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Variables related to maternal satisfaction with intrapartum care in Northern Italy

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ABSTRACT

Background: The experience of labour and birth is complex, multidimensional and subjective and has the potential to affect the women and their families physically and emotionally. However, there is a lack of research around maternal satisfaction in Italy.
Aim: To evaluate mothers' satisfaction with their childbirth experience in relation to socio-demographic characteristics, obstetric history and intrapartum care variables.
Methods: A cross-sectional study involving 277 women who had given birth in a low risk maternity unit in Northern Italy was undertaken. Satisfaction with birth was measured using the Italian version of the Birth Satisfaction Scale-Revised (I-BSS-R). The scale comprises three Sub-Scales: quality of care provided, personal attributes of women and stress experienced during childbirth.
Findings: No socio-demographic variables were related to maternal satisfaction. Multiparous women had a higher satisfaction score (p = 0.020; CI:0.23;2.75). Antenatal class attendance was negatively associated with maternal satisfaction (p = 0.038; CI: −2.58; −0.07). Intrapartum variables that significantly reduced maternal satisfaction were: epidural usage (p = 0.000; CI: −4.66; −2.07), active phase >12 h (p = 0.000; CI: −6.01; −2.63), oxytocin administration (p = 0.000; CI: −5.08; −2.29) and vacuum assisted birth (p = 0.001; CI: −6.50; −1.58). Women with an intact perineum were more likely to be satisfied (p = 0.008; CI: −4.60; −0.69).
Discussion: In accordance with other research, we showed that intrapartum interventions are negatively associated with maternal outcomes and therefore also with maternal satisfaction with birth. The sub-scale that measured Quality of Care provided scored higher than the other two Sub-Scales.
Conclusion: Further studies on maternal satisfaction in Italy should be conducted, using the I-BSS-R with the aim to compare outcomes and understand what matters to women during childbirth.

Statement of significance

Problem

Multiple factors are involved in women's satisfaction with their childbirth experience.

What is already known

Intrapartum interventions are negatively associated with maternal satisfaction with birth.

What this paper adds

The three Sub-Scales of the I-BSS-R scale were affected differently. The Quality of Care Sub-Scale scored higher than the other two Sub-Scales, and was observed to be less correlated to the variables considered. Women attending antenatal classes were less satisfied. These women could receive more evidence-based information and change or increase their expectations. Women who have higher expectations may experience a lower fulfilment of their

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requests and this could affect the overall satisfaction of their birth experience.

1. Introduction

Both the World Health Organization's (WHO) guidelines for antenatal[1] and intrapartum care [2], highlight the importance of women having a positive experience of their pregnancy and birth. The focus of maternity care has often been related to physical outcomes such as morbidity and mortality, rather than the emotional dimensions [3]. Understanding women's perception of care and satisfaction with services is important, as perceived quality is a key determinant of service utilisation [4]. Healthcare systems could be more effective if they considered women's experiences, with the aim to provide quality care and meet women's needs and expectations [5,6]. For these reasons maternal satisfaction with birth has become a contemporary area of research and is now considered one of the most relevant indicators in the evaluation of the quality of maternity services [7] and should be an integral component of the quality of maternity care [6].

The experience of labour and birth is complex, multidimensional and subjective [8] and has short and long-term implications for the woman and baby's health, both physically and emotionally [9]. A positive birth experience is associated with long-lasting benefits, including a good relationship with the newborn and a positive attitude towards motherhood that contributes to the woman's self-esteem and feelings of accomplishment [8]. A negative childbirth experience can lead to many problems such as a higher chance of postpartum depression and post-traumatic stress disorder, increased tendency to miscarriage, a preference for caesarean section in future births, negative feelings towards the baby, difficulty in adaptation to the maternal role, longer interval between pregnancies and breastfeeding difficulties [10,11].

The recently published qualitative systematic review by Downe et al. [12], undertaken to inform the WHO intrapartum guidelines, reported that most healthy childbearing women want a positive experience of childbirth that fulfils or exceeds their personal and socio-cultural beliefs and expectations.

Experiences of care need to be taken into account in order to improve the care provided to childbearing women. Understanding women's experience and what is important to them, could facilitate midwives and other health professionals to improve the quality of their care and developing guidelines and policies that focus on women and families' needs.

Although there is international evidence around maternal satisfaction, in Italy there is a lack of research, leading to a gap in our knowledge, especially on the identification of factors that may contribute to women's satisfaction in a urban, low-risk Maternity Unit in Northern Italy. Therefore, the aim of this study was to evaluate mothers' satisfaction with their childbirth experience in relation to socio-demographic characteristics, obstetric history, antenatal education and intrapartum care.

1.1. Country-specific background

The Italian healthcare system provides care that is medicalised throughout the childbearing continuum [13]. It offers universal and free of charge maternity care, with mainly obstetric-led antenatal clinics and few antenatal clinics that are led by midwives. The Italian birth context has a classification system for levels of maternal care for Obstetric Units, comprising Level I Maternity Units providing care for low risk pregnancies or with minor complications and Level II Maternity Units dedicated to women with high risk pregnancies. Women with low-risk pregnancies may choose to give birth in either a Level I or II Maternity Unit.

Almost all births in Italy take place in hospital [14]. Different birth settings such as midwife led units are not available and home birth is not guaranteed by the National Health System (NHS) and discouraged by healthcare professionals. Although the national guideline on normal pregnancy recommends midwife-led care [15], obstetricians are the primary providers of all antenatal care with the majority of women having a private doctor. Very few women are cared for by a midwife within the NHS service or choose an independent midwife during their pregnancy. Continuity of caregiver through antenatal, intrapartum, and post-natal care is rare in Italy [14]. The NHS midwives work in community or in hospital and they rotate between labour areas (where they are quite autonomous if a woman has a normal labour and birth) antenatal and postnatal wards. Independent private midwives usually provide midwifery continuity of care.

There is a lack of research around maternal satisfaction with labour and birth in Italy with only two qualitative studies being conducted into two different maternity units within the same city. The first study [16], including 10 mothers interviewed after birth, found that women were satisfied with their birth experience, although they also reported to have no particular expectations, to trust the hospital staff and to have delegated all decisions to the health care professionals during the process. The second study showed [17] that women's experience of birth did not match with the expectations that they had about the maternity unit, due to the inconsistency between the hospital's mission statement and the reality.

The aim of our study was to evaluate mothers' satisfaction with their childbirth experience in relation to socio-demographic characteristics, obstetric history, antenatal education and intrapartum care.

2. Methods

2.1. Design

We conducted a cross-sectional study in Northern Italy.

2.2. Setting

The study was conducted in a Level I Maternity Hospital in Northern Italy. The research site has approximately 1500 births per year and one of the lowest rate of caesarean section in Italy. The overall caesarean section rate is 14.7% [18] (compared with the national caesarean section rate of 35.4% [13]), of which 5% are primary caesarean sections, that is, performed on a woman giving birth for the first time.

In the hospital's labour ward there are four rooms, where women remain for two hours following birth, before being transferred to the postnatal ward, where there are twenty-six beds. Women are discharged 48 h following a vaginal birth and within 72 h if a caesarean section occurred. Midwifery care is provided in both labour and postnatal wards.

There are 23 midwives working on Labour ward, 3 midwives per shift with a mean number of 4 births per day (planned CS are included in this number).

The research site is committed to offer a one midwife to one woman ratio for all women in labour. The midwives working on labour ward provide one-to-one midwifery care from the active phase of labour until the end of the third stage of labour (women receive continuous midwifery support but they are not necessarily cared for by the same midwife throughout the whole labour), and is the midwives' responsibility to provide care to low risk women during normal labour and births. The care is obstetrician-led for

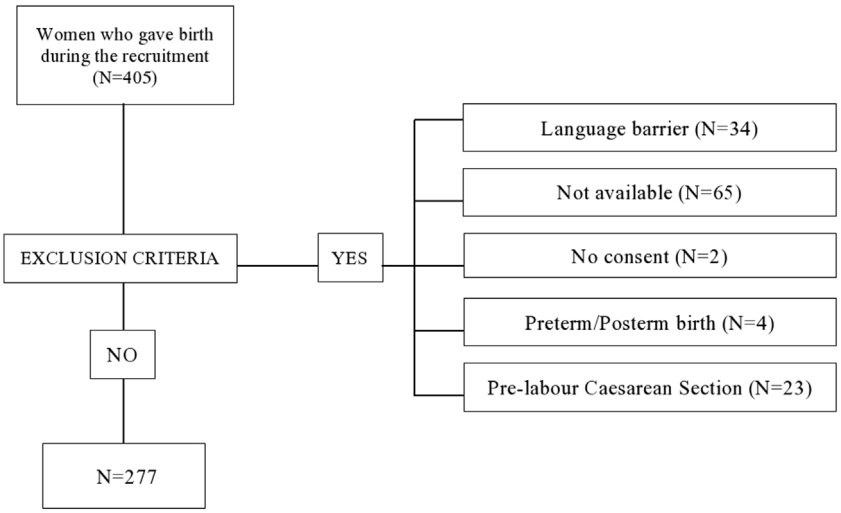

Fig. 1. Sample size flow chart.

high risk women or if a complication occurs. During the active labour women involved in our study received a one-to-one midwifery care, they had a continuous support and presence by a midwife, who was not known and could change according to the shift changes. They also had support from one birth companion of their choice, usually the partner.

On the postnatal ward, the midwives are not the only healthcare professionals providing care. The midwives provide care to the postnatal women, and the nurses look after the neonates (included low risk ones), who remain with their mothers or in the nursery. The midwives assess the general physical condition of the woman, how she feels, the post-natal uterine involution, the vaginal blood loss/lochia, the perineum and the breast changes, until discharge. If there are some breastfeeding issues, the midwives will provide advice and support the woman.

2.3. Participants

Participants were recruited through a convenience sampling method. The recruitment process lasted four months, from February to May 2018. After giving birth, the women who met the inclusion criteria were invited to take part in the study by one of the researchers [A.R.], who explained to them the aim of the study, their involvement and asked them to sign the consent form. During the study period, the average number of births ranged from three to seven each day.

All the participants received obstetrician-led antenatal care, either if they had a high or a low risk pregnancy.

Women were enrolled postnatally from Monday to Friday. Surveys were completed by mothers alone and returned in envelopes before discharge. This timing was chosen in order to maximise survey completion. Among 405 women who gave birth during the study recruitment, 65 women did not receive a questionnaire.

INCLUSION CRITERIA	EXCLUSION CRITERIA
- Italian-speaking and reading women, - Low risk pregnancy - Term birth - Pregnancy complications (such as high blood pressure, gestational diabetes, hypothyroidism, hyperthyroidism, intrauterine growth restriction (IUGR) at term, oligohydramnios at term, induction of labour for post-dates pregnancy or other common indications) - Healthy neonate in good condition at birth.	-Language barrier -Women who did not consent to the study -Pre-term (<37 weeks) or post-term (>42 weeks) birth -Previous CS -Pre-labour caesarean section -Pre-existing severe medical conditions or pregnancy complications (such as cardiac disease, haemoglobinopathies, renal disease, neurological disease, pre-eclampsia or complications and labour before 34 weeks, are not were admitted to a Level I Maternity Unit) - Newborn in poor condition at birth or who required any form of resuscitation

Fig. 1 shows participants included into the study. Participating women signed a consent form, which informed them of the voluntary nature of their participation, about the aim of the study, the procedures and the confidentiality of data (anonymous codification).

2.4. Sample size

The primary goal of analysis is to obtain a two-sided 95% confidence interval for maternal satisfaction as measured by the I-BSS-R scale with maximum total length equal to 0.25 standard deviations. This requires a minimum sample size of 250 women. The second goal of analysis is to assess the impact of covariates on maternal satisfaction by univariate and multivariate analysis. The maximum unbalance between sample sizes for univariate comparison in expected when contrasting CS to vaginal birth. With a total sample size of 250 women the expected number of CS equal to $0.04 \times 250 = 10$ and the expected number of vaginal births equal to 240.

A minimum required sample size of 250 women was calculated to produce a two-sided 95% confidence interval, with a total length equal to 0.25 standard deviations. This sample size supposed an expected number of CS equal to $0.04 \times 250 = 10$ and a number of vaginal births equal to 240. The two sample sizes calculated, 10 CS and 240 vaginal births, lead us to achieve a power of 90% and to reject the null hypothesis of equal means when the distance between the means is 1.1 standard deviations, with a significance level (alpha) of 0.050 using a two-sided two-sample equal-variance t-test.

2.5. Ethical consideration

Ethical approval was obtained from the hospitals' Ethical Review Board (Approval number: 37/2018). Written informed consent was gained from all the participants.

2.6. Measurement tools

Many studies have investigated maternal satisfaction across the pregnancy and childbirth continuum, particularly during birth using a variety of methods. Considering the Italian birth context and the model of fragmented midwifery care which makes it difficult for women to meet the same professionals, it was important to select an instrument focusing only on intrapartum care aspects, as the aim of the study was to assess the quality of the intrapartum midwifery care. The BSS-R is a validated 10-items, self-report scale that was developed in the UK to evaluate women's satisfaction with birth starting from the original Birth Satisfaction Scale of 30 items [20,21]The Italian version of the BSS-R [19] has been recently developed following an extensive translation process to ensure a linguistic, cross-cultural and conceptual congruence with the original English one.

Data were collected through the Italian version [19] of the Birth Satisfaction Scale Revised (I-BSS-R).The Italian version of the BSS-R [19] was developed to achieve cross-cultural and conceptual equivalence with the English instrument [20].

Participants' perceptions were measured using a series of simple statements with a five-point Likert scale. Four of the items are reverse-coded (e.g., 'I found giving birth a distressing experience'). Three main themes that affect birth satisfaction are assessed throughout 3 Sub-Scales: quality of care provision – QC – (four items involving helping women to feel in charge of the labour, birth environment, support and relationships with health care professionals), women's personal attributes – WA – (two items concerning the ability to cope during labour, feeling in control, childbirth preparation and relationship with the baby) and stress experienced during labour – SE – (four items related to distress, obstetric injuries, receiving sufficient care, obstetric interventions, pain, long labour and baby's health) [20]. Socio-demographic, obstetric and intrapartum data (gestational age, onset of labour, pain relief used, oxytocin augmentation, length of active phase >12 h, method of fetal heart rate monitoring, mobilisation, continuity of midwifery care, mode of birth and perineum outcome), were available from the birth register and the electronic records.

2.7. Statistical analysis

Data were analysed using Stata/MP version 15.0. Descriptive analysis of socio demographic, obstetric history and intrapartum care variables were obtained by means and standard deviations (continuous variables), and by percentages (categorical variables).

The I-BSS-R was analysed considering the total score and the score of the three Sub-Scales (1.quality of care, 2. women's personal attributes, 3. stress experienced during labour). Each item scores on a five-point Likert Scale (Strongly Agree = 4, Agree = 3, Neither Agree nor Disagree = 2; Disagree = 1; Strongly Disagree = 0). For reverse-scored items, the scale was coded as Strongly Agree = 0, Agree = 1, Neither Agree nor Disagree = 2; Disagree = 3; Strongly Disagree = 4. Univariate linear regression was used to identify factors related to women's satisfaction with the intrapartum care (total score), and with each of the three Sub-Scales. Factors significantly related to satisfaction with intrapartum care in the univariate analysis, were included in the multivariable regression model. A p-value <0.05 was considered statistically significant.

3. Findings

A total of 277 Italian-speaking and reading mothers participated into the study. Those consented to take part completed the I-BSS-R within 72 h after birth. Socio-demographic characteristics, obstetric history and intrapartum care variables are reported in Table 1. The mean age of participants was 32.96 years (SD 4.86), among them 96.8% were Italian, 40.4% had a University degree and 84.4% were employed.

Table 1
Maternal socio-demographic characteristics, obstetric history and intrapartum care variables.

Variable		Overall (n = 277)	
Socio-demographic	Maternal age (years)	mean	SD[a]
		32.96	4.86
		n	%
	Education (graduated)	112	40.4
	Employed	234	84.5
	Origin (Caucasian)	268	96.8
Obstetric history	Parity (primiparous)	149	53.8
	Attended classes[b]	142	51.3
		n	%
Intrapartum Care	Spontaneous labour	208	75.1
	Active phase >12 h	42	15.2
	Midwifery care		
	One to one	275	99.3
	Mobility	277	100
	Intermittent auscultation FHR	55	19.9
	Intrapartum interventions		
	Oxytocin administration	69	24.9
	Epidural analgesia	90	32.5
	Episiotomy	74	26.7
	Intact perineum	32	11.6
	Mode of birth		
	Spontaneous	248	89.5
	Vacuum assisted	19	6.9
	Caesarean/section	10	3.6

[a] Standard Deviation.
[b] Primiparous = 90.14%; Muliparous = 9.86%.

The mean I-BSS-R total score was 26.97 (DS = 5.34) with a minimum of 6 and a maximum of 39. The score of the three Sub-Scales, contributed differently to the total score (Table 2).

3.1. Factors correlated with maternal satisfaction

All variables were analysed in relation to the total score of the I-BSS-R and considering also each score of the three Sub-Scales (Table 3). Multiparous women had a higher birth satisfaction score (p = 0.020; CI:0.23;2.75). Antenatal education attendance was negatively associated with maternal satisfaction (p = 0.038; CI: −2.58; −0.07). Intrapartum variables that significantly reduced mean maternal satisfaction were: epidural usage (p = 0.000; CI: −4.66; −2.07), an active phase >12 h (p = 0.000; CI: −6.01; −2.63), oxytocin administration for augmentation of labour (p = 0.000; CI: −5.08; −2.29) and vacuum assisted birth (p = 0.001; CI: −6.50; −1.58). Women with an intact perineum were more likely to be satisfied with their intrapartum care (p = 0.008; CI: −4.60; −0.69), spontaneous or induced onset of labour, caesarean birth and episiotomy were not significantly associated with maternal intrapartum care satisfaction.

Table 2
Number of items, mean, standard deviation and confidence interval (95%) of I-BSS-R total score and Sub-Scales score.

	Item (N)	Mean	SD CI (95%)
I-BSS-R total score	10	26.97	5.34 (26.34;27.59)
Sub-Scales			
Quality of care provision	4	14.10	1.76 (13.99;14.20)
Women's personal attributes	2	4.61	2.04 (4.48;4.73)
Stress experienced	4	8.25	3.21 (8.05;8.44)

Table 3
Relationship between maternal variables and I-BSS-R total and Sub-Scales score.

Variables	I-BSS-R (Total)[a]				QC Sub-Scale[b]				SE Sub-Scale[c]				WA Sub-Scale[d]			
	Mean	SD[e]	p-value	CI (95%)[f]	Mean	SD	p-value	CI (95%)	Mean	SD	p-value	CI (95%)	Mean	SD	p-value	CI (95%)
Nulliparous	26.28	5.78	0.020	(0.23;2.75)	14.08	1.86	0.834	(-0.37;0.46)	7.61	3.39	.000	(0.65;2.14)	4.59	2.04	0.839	(-0.43;0.53)
Multiparous	27.77	4.68			14.13	1.64			9.01	2.82			4.64	2.05		
Antenatal classes (yes)	26.32	5.59	0.038	(-2.58;-0.07)	14.13	1.79	0.751	(-0.35;0.48)	7.57	3.32	.000	(-2.15;-0.66)	4.62	1.98	0.960	(-0.47;0.50)
Antenatal classes (no)	27.65	5.00			14.07	1.72			8.98	2.94			4.61	2.11		
Spontaneous labour	27.26	5.13	0.113	(-0.28;2.63)	14.12	1.67	0.754	(-0.40;0.56)	8.48	3.17	0.043	(0.03;1.77)	4.66	2.09	0.482	(-0.36;0.76)
Induction of labour	26.09	5.90			14.04	2.01			7.58	3.27			4.46	1.88		
Epidural (yes)	24.7	5.95	.000	(-4.66;-2.07)	14.12	2.00	0.890	(-0.41;0.48)	6.4	3.39	.000	(-3.49;-2.01)	4.18	2.00	0.013	(-1.16;-0.14)
Epidural (no)	28.06	4.66			14.09	1.63			9.15	2.70			4.82	2.03		
Active Phase >12 h	23.31	5.99	.000	(-6.01;-2.63)	14.02	2.01	0.757	(-0.67;0.49)	5.76	3.90	.000	(-3.94;-1.94)	3.52	2.06	.000	(-1.94;-0.63)
Active Phase ≤12 h	27.63	4.95			14.11	1.71			8.70	2.86			4.81	1.98		
Oxytocin (yes)	24.20	6.04	.000	(-5.08;-2.29)	13.93	2.00	0.344	(-0.71;0.25)	6.07	3.45	.000	(-3.72;-2.10)	4.20	1.91	0.053	(-1.10;0.00)
Oxytocin (no)	27.89	4.76			14.16	1.67			8.98	2.78			4.75	2.07		
Vacuum(yes)	23.21	5.92	0.001	(-6.50;-1.58)	13.11	2.40	0.010	(-1.88;-0.26)	5.95	3.24	0.001	(-3.96;-1.00)	4.16	2.09	0.314	(-1.44;0.46)
Vacuum (no)	27.25	5.20			14.17	1.68			8.43	3.15			4.65	2.04		
C/S (yes)[g]	24.1	7.84	0.084	(-6.35;0.40)	13.5	2.76	0.271	(-1.74;0.50)	5.8	3.61	0.013	(-4.57;-0.53)	4.8	2.04	0.769	(-1.10;1.49)
C/S (no)	27.08	5.22			14.12	1.71			8.35	3.17			4.61	2.04		
Episiotomy (yes)	25.98	5.64	0.060	(-2.78;0.06)	13.95	1.86	0.376	(-0.68;0.26)	7.36	3.46	0.005	(-2.06;-0.37)	4.66	1.83	0.812	(-0.48;0.61)
Episiotomy (no)	27.33	5.20			14.16	1.72			8.58	3.06			4.60	2.11		
Intact Perineum (yes)	29.31	3.77	0.008	(-4.60;-0.69)	14.41	1.34	0.297	(-0.99;0.30)	9.94	2.27	0.002	(-3.07;-0.73)	4.97	1.96	0.296	(-1.16;0.35)
Intact Perineum (no)	26.67	5.45			14.06	1.80			8.04	3.25			4.57	2.05		

[a] I-BSS-R: Italian version of the BSS-R.
[b] QL: Quality of Care Provision.
[c] SE: Stress Experienced during Labour.
[d] WA: Women's Personal Attributes.
[e] SD: Standard Deviation;.
[f] CI: Confidence Interval.
[g] Caesarean section.

One-to-one midwifery care in labour was provided to more than 99% of participants and the majority of women were able to mobilise, therefore these two variables were not included in the univariate analysis.

Variables significantly associated with the I-BSS-R total score, affected the three Sub-Scales differently (Table 3). Multiparity, antenatal class attendance and intact perineum variables were significantly associated only with the SE Sub-Scale and were not involved with the other two Sub-Scales. Epidural analgesia, oxytocin administration and the active phase of labour being greater than 12 h were significantly associated with both the SE and WA Sub-Scales and not with the QC Sub-Scale. Vacuum assisted birth was significantly associated with both the SE and QC Sub-Scales and not with the WA Sub-Scale. Although type of onset of labour, caesarean section and episiotomy were not statistically correlated with the overall women's birth satisfaction, they resulted negatively associated with the SE Sub-Scale.

In the multivariable regression model, variables independently associated with maternal birth satisfaction were epidural usage ($p = 0.013$, IC: −3.38; −0.41); an active phase of labour being greater than 12 h ($p = 0.005$, IC: −4.41; −0.77) and vacuum assisted birth ($p = 0.023$, IC: −5.19, −0.38). When considering all variables associated with the SE Sub-Scale, the regression model showed that epidural usage ($p = 0.000$, IC: −2.46; −0.72); an active phase of labour being greater than 12 h ($p = 0.008$, IC: −2.49; −0.38) oxytocin administration ($p = 0.024$, IC: −2.22; −0.16) and intact perineum at birth ($p = 0.046$, IC: −2.22; −0.02) were independent factors correlated with the Stress Experienced during labour Sub-Scale.

4. Discussion

The purpose of this study was to investigate women's satisfaction with intrapartum care in a low risk hospital setting in northern Italy, in relation to socio-demographic variables, obstetric history, antenatal education and intrapartum care. To our knowledge, this is the first study to adopt an instrument culturally adapted within the Italian context, with the aim to measure mother's birth satisfaction. Although the literature does not define a cut-off value to assess maternal satisfaction, the mean I-BBS-R total score is consistent with the average score measured by other authors [22,23] throughout the validation process of BSS-R scale in other two European Countries The I-BBS-R Scale assesses the maternal birth satisfaction total score, however it is comprised of three Sub-Scales that measure distinct but correlated domains. This study evaluated for the first time, how every single variable associated with the birth satisfaction is also involved with each of the three Sub-Scales. We observed that the QC Sub-Scale scored higher than the other two, gave more substantive contribution to the total score and it showed to be less correlated to the variables considered. Of note, one-to-one midwifery care and maternal mobility during labour and birth were offered to 99% and 100% of women involved into the study, respectively. These midwifery practices improve maternal outcomes and therefore, they may have an impact on maternal satisfaction with birth [24,25], however given that almost all women received this model of care during labour and childbirth, we supposed that those variables would not have been a confounding factor in our population. The QC Sub-Scale score, showed the highest mean and the lowest

standard deviation compared to the other two Sub-Scales. This could probably be due to the low variability within women's answers to the four items related to the quality of midwifery care.

In contrast with previous research [26], our findings showed that no socio-demographic characteristics are associated to mother's satisfaction. This could be due to the inclusion criteria which selected only Italian-speaking and reading women, leading to a homogeneous sample, which included 96.8% of Italian women. Furthermore, the Italian National Health System provides universal coverage, largely free of charge at the point of service, regardless of origin or income.

In our study, multiparous women, 46.2% of the sample, were more satisfied than first-time mothers. This was probably due to shorter labours and lower need of intrapartum interventions, leading to better maternal and neonatal outcomes [27]. The effect of parity on maternal satisfaction suggests the need for differentiated intervention strategies for each group, with perhaps more attention to the normal process of labour and birth in nulliparous women, and not disturbing physiology unless it is necessary, with the potential to enhance outcomes for the mother and infant [28,29].

We found that women attending antenatal classes were more likely to be less satisfied. This could be explained through two different perspectives: 90% of women attending antenatal classes were primiparous and a lower score could be related to this; moreover, as suggested by other authors [30], these women could receive more evidence-based information and change or increase their expectations, contrasting the high-risk culture surrounding childbirth. Women who have higher expectations may experience a lower fulfilment of their requests [31,32] and this could affect the overall satisfaction of their birth experience [33].

Evidence provides contrasting results regarding the relationship between epidural analgesia and maternal satisfaction [35–37]. In our study, women who had epidural analgesia were overall less satisfied with their experience, with higher levels of stress experienced during childbirth and a lower level in the WA Sub-Scale. It is possible that women requesting epidural struggle to cope with their labour pain feel a loss of control over the birth process. This may increase their stress' level and thus affecting their personal satisfaction with their childbirth experience [17,38,39]. As recommended by the WHO Guideline on intrapartum care [2], health care professionals should be aware that the care context and the type of care provision and care provider could have a strong effect on the need for labour pain relief, and on the kinds of choices women make in relation to this need. Midwives should be aware of the potential nonpharmacological approaches to manage pain during labour [2], and that midwifery continuity of carer, presence and support are key factors linked with increased maternal satisfaction in the case of epidural analgesia [40].

Our results confirms findings of other studies [23,38,41–43], which suggest a lower birth satisfaction when women experienced a high rate of intrapartum interventions and a longer labour. This result is also consistent with other BSS-R translation/validation studies that found a negative impact of intrapartum interventions on women's experience with their birth [20,22,23,44,45]. Surprisingly, caesarean section in labour was not related to the overall birth satisfaction, in contrast with other evidence [17,33,38,42] and with findings regarding other intrapartum interventions mentioned above, which negatively affect women's experience. Women who had a caesarean section probably perceived that this intervention was required, a consideration that could also explain why we found no difference within the QC Sub-Scale score. The rate of caesarean section births in this study was 3.6%, which is very low compared to the Italian rates (14.7% [18] vs 35.4%, respectively [13]). Moreover, it is interesting to highlight another important aspect suggested by Haines et al. [46], in their cross cultural cohort study. Authors found that women exposed to a more medicalized culture, such as the Italian one [13,34] are less likely to view birth as a natural event, resulting in a higher acceptance to have interventions and a passive attitude in expressing their views.

An episiotomy, a relevant intrapartum intervention, was not associated with maternal birth satisfaction in our study. We could not evaluate the adverse long term perineal outcomes following an episiotomy, as the questionnaire was completed shortly after birth [31,47]. As described earlier, it is also possible that a high risk culture surrounding childbirth may influence expectations and make women more prone to interventions and more accepting of these, for example, episiotomy [31,42,46,48].

Other evidence suggests that women's view about the nature of birth, their expectations and their perceptions are linked to family birth stories and to cultural and social norms [12]. In Italy, the medicalisation of the childbearing continuum may have shaped and impacted on women's expectations and experiences [6]. Women may report that they are satisfied, even if they have had poor quality care, as they will not be aware of any better alternatives, therefore they will express feeling of fulfilment when their labour and birth are culturally accepted [12]. In our birth context, this could lead to maternal acceptance of some interventions, such as an episiotomy or CS. Italian women often delegate their care to the healthcare professionals [16] and may accept particular aspects of care and be more tolerant of interventions. This is because they have no particular expectations [16], they give control to the hospital staff [17], losing their own control, and because they are immersed in a culture where interventions in birth are normal [13,34] and they do not know anything different. The same have been seen in other contexts where there is a high risk culture around childbirth, as reported by authors [49,50].

Our study suggests that multiple factors are involved in women's satisfaction with their childbirth experience. Interestingly, we found that, although all the variables considered were differently involved with the SE and WA sub-scales, they did not impact on the QC sub-scale. One-to-one midwifery care during labour and birth, which ensures relationships with health care professionals, and the opportunity for the labouring women to move around, were standards of midwifery care provided to all participants. These procedures, offered to all the women who participated in the study, have a positive impact on maternal satisfaction [31,42,52,53].

4.1. Limitations of the study and further research

This study is not without limitations. Due to the strategy of participants' selection, women were not consecutively enrolled. The study population was enrolled in a single Maternity Department and was 96.8% were Caucasian. This may limit the generalisability of our findings. Moreover the I-BSS-R was completed shortly after birth. Further research should clarify the applicability of the BSS-R later after birth, in order to assess maternal satisfaction with their experience at 3 or 6 months perhaps, focusing to improve long-term maternal and neonatal outcomes. As suggested by other authors, a woman's perception of her experience is long-standing [51]. The relationship between mothers' birth satisfaction and attitude and beliefs shaped by the culture around childbirth, also warrants further investigation.

5. Conclusion

In accordance with other research, our study showed that some intrapartum interventions are negatively associated with maternal outcomes [34] and therefore also with maternal satisfaction with

birth [23,36,42], which is demonstrated to be a valid indicator of the quality of midwifery care [8,54].

Further studies on maternal satisfaction in Italy are needed, in order to understand what matters to women during childbirth, to better explore the birth culture issue and to compare this outcome between Units of the same level of care (Level I and II Maternity Units).

This study highlights the attention that should be given to the measurement of factors that contribute to the wellbeing and positive health outcomes. The majority of outcome indicators usually focus on pathological conditions, however, the development of a core outcome data set of "salutogenically-focused" outcomes for intrapartum research, has been already recommended [54–56].

Therefore, we promote the introduction of the I-BSS-R into routine clinical practice, possibly throughout a multi-centre study that enhances the evaluation of maternal satisfaction in Italy and the development of a birth satisfaction indicator as a direct measure of the quality of maternity services [45]. Furthermore, the introduction of the Scale would give the opportunity to compare midwifery care outcomes nationally and internationally, given that the BSS-R has been found valid across different versions [22,23,41,44].

Ethical statement

Ethical approval was gained from the Ethical Review Board of the ASST Vimercate, Approval Number: 37/2018. Participants signed an informed consent form.

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Conflict of interest

None declared.

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