (Model 2). This suggests that this variable had no predictive value on birth satisfaction in the presence of other predictors. None of the predictors displayed significant beta coefficients, indicating that none of them predicted birth satisfaction when considered together.

Table 6. Predictors of birth satisfaction

	β	ANOVA (F)	Adjusted R ²
Model 1			
Pain management	-.05	3.19	23.3%
Delivery mode	-,13		
Parity	.07		
Setting	.23		
Birth plan adherence	-.34		
$F(5,31)=3.18, p<.05$			
Model 2			
Pain management	-.02	2.73	22.4%
Delivery mode	-.10		
Parity	.07		
Setting	.19		
Birth plan adherence	-.34		
Birth beliefs as a medical process	-,14		
$F(1,30)=2.72, p<.05$			

Discussion

This study assessed the factors predicting birth experience in a Hungarian sample. The results show that levels of birth satisfaction in this study (25.27) were comparable although slightly lower than in the UK (28.36; [Hollins-Martin and Martin, 2014]). Several factors were associated with higher birth satisfaction, namely: multiparity, delivery outside hospital settings, lower intensity pain management methods, vaginal delivery, and birth plan adherence. These results are broadly in line with existing literature. Indeed, evidence shows that deliveries outside hospitals are associated with higher birth satisfaction (Fleming et al., 2016). However, in this current study only eleven participants had a home birth, thus whilst significant, these results need to be interpreted with caution. Similarly to this study, research by Handelzalts et al. (2017) also demonstrated that unplanned childbirth interventions are linked to lower satisfaction, with vaginal deliveries linked to high and emergency C-sections to low satisfaction. Evidence also indicates that no pharmacological pain relief during labour is more conducive to birth satisfaction compared to high-intensity ones, such as epidural analgesia (Fenaroli et al., 2019).

Research has shown that women who have a birth plan are at higher risk of negative birth experiences (Afshar et al., 2017). Although in this study, having a birth plan/not did not seem to influence satisfaction, for women who had a birth plan, the greater extent they adhered to their plan, the greater the satisfaction. Therefore, it would be helpful to examine how the level of complexity in birth plans relates to birth satisfaction.

In this study, age did not correlate with birth satisfaction. This is unexpected, since age can be used as a proxy for obstetric history (the older the woman, the more likely she is multiparous and thus confident), and previous research suggests that multiparity is linked to more positive birth experiences (Henriksen et al., 2017). However, this may be less relevant in the Hungarian context given that most births, regardless of parity, are subject to medical interventions (Engler et al., 2021).

Interestingly, in this study, no significant relationships were identified between self-efficacy and birth satisfaction. This contrasts with previous literature (e.g., Sánchez-Cunqueiro, Comeche and Docampo, 2018). This may be because Sánchez-Cunqueiro, Comeche and Docampo (2018) only included women with low-risk pregnancies, compared to the present study where it is not known whether participants were low- or high-risk. Cultural differences may also contribute to this discrepancy. Given the over-medicalisation of childbirth in Hungary, women may rely on doctors to a greater extent than themselves. This is supported by Bali et al. (2017) who found that the main reason women informally pay doctors is that they want them to be present at birth.

Regarding birth beliefs, in this study birth beliefs as a medical process were linked to lower birth satisfaction, stress experienced and personal attributes. This partly supports the work by Preis and Benyamini (2017), which shows positive correlations between natural birth beliefs and birth satisfaction, although the authors specify that the two sets of beliefs are not to be considered in opposition to each other. Interestingly, the regression analysis suggests that medical birth beliefs had no predicting value in the presence of other predictors. It is possible that the medicalisation of childbirth in Hungary is such that birth-related cognitions (birth beliefs, self-efficacy) are less potent in this country. Further research is needed to shed light on this.

This study has limitations. The sample size and the recruitment through social media mean that the sample may not be representative of the Hungarian female population. The time elapsed since birth might also have influenced the results. Originally, the intention was to recruit women who had given birth in the past five years. However, this had to be increased to 10 years to augment sample size. As research suggests that satisfaction with birth changes over time (Donate-Manzanares et al., 2019), it may be that women see their birth experience more positively over time and remember the actions more than the cognitions at the time. Finally, despite some positive correlations, none of the obstetric or birth beliefs variables predicted birth satisfaction and, together, they only accounted for

22.4% of the variance in satisfaction. This suggests that some important variables were not included in this study, offering ground for further research to explore factors that influence birth satisfaction.

Conclusion

In conclusion, this study found that birth satisfaction is associated with parity, place of birth, pain management methods, natural mode of delivery, adherence to birth plan and beliefs of birth as a medical process. Further analyses found that none of the obstetric cognitive variables predicted birth satisfaction, and they accounted for a low amount of variance in birth satisfaction, which implies that other factors might be at play. Thus, future studies are recommended to explore other variables that can influence birth satisfaction. Despite the aforementioned limitations, given the paucity of research on perinatal maternal health and birth satisfaction in Hungary, this study provides important foundations for further research.

Reference list

Afshar, Y., Mei, J.Y., Gregory, K.D., Kilpatrick, S.J. and Esakoff, T.F. (2017). Birth plans- Impact on mode of delivery, obstetrical interventions, and birth experience satisfaction: A prospective cohort study. *Birth*, 45(1), pp.43–49. doi:10.1111/birt.12320.

Baji, P., Rubashkin, N., Szebik, I., Stoll, K. and Vedam, S. (2017). Informal cash payments for birth in Hungary: Are women paying to secure a known provider, respect, or quality of care? *Social Science & Medicine*, 189, pp.86–95. doi:10.1016/j.socscimed.2017.07.015.

Devotion CA18211 (2020). *Why This Research - CA18211 Traumatic Birth Research Family Health*. [online] CA18211. Available at: <https://www.ca18211.eu/why-this-research/#:~:text=136%20million%20babies%20are%20born> [Accessed 16 Jan. 2023].

Donate-Manzanares, M., Rodríguez-Cano, T., Gómez-Salgado, J., Rodríguez-Almagro, J., Hernández-Martínez, A., Barrilero-Fernández, E. and Beato-Fernández, L. (2019). Quality of Childbirth Care in Women undergoing Labour: Satisfaction with Care Received and How It Changes over Time. *Journal of Clinical Medicine*, 8(4), p.434. doi:10.3390/jcm8040434.

Engler, Á., Aczél, P., Dusa, Á.R., Markos, V. and Várfalvi, M. (2021). Appraisals of Childbirth Experience in Hungary. *Social Sciences*, 10(8), p.302. doi:10.3390/socsci10080302.

European Commission (2017). State of Health in the EU Hungary Country Health Profile. *OECD Publishing*. [online] Available at: https://health.ec.europa.eu/system/files/2017-12/chp_hu_english_0.pdf.

Fenaroli, V., Molgora, S., Dodaro, S., Svelato, A., Gesi, L., Molidoro, G., Saita, E. and Ragusa, A. (2019). The childbirth experience: obstetric and psychological predictors in Italian primiparous women. *BMC Pregnancy and Childbirth*, 19(1). doi:10.1186/s12884-019-2561-7.

Fleming, S.E., Donovan-Batson, C., Burduli, E., Barbosa-Leiker, C., Hollins Martin, C.J. and Martin, C.R. (2016). Birth Satisfaction Scale/Birth Satisfaction Scale-Revised (BSS/BSS-R): A large scale United States planned home birth and birth centre survey. *Midwifery*, 41, pp.9–15.

Handelzalts, J.E., Waldman Peyser, A., Krissi, H., Levy, S., Wiznitzer, A. and Peled, Y. (2017). Indications for Emergency Intervention, Mode of Delivery, and the Childbirth Experience. *PLOS ONE*, [online] 12(1), p.e0169132. Available at: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5207782/>.

Henriksen, L., Grimsrud, E., Schei, B. and Lukasse, M. (2017). Factors related to a negative birth experience – A mixed methods study. *Midwifery*, 51, pp.33–39. doi:10.1016/j.midw.2017.05.004.

Hollins Martin, C.J. and Martin, C.R. (2014). Development and psychometric properties of the Birth Satisfaction Scale-Revised (BSS-R). *Midwifery*, 30(6), pp.610–619. doi:10.1016/j.midw.2013.10.006.

Kallianidis, A.F., Schutte, J.M., van Roosmalen, J. and van den Akker, T. (2019). Maternal Mortality After Cesarean Section in the Netherlands. *Obstetrical & Gynecological Survey*, 74(3), pp.139–141. doi:10.1097/01.ogx.0000554051.64539.4d.

Preis, H. and Benyamini, Y. (2017). The birth beliefs scale – a new measure to assess basic beliefs about birth. *Journal of Psychosomatic Obstetrics & Gynecology*, 38(1), pp.73–80. doi:10.1080/0167482x.2016.1244180.

Preis, H., Eisner, M., Chen, R. and Benyamini, Y. (2019). First-time mothers' birth beliefs, preferences, and actual birth: A longitudinal observational study. *Women and Birth*, 32(1), pp.e110–e117. doi:10.1016/j.wombi.2018.04.019.

Roser, M. and Ritchie, H. (2019). *Maternal Mortality*. [online] Our World in Data. Available at: <https://ourworldindata.org/maternal-mortality>.

Sánchez-Cunqueiro, M.J., Comeche, M.I. and Docampo, D. (2018). On the relation of self-efficacy and coping with the experience of childbirth. *Journal of Nursing Education and Practice*, 8(6), p.48.

Schaal, N.K., Fehm, T., Albert, J., Heil, M., Pedersen, A., Fleisch, M. and Hepp, P. (2019). Comparing birth experience and birth outcome of vaginal births between induced and spontaneous onset of labour: a prospective study. *Archives of Gynecology and Obstetrics*, 300(1), pp.41–47. doi:10.1007/s00404-019-05150-8.

Schwarzer, R. and Jerusalem, M. (1995). Generalized Self-Efficacy scale. *J. Weinman, S. Wright, & M. Johnston, Measures in health psychology: A user's portfolio. Causal and control beliefs*, pp.35–37.

Takayama, T., Phongluxa, K., Nonaka, D., Sato, C., Gregorio, E.R., Inthavong, N., Pongvongsa, T., Kounnavong, S. and Kobayashi, J. (2019). Is the place of birth related to the mother's satisfaction with childbirth? A cross-sectional study in a rural district of the Lao People's Democratic Republic. *BMC Pregnancy and Childbirth*, 19(1). doi:10.1186/s12884-019-2483-4.

World Health Organization (2019). *Maternal health*. [online] Who.int. Available at: https://www.who.int/health-topics/maternal-health#tab=tab_1.