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Association between maternal satisfaction and other indicators of quality of care at childbirth: a cross-sectional study based on the WHO standards

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ABSTRACT

Objectives This study aimed to explore the association between maternal satisfaction and other indicators of quality of care (QoC) at childbirth, as defined by WHO standards.

Design Cross-sectional study.

Setting Referral hospital in Northeast Italy.

Participants 1244 consecutive mothers giving birth in the hospital participated in a survey.

Data collection and analysis Univariate analyses were performed to evaluate the association between maternal satisfaction and 61 variables, including measures of 'provision of care', 'experience of care', 'availability of resources' and other maternal characteristics. Exploratory factor analysis was performed to create groups of correlated variables, which were used in multivariate analysis.

Results Overall, 509 (40.9%) of women were >35 years of age, about half (52.7%) were highly educated, most (95.2%) were married/living with partner and employed (79.3%) and about half (52.9%) were primiparous. Overall, 189 (15.2%) were not born in Italy and 111 (8.9%) did not have Italian citizenship. Most women (84.2%) were highly satisfied (score ≥7/10) with the care received. Among the 61 variables explored, 46 (75.4%) were significantly associated with women's satisfaction, 33 with higher satisfaction and 13 with lower satisfaction. Multivariate analysis largely confirmed univariate findings, with six out of eight groups of correlated variables being statistically significantly associated with women's satisfaction. Factors most strongly associated with women's satisfaction were 'effective communication, involvement, listening to women's needs, respectful and timely care' (OR 16.84, 95% CI 9.90 to 28.61, p<0.001) and 'physical structure' (OR 6.51, 95% CI 4.08 to 10.40, p<0.001). Additionally, 'victim of abuse, discrimination, aggressiveness' was inversely associated with the wish to return to the facility or to recommend it to a friend (OR 0.35, 95% CI 0.17 to 0.70, p<0.003).

Conclusion This study suggested that many variables are strongly associated with women's satisfaction with care during childbirth and support the use of multiple measures to monitor the QoC at childbirth.

Strengths and limitations of this study

► This is the first study exploring the association between overall maternal satisfaction and a list of other indicators of quality of care (specifically, 61 variables).

► Data were collected using a field-tested, anonymous, self-administered questionnaire based on WHO standards, presented to mothers in the post-delivery period.

► Measures of 'provision of care', 'experience of care' and 'availability of resources', as indicated by the WHO standards, were included.

► We conducted a factor analysis to evaluate the underlying structure among variables and the generated groups to perform a multivariate logistic analysis.

► Although from a single facility, the study included a large sample of women (n=1244), of which 15.2% were foreign women (not born in Italy), reflecting to a large extent, the current population of women giving birth in Northeast Italy.

INTRODUCTION

The past two decades have been marked by substantive progress in reducing maternal mortality and morbidity.[1] Nevertheless, according to most recent estimates, 295 000 women around the world every year die due to complications during pregnancy or childbirth.[1] Most importantly, poor quality of care (QoC) is responsible for 5 million preventable deaths in low-income and middle-income countries, including half of deaths from maternal causes and 61% of neonatal conditions.[2]

In general, even in high-income settings in Europe, achieving high quality of healthcare is a challenge.[3] Although the maternal mortality ratio was almost halved in the WHO European Region as a whole from 1990 to 2006, progress has been uneven, and striking inequalities persist between and

within countries, with maternal mortality rates up to 43 times higher in some countries in the region compared with others.[3] In 2013, the 53 Member States in the WHO European Region agreed on a new common policy framework—Health 2020.[3] The goal of Health 2020 was to 'significantly improve the health and well-being of populations, reduce health inequalities, strengthen public health and ensure people-centred health systems that are universal, equitable, sustainable and of high quality'. The policy framework also underscored that 'the voice of civil society, including individuals and patient organisations and youth organisations and senior citizens, is essential to draw attention to health-damaging environments, lifestyles or products and to gaps in the quality and provision of healthcare and it is critical for generating new ideas'.

The importance of women-centred maternal care has been made explicit in several WHO documents.[4–9] The recent WHO framework for maternal and newborn QoC[6] identifies as a key domain—beside 'provision of care' and the 'availability of physical and human resources'-the 'experience of care', emphasising the importance of collecting women's views and voices.[6]

Based on this framework,[6] WHO developed the 'standards for improving the QoC for mothers and newborns at facility level'.[7] The WHO standards promote a person-centred philosophy which implies optimising health as well as general well-being of women and newborns, and, importantly, promoting respect of patients' rights.[6] The WHO standards include over 300 quality measures and are currently the most comprehensive collection of indicators of QoC around the time of childbirth. Women's satisfaction with the care received is one of the WHO quality measures that should be monitored and evaluated for identifying priorities for action when aiming at improving the QoC for mothers and newborns.[6] In general, satisfaction with care has frequently been used as a key indicator of patient's experience of care.[10 11]

However, so far little is known on the association between women's satisfaction with the care received during childbirth and other WHO quality measures as reported by the WHO standards.[7] The WHO standards[7] were developed in 2016 and so far very few evaluations using the WHO quality measures have been conducted, with most focused in Africa and Asia.[12 13] In general, existing literature[14 15] suggests that a positive perception of childbirth, including satisfaction with the experience of care, is multidimensional and is influenced by a variety of factors, but none explicitly evaluated the full list of variables, including both indicators of 'provision of care', 'experience of care' and 'availability of resources', as defined by the WHO standards.

This study aimed to explore the association between indicators of women's satisfaction with the care received around childbirth and a list of 61 variables largely based on the WHO quality measures.

METHODS
Study design
This was a cross-sectional observational study and is reported according to the Strengthening the Reporting of Observational Studies in Epidemiology checklist[16] (online supplementary appendix 1).

Study setting and population
The study was conducted between December 2016 and September 2018 in Friuli Venezia Giulia region, Northeast Italy. The whole region has nine maternity services currently available for births and mothers are not signed to a predefined maternity service. A convenience sample of mothers was recruited and all mothers who gave birth in a public referral university hospital during the study period were invited to participate. Missing case characteristics were regularly monitored using standard operating procedures. Exclusion criteria were maternal death, perinatal death (including stillbirth), psychiatric or psychosocial problems with inability to fill in the questionnaire, age under 18 years old, language barriers, refuse to participate.

Data collection procedures
Data were collected using a field-tested, anonymous, self-administered, questionnaire in the local language (Italian). The questionnaire included 120 questions, mostly based on WHO quality measures,[7] plus sociodemographic information of women, and few additional indicators that were considered relevant to the local setting (the WHO list[7] prioritises measures for low-income and middle-income settings). The selection of the variables included in the questionnaire was made based on the relevance to the local context (ie, high-income country, with low maternal and newborn mortality), the level of care provided in the facility (ie, tertiary level referral hospital) and the expected feasibility and reliability of collecting the information and was described in detail elsewhere.[17]

The questionnaire also included three indicators of 'satisfaction with the care received': (1) women's overall satisfaction with the care received (measured on a Likert scale from 1 to 10, where 1 was minimum and 10 was maximum satisfaction), (2) women's overall judgement of the QoC received (four possible categories: very negative, negative, neutral, positive and very positive), (3) whether the woman would wish to return to the facility or otherwise recommend it to a friend (dichotomic variable: yes or no). Procedures for the questionnaire validation will be reported on a further publication.[17]

The questionnaire and the overall objectives of the study were presented to the mothers in the postdelivery period, during their stay in the ward (usually less than 3 days after delivery), by trained research midwives, not involved in case management. Mothers were enrolled from Monday to Saturday, and they could return the filled questionnaires directly to the operator or in a dedicated box available in the ward 24/24 hour and 7/7 days. Data from the survey were double entered by two trained researchers

Table 1 Characteristics of the population

	N (N=1244)	%
Age		
<35 years old	735	59.1
≥35 years old	509	40.9
High education (college or above)		
No	582	46.8
Yes	655	52.7
Born in Italy		
Yes	1051	84.5
No	189	15.2
Citizenship		
Italian	1124	90.3
Not Italian	111	8.9
Occupational status		
Employed	987	79.3
Non employed	251	20.2
Marital status		
Single/other	52	4.2
Married/living with a partner	1184	95.2
Parity		
Primiparous	658	52.9
Multiparous	586	41.1
Multiple pregnancies		
Yes	21	1.7
No	1223	98.3
Women's overall satisfaction		
Score ≥7	1047	84.2
Score <7	183	14.7
Women's judgement of the QoC received		
Positive	1112	89.4
Negative	128	10.3
Recommend the facility to a friend		
Yes	987	79.3
No	253	20.3

QoC, quality of care

on a dedicated Excel database, and any discrepancy was corrected in real time. Data on characteristics of missing cases were monitored monthly.

Type of variables

Out of the three available indicators of satisfaction with the care received, we predefined as primary-dependant variable 'women's overall satisfaction', measured by a Likert scale of 1 (very low satisfaction) to 10 (maximum satisfaction), and we classified as high satisfaction a score of at least 7, out of 10. The other two available indicators—'women's overall judgement of the QoC received'

(positive and very positive) and whether the woman would 'wish to return to the facility/to recommend it to a friend'—were used for secondary analysis.

As independent variables, we used 61 variables. Of these, 10 were related to maternal sociodemographic and clinical characteristics and 51 were grouped, according to WHO framework,[6] in three key domains: 'provision of care' (16 variables), 'experience of care' (23 variables) and 'availability of resources' (12 variables). Of these 51 variables, 47 (92.2%) were WHO quality measures listed in the WHO standards.[7] A detailed list of variables was provided on online supplementary appendix 2.

No variables were eliminated due to missing data, since the percentage of missing values was very low, with the highest values being around 1% for the following variables: 'overall satisfaction' (1.1%), 'early breastfeeding' (1.1%) and 'knowledge of the respectful maternity care charter' (1.1%) (online supplementary appendix 3).

Data analysis

We tested for independence among primary and the secondary outcomes with the Pearson χ^2 and calculated the magnitude of their association with Cramer's V (ranging from 0 to 1, with values between 0.30 and 0.49, indicating medium effect size, and values equal or bigger than 0.50, indicating large effect size).[18] Univariate analyses were performed to evaluate significant associations, expressed in OR and 95% CI between the 61 independent variables (online supplementary appendix 2) and the three independent variables. We observed a high interrelations among many variables, in particular, variables in the same domain of the WHO framework,[6] with the determinant of the tetrachoric correlation matrix being nearly zero, indicating multicollinearity.[19–21] In this scenario, a multivariate logistic regression would have hidden the importance that each factor had had on the dependant variables.[22] We conducted a factor analysis to evaluate the underlying structure among variables and consequently summarise independent variables in uncorrelated groups of variables[22 23], in line with what performed in similar studies.[24] Factor analysis was performed on 51 of the 61 common variables: 10 variables could not be included since they were specific of each delivery mode, and therefore answered only in subgroups of women (online supplementary appendix 2). A principal axis factoring with orthogonal varimax rotation was performed to extract factors from the tetrachoric correlation matrix.[25] To identify the number of factors to include, we used as first step the Kaiser's rule,[22 23] that is, all eigenvalues over one were retained. On the factors extracted, other two criteria were applied: the percentage of variance criterion (ie, only factor solutions that account for at least 60% of the total variance can be considered satisfactory) as well as interpretability of factor structure (ie, whether the variables in each group were conceptually linked each other).[22] Finally, we used the groups generated by the factor analysis to perform a multivariate logistic model evaluating the association of each factor

with the dependent variables. All statistical analyses were performed using Stata V.14 and R software.

Ethical considerations

Participants to the survey were informed about the objectives and methods of the study, including their rights in declining participation and signed an informed consent before responding to the questionnaires. Anonymity in data collection during the survey phase was ensured by not collecting any information that could disclose participants' identity.

Patient and public involvement

A group of voluntary mothers were involved in the development and construct validation of the questionnaire. Inputs received from mothers were used to revise the content of the questionnaire, including reducing its length to improve acceptability.

RESULTS

Women's characteristics

Overall, 1244 mothers answered the questionnaire (52% of eligible sample) (online supplementary appendix 4). Characteristics of mothers are reported in table 1. Two-fifth (40.9%) of women had more than 35 years, about half (52.7%) were highly educated (college or above), most (95.2%) were married or living with a partner and employed (79.3%) and about half (52.9%) were primiparous. Overall, about one-sixth (15.2%) were not born in Italy and 111 (8.9%) did not have an Italian citizenship. There were no significant differences between mothers who answered the questionnaire and those who did not (online supplementary appendix 5). The prevalence of women highly satisfied (score ≥7) was 84.2%.

Association among different indicators of women satisfaction

A significant association was found between all three variables of satisfaction and the estimated effect size of the association was medium–high for all indicators, as follows: between 'woman's overall satisfaction' and 'women's positive judgement of the QoC received' (χ^2 p<0.001, Cramer's V=0.44); between 'woman's overall satisfaction' and 'to wish to return to the facility/to recommend it to a friend' (χ^2 p<0.001, Cramer's V=0.45); between 'women's positive judgement of the QoC received' and 'to wish to return to the facility/to recommend it to a friend' (χ^2 p<0.001, Cramer's V=0.52).

Univariate analysis

The following paragraph reports key results on the association between 'women's overall satisfaction' and the other 61 variables of QoC. Additional detailed findings are provided in online supplementary appendix 6.

Sociodemographic and clinical characteristics

A significant association was identified between multiparity and higher women's overall satisfaction (OR 1.41, 95% CI 1.03 to 1.95, p=0.033). No other significant
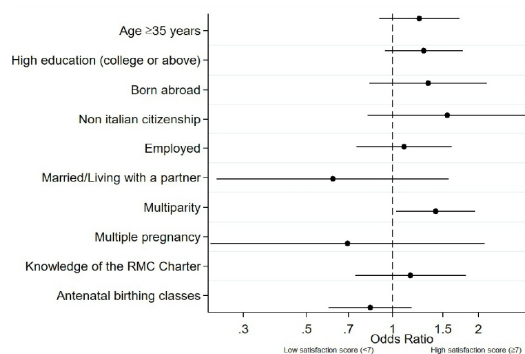

Figure 1 Association between 'women's overall satisfaction' and sociodemographic and clinical characteristics. RMC, respectful maternity care.

association was found among sociodemographic and clinical characteristics of women and 'women's overall satisfaction' (figure 1).

Indicators of provision of care

Among the 16 indicators of provision of care, 5 were significantly associated with high 'women's overall satisfaction', while 6 were significantly associated with lower overall satisfaction (figure 2). The variables more strongly associated with high 'women's overall satisfaction' were: receiving prompt attention (OR 3.33, 95% CI 2.29 to 4.84, p<0.001), receiving information on peridural analgesia (OR 2.90, 95% CI 1.58 to 5.31, p<0.001), receiving information on breastfeeding (OR 2.62, 95% CI 1.91 to 3.61, p<0.001) and skin to skin (OR 2.30, 95% CI 1.61 to 3.28, p<0.001). Overall, two variables not based on WHO quality measures, 'induction of labour' and 'private assistance', were significantly associated with a low maternal satisfaction. The variable more strongly associated with lower satisfaction was caesarean section (OR=0.40, 95% CI 0.28 to 0.56).

Indicators of experience of care

Among the 23 indicators of experience of care, 16 were positively associated with high 'women's overall
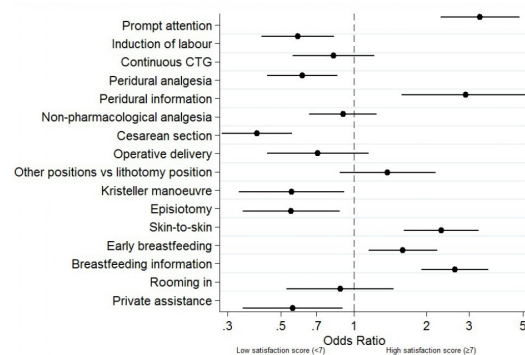

Figure 2 Association between 'women's overall satisfaction' and indicators of provision of care. CTG, cardiotocography. All variables were WHO quality measures, except for 'induction of labour' and 'private assistance', which resulted significantly associated with a low maternal satisfaction.
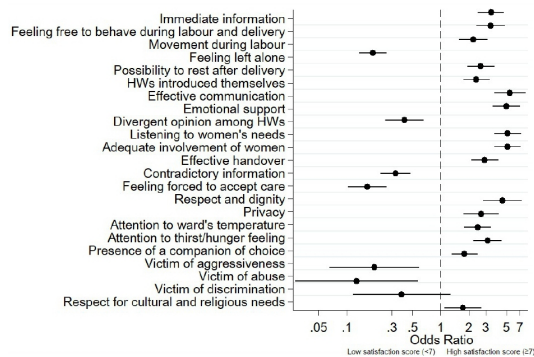
Figure 3 Association between 'women's overall satisfaction' and indicators of experience of care. HWs, health workers.

satisfaction', while 6 were significantly associated with lower overall satisfaction (figure 3).

The variables more strongly associated with high 'women's overall satisfaction' were effective communication (OR 5.47, 95% CI 3.73 to 8.04, p<0.001), active listening to women's needs (OR 5.14, 95% CI 3.69 to 7.18, p<0.001), adequate involvement of women in the process of care (OR 5.14, 95% CI 3.69 to 7.16, p<0.001) and receiving emotional support (OR 5.00, 95% CI 3.56 to 7.02, p<0.001).

The variables more strongly associated with lower overall satisfaction were feeling victim of aggressiveness (OR 0.20, 95% CI 0.007 to 0.59, p<0.001), feeling left alone (OR 0.19, 95% CI 0.14 to 0.27, p<0.001), feeling forced to accept care (OR 0.17, 95% CI 0.10 to 0.27, p<0.001) and feeling victim of abuse (OR 0.13, 95% CI 0.003 to 0.58, p= 0.007).

Indicators of availability of resources

Two indicators of human resources out of three and all nine indicators of availability of physical resources were positively associated with women's high satisfaction (figure 4), with the one more strongly associated being good acoustic in the wards with reduction of external noises (OR 4.85, 95% CI 2.66 to 8.86, p<0.001). The only
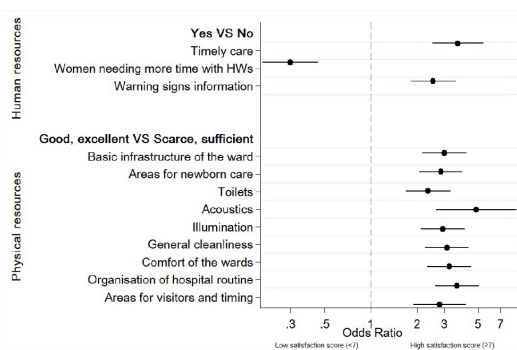

Figure 4 Association between 'women's overall satisfaction' and indicators of availability of resources. HWs, health workers. All variables were WHO quality measures, except for 'organisation of hospital routine' (timings of follow-up visits, medications, etc) and 'areas for visitors and timing', which resulted significantly associated with a high maternal satisfaction.

variable associated with lower overall satisfaction was women's need of more time with health workers (OR 0.30, 95% CI 0.20 to 0.46, p<0.001). Overall, two variables not based on WHO quality measures, 'organisation of hospital routine' (timings of follow-up visits, medications, etc) and 'areas for visitors and timing', which resulted significantly associated with a high maternal satisfaction.

Factor analysis

According to the Kaiser's rule,[21 22] the predefined percentage of variance and interpretability criteria, an eight-factor solution, were considered the most suitable to represent the structure of our data, accounting for 61% of the total variance. Detailed results of the rotated factor solution and the list of variables in each consequent group are provided in online supplementary appendix 7.

Multivariate analysis

From the multivariate logistic regression, six out of eight factors identified by factor analysis resulted as being independently associated with higher 'women's satisfaction' (table 2). The factors more strongly associated were 'effective communication, involvement, listening to women's needs, respectful and timely care' (OR 16.84, 95% CI 9.90 to 28.61, p<0.001) and 'physical structure' (OR 6.51, 95% CI 4.08 to 10.40, p<0.001).

Analyses of secondary indicators of satisfaction with care

In the univariate analysis, the association between independent variables and the secondary dependant variables (ie, 'women's positive judgement of the QoC received'; 'wish to return to the facility/to recommend it to a friend') were very much in line with the findings of the analysis on the primary variable (ie, women's overall satisfaction), with only minor differences (online supplementary appendix 8). Specifically, nine variables that significantly associated with 'women's overall satisfaction' were not significantly associated with 'women's positive judgement of the QoC received' (these variables were parity, peridural analgesia, caesarean section, Kristeller manoeuvre, episiotomy, skin-to-skin, early breastfeeding, private assistance, respect for cultural and religious needs). Similarly, five did not associate with 'wish to return to the facility/to recommend it to a friend' (these variables were parity, continuous cardiotocography, peridural analgesia, Kristeller manoeuvre and episiotomy).

In multivariate analysis, three factors ('effective communication, involvement, listening to women's needs, respectful and timely care' (OR=41.48), 'physical structure' (OR=20.69) and 'antenatal groups and multiparity' (OR=2.44)) were significantly associated with 'women's positive judgement of QoC received', while five factors ('effective communication, involvement, listening to women's needs, respectful and timely care' (OR=32.75), 'physical structure' (OR=15.70), 'victim of abuse, discrimination, aggressiveness' (OR=0.35), 'antenatal groups and multiparity' (OR=1.65), 'mode of birth, attention to women comfort and partnership in labour' (OR=2.26))

Table 2 Multivariate analysis exploring the association between group of variables generated by factorial analysis and 'women's overall satisfaction'

Factors (group of variables)	Variables included*	Factor loading	Adjusted OR	95% CI	P value
Effective communication, involvement, listening to women's needs, respectful and timely care	Effective communication (E)	0.84	16.84	9.90 to 28.61	<0.001
	Adequate involvement of women (E)	0.79			
	Listening to women's needs (E)	0.79			
	Respect and dignity (E)	0.72			
	Emotional support (E)	0.72			
	Timely care (R)	0.7			
	Effective handover (E)	0.66			
	Feeling left alone (E)	−0.62			
	Women needing more time with HWs (R)	−0.59			
	Feeling forced to accept care (E)	−0.57			
	Privacy (E)	0.55			
	Immediate information (E)	0.53			
	Prompt attention (P)	0.53			
	Divergent opinion among HWs (E)	−0.5			
	Heath workers introduced themselves (E)	0.45			
	Contradictory information (E)	−0.4			
Physical structure	General comfort of the wards (R)	0.88	6.51	4.08 to 10.40	<0.001
	Basic infrastructure of the ward (R)	0.87			
	Toilets (R)	0.85			
	Areas for newborn care (R)	0.84			
	General cleanliness (R)	0.79			
	Illumination (R)	0.77			
	Acoustics (R)	0.73			
	Organisation of hospital routine (R)†	0.71			
	Areas for visitors and timing (R)†	0.71			
	Possibility to rest after delivery (E)	0.4			
Victim of abuse, discrimination, aggressiveness	Victim of abuse (E)	0.85	1.08	0.55 to 2.15	0.811
	Victim of discrimination (E)	0.78			
	Victim of aggressiveness (E)	0.72			
	Multiple pregnancies (S)	−0.61			
Good neonatal practices	Skin-to-skin (P)	0.87	1.82	1.13 to 2.30	0.013
	Early breastfeeding (P)	0.83			
	Caesarean section (P)	−0.75			
	Rooming in (P)	0.72			
Women characteristics	Italian citizenship (S)	0.84	0.81	0.47 to 1.42	0.479
	Born in Italy (S)	0.79			
	Occupation status—employed (S)	0.7			
	Age ≥35 years (S)	0.52			
	Marital status—married/living with partner (S)	0.35			
	High education level (S)	0.35			

Continued

Table 2 Continued

Factors (group of variables)	Variables included*	Factor loading	Adjusted OR	95% CI	P value
Antenatal groups and multiparity	Multiparity (S)	0.8	1.92	1.22 to 3.01	0.005
	Antenatal birthing classes (S)	−0.75			
Mode of birth, attention to women comfort and partnership in labour	Vaginal operative delivery (P)	0.6	1.66	1.02 to 2.70	0.04
	Attention to ward's temperature (E)	0.51			
	Presence of a companion of choice (E)	0.47			
	Attention to thirst/hunger feeling (E)	0.4			
Information on danger signs and women rights	Warning signs information (R)	0.52	1.84	1.20 to 2.83	0.005
	Respect for cultural and religious needs (E)	−0.47			
	Breastfeeding information (P)	0.46			
	Knowledge of the respectful maternity care charter (S)	0.37			

*Only variables with factor loading >0.3, in a descending order of contribution to the factor, are reported. Each variable is reported once, only in the factor with higher contribution

†Additional variables for availability of resources (not based on WHO quality measures).

CS, caesarean section; (E), experience of care; HW, health worker; (P), provision of care; (R), availability of resources; RMC, respectful maternity care; (S), sociodemographic and clinical characteristics.

were significantly associated with 'wish to return to the facility/to recommend it to a friend' (online supplementary appendices 9 and 10).

DISCUSSION

This study explored the association between women's high satisfaction with care received during childbirth and 61 other variables, 10 maternal characteristics and 51 other variables related to QoC, most (92.2%) corresponding to WHO quality measures.[7] Overall, the study shows that, while maternal characteristics were poorly associated with women's satisfaction, many aspects of QoC were significantly associated with it. Specifically, in univariate analysis, 45/51 (88%) indicators of QoC were statistically significantly associated with satisfaction with care, with 32 associated with higher satisfaction and 13 with lower satisfaction. The strongest positive associations were found with effective communication (OR=5.47), while the strongest negative associations were found with caesarean section (OR=0.36). Many variables strongly correlated with each other. Results of multivariate analysis, using groups of variables generated by factorial analysis, largely confirmed these findings, with six out of eight groups of correlated variables statistically significantly associated with women's high satisfaction. The factors more strongly associated with women's satisfaction were 'effective communication, involvement, listening to women's needs, respectful and timely care' (OR=16.84) and 'physical structure' (OR=6.51). These two groups alone included over half of the total variables. Additionally, 'victim of abuse, discrimination, aggressiveness' was inversely associated with the wish to return to the facility

or to recommend it to a friend (OR 0.35, 95% CI 0.17 to 0.70, p<0.003).

This is the first study reporting on the association between satisfaction with care received during childbirth and a list of WHO quality measures. Findings of the study overall are in line with the existing literature, suggesting that a positive perception of childbirth, including satisfaction with the experience of care, is multidimensional and is influenced by a variety of factors, such as mode of delivery;[2 14 26] sense of control during birth;[27 28] quality of relationship with caregivers including good communication, participation in decision-making,[27–29] emotional support[27–29] and continuous support provided by a companion of choice.[30–33] Notably, studies in both low-income and middle-income countries[34 35] and high-income settings[36 37] have suggested that overall women's satisfaction can be affected by many dimensions of the QoC, across structure, process and outcomes.

Interestingly, studies in both low-income[35] and high-income countries[36–38] suggested that when women evaluate their childbirth experiences, process of care dominated the determinants of maternal satisfaction.[35 38] In particular, factors related to the 'experience of care', such as the amount of support from caregivers, the quality of the caregiver–patient relationship and involvement in decision-making, together with personal expectations, appear to be so important that they override the influences of many other factors, including sociodemographic characteristics of women such as age, socioeconomic status, ethnicity, childbirth preparation and medical interventions.[38] This is in line with the findings of our study, where maternal characteristics were poorly

associated with women's satisfaction, with the exception of multiparity, whose strong association could be due to a 'contrast effect' (enhancement, relative to normal, of a perception as a result of successive or simultaneous exposure to a situation).[39 40] Previous childbirth experiences of multiparous women may had positively influenced their current level of satisfaction with care received.

The importance of 'experience of care' may also explain why women's satisfaction with care has been reported as substandard in settings, such as Scandinavian countries, where resources are available, organisation of care is generally good, and evidence-based practices are overall widespread.[36 37] Clearly, these aspects of care may contribute but per se are not enough to ensure a good 'experience' of childbirth. Several authors have called for the need for a global cultural shift in the obstetric field and have underscored the importance of setting professional standards, including standards on skills such as effective communication and prevention of mistreatment and abuse, in order to fulfil the goal of providing patient-centred care at childbirth.[41 42]

Some of the findings of multivariate analysis—such as the lack of a significant association between 'victim of abuse, discrimination, aggressiveness' and maternal satisfaction, may be explained by the small sample of women reporting these indicators and should be further evaluated in other studies.

Overall, this study, together with the existing literature,[26–38] delivers an important message to policymakers and to engaged maternal care professionals: many aspects of care, and in particular the 'experience of care', contribute to a certain extent to the overall satisfaction of women with the care received. Therefore, many indicators of QoC should be routinely monitored and actively improved if found to be substandard. Measuring women's satisfaction alone may not provide a comprehensive picture of the QoC received, nor explore important underlying determinants of QoC. Only more detailed evaluations of a set of multiple quality indicators can provide actionable information for improving QoC. Interviewing mothers has been a WHO recommendation for the review of maternal near-miss cases for a long time and has shown a significant effect in reducing maternal mortality.[43] Currently, WHO, in agreement with several other agencies and bodies, recommends to routinely explore several aspects of women's 'experience of care' in order to identify actions to improve the quality of maternal and newborn care at the facility level.[6 7]

We acknowledge that this is single-centre study, and data are not directly generalisable to other contexts. However, the study enrolled a relatively large sample of women that generally reflects the current population of women giving birth in Northeast Italy, in particular, in the Friuli Venezia Giulia Region where the study took place, and, in particular, in relation to the prevalence of foreign women (15.2%).[44] More studies should be conducted to explore factors associated with poor women's satisfaction with care at childbirth in different settings, and, most importantly, on how to improve it.

Overall, the study identified four variables—'induction of labour', 'private assistance', 'organisation of hospital routine' (timings of follow-up visits, medications, etc) and 'areas for visitors and timing'- currently not listed among the WHO quality measures[7] and significantly associated with maternal satisfaction. Although WHO standards include many indicators, they have not been developed specifically for high-income countries, and this may explain why some variables, such as the one listed above, are missing. More studies should further explore other factors associated with women satisfaction with care at childbirth in high-income countries.

CONCLUSION

This study suggested that many variables are strongly associated with women's satisfaction with care during childbirth and support the recommendation of using multiple measures to monitor the QoC at childbirth in high-income settings.

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