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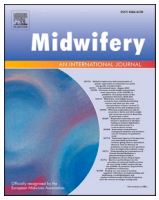



Reported respectful maternity care received during childbirth at health facilities: A cross sectional survey in Eastern province, Rwanda

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ABSTRACT

Background: Respectful maternity care (RMC) fosters positive childbirth experiences and ensures safe motherhood. While past Rwandan studies on childbirth predominantly focused on negative experiences, our research delved into positive experiences. This study aimed to assess the RMC level experienced by women during childbirth in health facilities of Eastern Province of Rwanda.

Methodology: We conducted a cross-sectional survey on 610 mothers at their discharge across five public hospitals. We used a 15-items RMC questionnaire developed by White Ribbon Alliance, version of 2019. To manage the right-skewed data, we employed a median cut-off, categorizing experiences into binary outcome (low and high RMC score). We performed stepwise backward elimination logistic regression model to identify predictors of high RMC.

Findings: The majority (70.2%) reported experiencing RMC. The most acclaimed RMC items (over 90%) included allowance of food and fluid intake (98.5%), non-discrimination (96.2%), receipt of necessary services (96.1%), and privacy (91.3%). The chi-square analysis showed an association between reported high RMC and marital status (p-value = 0.006), occupation (p-value = 0.001), and mode of delivery (p-value = 0.001). Caesarean section delivery was associated with high RMC in multivariate logistic regression with a p-value of 0.001, the adjusted odds ratio was 2.11 with a CI [1.40–3.17].

Conclusion: The reported RMC items and care appreciated at high level should be sustained. Regardless of mode of delivery, all mothers should experience consistent, utmost respect throughout the childbirth and should receive RMC at maximum level.

Introduction

The World Health Organization (2018) stated that respectful maternity care (RMC) goes beyond preventing maternal morbidity and mortality, and highlights that mothers should experience positive childbirth by being treated with full respect and dignity (Bohren et al., 2020; Shakibazadeh et al., 2018). The RMC Charter was first published by the White Ribbon Alliance (WRA) in 2011 with seven rights of women in childbearing age, and was updated in 2019 to include the 10 universal rights of women and newborns. These rights were developed based on accepted instruments on human rights, which became a framework for high quality maternity care that supports the dignity of mothers and newborns in health care facilities (WRA, 2019). RMC improves the quality of maternity services and its use (Dhakal et al., 2022; Dzomeku et al., 2022; Umar et al., 2020), which ultimately lead to achieving the Sustainable Development Goals by diminishing maternal and neonatal mortality and ending violations of women. Respectful actions need to be identified in a local context because the way women cope with pain or behave during labour may vary from nation to nation (Hughes et al., 2022; Bante et al., 2020; Afulani et al., 2019).

In Rwanda, some research has been conducted on disrespectful care experienced by mothers when seeking maternity services, but little is known about the extent and context of respectful care experienced by mothers during childbirth, which necessitated more research. There has been a little attention given to RMC most appreciated in general (Mdoe et al., 2021). RMC studies conducted in the past in Rwanda looked at the

Abbreviations: CI, Confidence Interval; OR, Odds Ratio; RMC, Respectful Maternity Care; WRA, White Ribbon Alliance.

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negative experiences of mothers (Mukamurigo et al., 2017b; Rosen et al., 2015). Hence, in the current study we assessed the status of positive experiences and RMC best practices appreciated most by mothers.

In 2015, Rosen et al. published a study on RMC based on the seven rights of women of childbearing age listed by WRA in 2011and their study used direct observation of labour. It was conducted in five African countries, including Rwanda (Rosen et al., 2015). They reported a systematic violation of women's rights of being free from harm and ill treatment, which was characterized by physical abuse. Violations of the right to information, informed consent, respect for women's choices, and preferences were also observed and manifested through being denied preferred birth positions. Above 70% of respondents indicated that the provider welcomed them courteously, only 42.6% were encouraged to have to have support person, 40.4% were explained procedures upfront, a half were briefed on findings, and 42.3% were solicited to ask their questions. The right to be treated with dignity and respect was violated, and women in labour were yelled at and spoken to rudely by health care providers. The observers described an incident where a mother, desiring to give birth in a squatting position during a contraction, was aggressively coerced by doctors. Despite her wishes, they persistently pressured and even hit her, attempting to force her into the conventional birthing position on the bed (Rosen et al., 2015). This study was conducted in 42 national wide public hospitals of Rwanda and 30 randomly selected health centers, despite the seemingly minimal sample size of 193.

Two years later, Mukamurigo et al. (2017a, 2017b) published quantitative and qualitative studies conducted in Rwanda on RMC. These studies were community-based, and the qualitative study complements the quantitative one. The quantitative was cross-sectional household research that had a large sample size of 921 women. The study investigated associations between perceived care and the childbirth experiences of mothers who delivered between 1 and 13 months prior to the study in Kigali and the Northern province of Rwanda. The findings showed that 3.1% of participants reported having a bad childbirth experience (Mukamurigo et al., 2017a). In order to understand the meaning of poor childbirth experiences, the authors enrolled mothers who responded that they have had a bad childbirth experience in the qualitative study. The mothers revealed that they were abandoned, verbally and physically assaulted, given inadequate information, denied their preferred birth position, and denied male partners as birth companions (Mukamurigo et al., 2017b).To assess the RMC level experienced by women during childbirth in health facilities of Eastern Province of Rwanda, we assessed the labour experiences reported by mothers from the active phase of labour throughout childbirth and immediate post-partum in health facilities of Eastern province of Rwanda through RMC tools developed and updated by WRA in 2019. We also invited women to express what aspect of care they appreciated most.

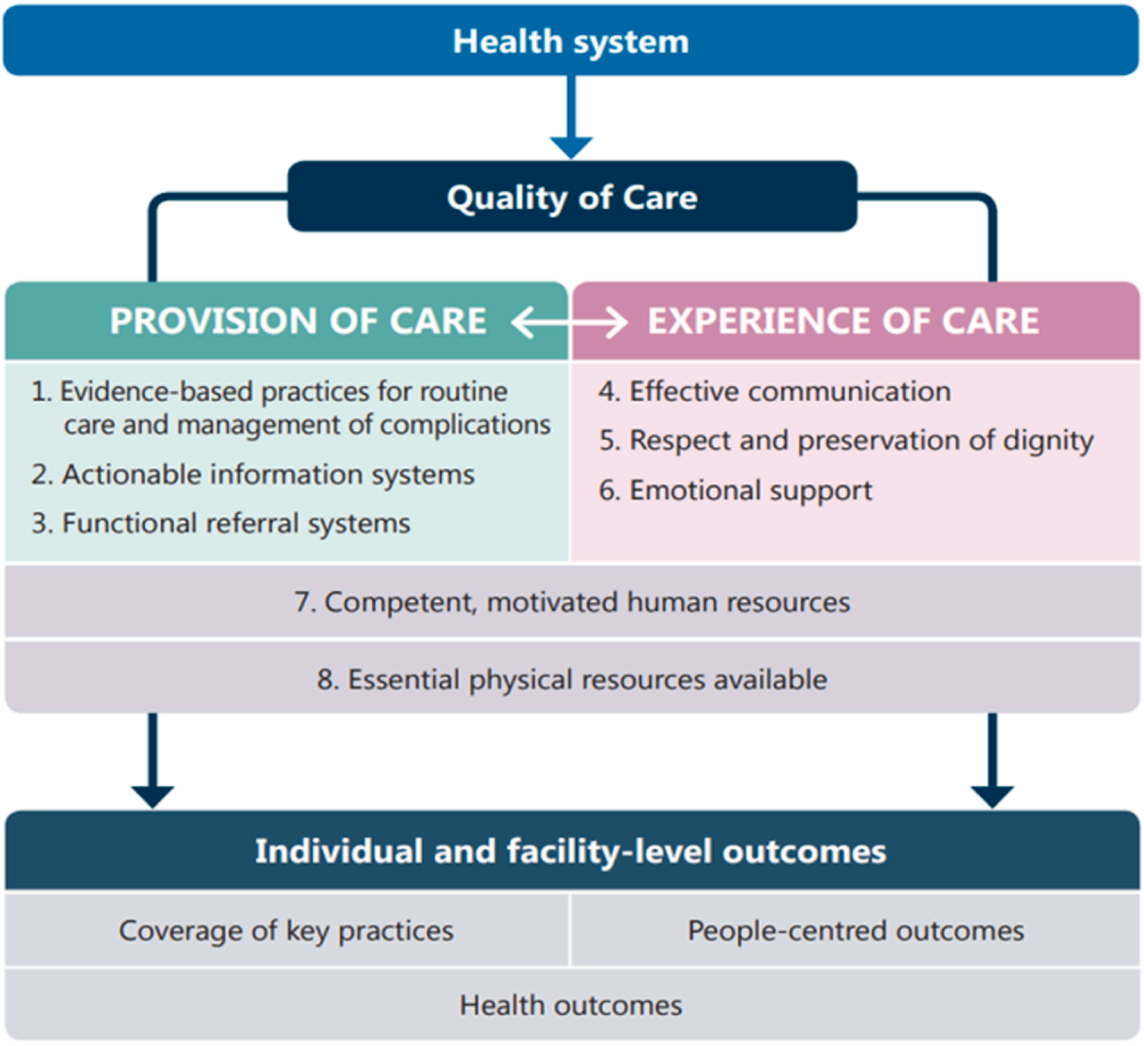

Fig. 1. WHO quality of care framework for maternal and newborn health.

WHO quality of care framework for maternal and newborn health

In 2015, WHO established a framework highlighting experience of care that is directly envisioning respectful maternity care (WHO, 2016). RMC is a broader as it may involve also resources and entire health system (Warren et al., 2017).

In experience of care, there are three components; effective communication, respect and preservation of dignity, emotional support, these components are related to RMC (Fig. 1).

Methods

Study design and setting

This study was cross-sectional and used a survey questionnaire. We interviewed 610 mothers across five public hospitals in Eastern province of Rwanda where normal or complicated deliveries are cared for. By using simple random sampling, we selected five out of 10 hospitals in the province. The selected hospitals are three district hospitals, one provincial hospital, and one referral hospital.

Participants, sampling, and data sources

The data were collected in June to August 2022. Five research assistants underwent training to gather data, receiving a comprehensive overview of the research objectives and ethical considerations. The training of the research assistants was harmonized to maximize reliability. Each question was thoroughly discussed and clarified during the training, and the assistants practiced with dummy data collection, followed by constructive feedback. The recruitment took place in postpartum wards when the mothers were being discharged from the hospital and the survey was conducted prior to the exit hospital premises. Mothers, aged 18 years and above, who started labour and gave birth via vaginal delivery or Caesarean section were recruited regardless of the birth outcome. Systematic random sampling was used to select mothers and every third woman who was discharged was included in the study. We conducted the survey on the hospital buildings when mothers were preparing to exit the hospital, we engaged with them in the survey while their family members were making payments and arranging to go home during the discharge process. The earliest time to start data collection from a mother was 12 hours after childbirth by normal delivery and 36 hours after Caesarean section delivery. The participants read the information sheet and signed the consent form before being enrolled in the study. A structured questionnaire was used to collect the data, and trained research assistants collected the data. The survey was conducted in a discrete private room in the hospital, and the interviewer asked the participants questions and logged the responses.

The survey tool was adopted from the updated ten universal rights of women and newborns developed by the White Ribbon Alliance in 2019 (WRA, 2019). The rights were divided into 15 items to ensure clarity for each item. The questionnaire was pretested with 10% of the participants to ascertain the internal coherence of the research tool by checking for ambiguous, unnecessary, and sensitive questions. The reliability test Cronbach's alpha for each item ranged between 0.65 and 0.74, and the overall test scale for the RMC self-reported questionnaire was 0.72 which is good and shows acceptable internal consistency. The questionnaire had 11 socio-demographic and obstetrical characteristic questions, and 15 questions about the universal rights of women and newborns related to RMC during labour, childbirth, and immediate post-partum obstetrical care. The questionnaire also included 9 open-ended follow-up questions to those who responded *yes* to RMC positive experience. The follow-up questions were about the aspect of care mothers most appreciated. (See the entire questionnaire file on attached documents)

Sampling and sample size calculation

Systematic random sampling was used to select the participants. The total estimated mothers who delivered at the five hospitals was 1830 during the period of study, which was divided by the sample size (Polit and Beck, 2020). Every third woman being discharged was included in the study. Mothers who were admitted into the labour ward, delivered in the same hospital, and were ready to be discharged were recruited.

The estimation of the sample size for the cross-sectional study was done using previous research findings on RMC prevalence in Kenya on a reference proportion of 80% for women who did not experience disrespect and abuse during childbirth (Abuya et al., 2015). We chose to use their proportion because it was from a country-wide study in East Africa that measured RMC prevalence (Warren et al., 2017).

A z-score of 95% confidence level (z_1-ɑ/2 = 1.96), a relative precision (d) of 5%, a design effect (DE = 1.5), and a non-response rate (10%) were used to calculate the sample size as shown in the following equation (Sharma and Gaur, 2020).

$$n = \frac{\left(z1 - \frac{\alpha}{2}\right)^2 (p)(q)}{d^2}$$

n = Desired sample size

Z1−α/2 = Critical value and a standard value for the corresponding level of confidence. At 95% CI or 5% level of significance (Type-I error) it is 1.96

P = Prevalence based on previous research

q = 1-p

d = Margin of error or precision

The sample size was 380 *1.5 + (380 * 10%) = 610. The representative sample from each facility was 122 women.

Outcome variable

The outcome variable was a self-reported RMC score measured using the universal rights of women and newborns developed and updated by the WRA (2019), and has a maximum score of 15 items of RMC with nine follow-up questions about most appreciated care. Each reported item was based on binary responses and was scored 1 for *yes* and 0 for *no*. We did the score summation of the self-reported 15 RMC items. The total RMC score was the sum of responses to the 15 RMC questions, and the total score ranged from 0 to 15, with low scores indicating disrespectful maternity care or some positive experience (low RMC), and high scores indicating a high level of RMC and a positive experience (high RMC). The mean score was calculated and converted to percentage scores, but we used the median as our cut-off in the current study because the data were not normally distributed and were skewed to the right. This method was previously used in study conducted respectively in Iran and Nigeria (Hajizadeh et al., 2020; Esan et al., 2022). In the literature, there is no clear consensus on the cut-off to be used to define which women received RMC and which did not (Esan et al., 2022). In this study, by using a median as our cut-off point, we specified a binary outcome, and low RMC and high RMC as categorical variables. We analysed the data from the follow-up questions using frequency and percentages.

The RMC scale was validated in Kenya in study done by Abuya et al. (2015) but it contained only ten items. The scale had not previously been validated in Rwanda. The reliability test Cronbach's alpha was measured for each item and was shown to have acceptable internal consistency that ranged between 0.65–0.74 (free from physical abuse = 0.69; orientation = 0.710; consent = 0.73; newborn care = 0.74; choice and preferences = 0.68; birth companion = 0.72; privacy = 0.71; confidentiality = 0.68; dignity = 0.66; free from discrimination = 0.70; expected health care = 0.65; timely attended = 0.66; needed care = 0.72; allowed eating = 0.73; informed on breastfeeding = 0.73).

Explanatory variables and covariates

Explanatory variables were mother's socio-demographic and obstetric history data. There were 11 variables, namely marital status, age, education, religion, occupation, gravida, time on the day mother gave birth, previous living children, gestational age, condition of the baby at delivery, and mode of delivery. We categorized these variables where necessary and summarized by frequencies and percentages. Among obstetrical history, gestational age was classified into three categories, namely term, preterm, and post-term; marital status was defined as married, cohabitation, and single; mode of delivery was dichotomous (normal delivery and Caesarean section); education level was defined as no formal education, primary education, and secondary and tertiary education; time of day that mother delivered was also dichotomous (night and day); and the condition of the baby at delivery was defined as baby is well/healthy, baby had birth asphyxia, baby was stillbirth, and baby has died.

Statistical methods

Data was entered into Redcap software, and then the data were cleaned and imported into STATA software version 16 for cleaning and analysis. Descriptive and inferential statistics were used.

We evaluated the association between explanatory variables and the reported RMC score in chi-square analysis, and we performed binary logistic regression. Multicollinearity with pairwise correlation was done to check correlation between the explanatory variables, and three variables, namely age, gravida, and living children, were highly correlated. Gravida and living children were excluded because they had a variance inflation factor of 6.71. Age had a variance inflation factor of 2.17 and was thus retained for the multivariate logistic regression. After eliminating two highly correlated variables (gravida and living children), we created a multivariate logistic regression model that included all factors, except the correlated variables, to discover the associated factors to the reported RMC score. We used the stepwise backward elimination logistic regression model with reported respectful maternity care score as a binary outcome variable to find predictors of high RMC. We reported the crude and adjusted odds ratios at 95% confidence intervals, and p-values of less than 0.05 were considered significant.

Results

In total, 610 mothers were interviewed across five hospitals, with 122 mothers being interviewed at each facility. The majority had term babies (87.5%), were Christian (96.4%), had given birth during the night (54.7%), and gave birth to healthy baby (90.4%). The majority of participants were aged between 21 and 30 (53.8%), with a mean age of 27.7. Half of the participants were cohabitating with their partners (50%), and slightly more than half were farming (59.2%). It was 35.9% of the participants' first pregnancy, 48.4% only had primary education, 61.3% delivered vaginally, and 37.8% delivered via Caesarean section. The socio-demographic and obstetrics profiles are further detailed in Table 1a.

Among the 610 mothers who were interviewed, most received care free from harm and ill treatment (84.4%) and were provided explanations and orientation (88.4%). The majority reported being given informed consent for their own care (70.6%), experienced respect for their choices and preferences (86.2%), respect for privacy (91.3%), and confidentiality (89.3%). The participants stated that they were treated with dignity (87%), their treatment was free from discrimination (96.2%), they received the healthcare they anticipated (82.8%), and they were attended to in a timely manner (83%). The highest number (98.5%) reported that they were allowed to take foods and fluids during labor, and immediately post-partum, (96.1%) they received the services they needed. The three RMC indicators received the lower percentage less than half were; the presence of a birth companion (49.2%), information on newborn care (43.9%), information on breastfeeding (39.4%). Mothers who reported experiencing all 15 RMC items were only 36 (5.9%) (Fig. 2).

Table 1a
Description of socio-demographic and obstetric characteristics ($n = 610$).

Variables Gestational age	Frequency	Percentage
Term	534	87.5
Preterm	32	5.3
Post-term	44	7.2
Religion		
Christian	588	96.4
Muslim	22	3.6
Time of the day giving birth		
During the night	334	54.7
During the day	276	45.2
Condition of the baby		
Baby was healthy	554	90.8
Baby had birth asphyxia	36	5.9
Baby died	20	3.3
Age of the mother		
18–20	87	14.3
21–35	446	73.1
36–44	77	12.6
Marital status		
Married by common law	190	31.1
Cohabitation	305	50
Single mother	115	18.9
Occupation of the mother		
Homemaker	78	12.8
Farming	361	59.2
Small business	123	20.2
Employee	48	7.9
Gravida		
Gravida 1	219	35.9
Gravida 2	140	22.9
Gravida 3	122	20
Gravida 4 and more	129	21
Living children		
No child	248	40.7
One child	159	26.1
Two children	104	17.1
Three children and more	99	16.3
Education level		
No formal education	70	11.5
Primary	295	48.4
Secondary and tertiary	245	40.2
Mode of delivery		
Vaginal delivery	374	61.3
Caesarean section	236	38.7

A total of 515 participants responded yes to all/at least one RMC items. The participants were inquired about the kind of care they appreciated most. For instance, we posed the question: "During labour, how have you been treated when experiencing pain or discomfort (State the one you mostly appreciated)? The majority reported appreciating pain killers and anaesthesia given to them (37.3%), and being informed about general examinations and its findings (28.6%). On the question "What action/procedure was done with your verbal or written permission that you most appreciated?" The participants responded that abdominal palpation and vaginal examination (47.1%) were the procedures most frequently performed with verbal consent and appreciated. Concerning the choice or preference granted to the participants, the most appreciated was being allowed to take the foods they wanted (36.1%). The privacy the participants most appreciated was being covered during vaginal examinations (98.6%). The dignity and respect that the participants most appreciated was not being humiliated and verbally abused but being spoken to in a respectful manner (76.5%). The highest level of health care that the participants most appreciated was newborns receiving care when needed (55.7%). Equitable healthcare that the mothers most appreciated was receiving fair healthcare like others (97.4%). Table 1b depicts the types of care most appreciated by

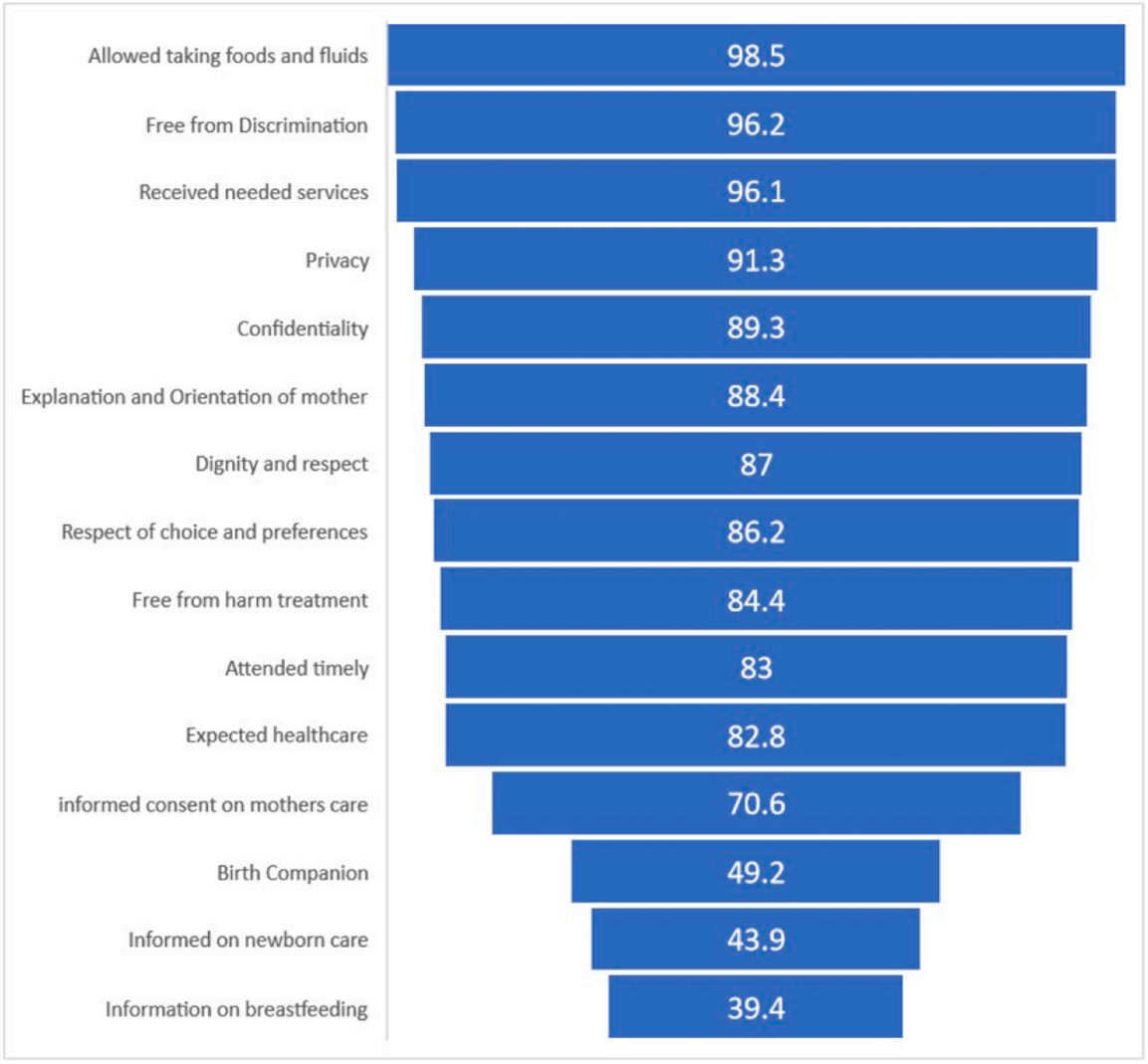

Fig. 2. Self-reported RMC items (n = 610).

the participants. These responses were received during the follow-up questions asked only to mothers who responded *yes* on RMC questions in order to capture the type of care they most appreciated. There were nine follow-up questions in total (Table 1b).

After performing the summation of those who responded *yes* on the 15 RMC items (each reported *yes* item was scored 1), the mean was 11.8 with a standard deviation of ±2.4 and we converted the mean score to percentage scores (78.9%). In the literature, there is no clear consensus on the cut-off to be used to define the threshold at which women received RMC. We found a RMC median that was 12 or 80%. Among the 15 RMC items evaluated, 95(29.8%) mothers reported being provided with 11 of the 15 items (low RMC) and 515(70.2%) mothers reported experiencing at least 12 and up to 15 (high RMC), with ranges varying from 20 to 100. All mothers experienced at least three RMC items and at most 15 RMC items. By using a median as our cut-off point, we specified a binary outcome, namely low RMC and high RMC, as categorical variables.

All explanatory variables and outcome variables of the current study were categorical. In our statistical analysis, we used chi-square, binary, and multivariate logistic regressions. Statistically significant scores associated to reported RMC were found for marital status (p-value = 0.006), occupation of the mother (p-value = 0.001), and mode of delivery (p-value = 0.001). In addition, among mothers who received high RMC, the majority cohabites with their partners (75.5%), were aged between 36 and 40 (76%), attended only primary school (74.5%), and were primigravida (73.5%). Table 2 displays the outcome (reported RMC score) of the categorical variables (low RMC and high RMC). It presents the chi-square results from the association between explanatory variables and the outcome variable of the RMC score (Table 2).

In our binary model, mode of delivery was associated with a high RMC score. Caesarean section delivery was associated with a high RMC score with a p-value of 0.001 and a crude odds ratio of 1.88 with a confidence interval of [1.29–2.74]. In our multivariate model, mode of delivery (Caesarean section) was associated with a high RMC score with a p-value of 0.001 and an adjusted odds ratio of 0. 2.11 with a confidence interval of [1.40–3.17]. Table 3 displays the results from the bivariate and multivariate logistic regressions that examined the association between the explanatory variables and the reported high RMC score (Table 3).

Discussion

A large proportion (70.2%) of our participants reported being respected during their labor and childbirth. Less than a half the women reported that they were not informed about breastfeeding and newborn care. Health care providers in maternity units are often very busy, and given that above 85% Rwandan mothers traditionally breastfeed their newborns, these providers tend to assume that the mothers already

Table 1b
Care most appreciated by participants ($n = 515$).

The most appreciated treatment when experiencing pain or discomfort	Frequency	Percentage
Given pain killers/anaesthesia	192	37.3
Just labour went well, no special think	124	24.1
Psychological support	98	19.1
Repaired episiotomy/tear with anaesthesia	97	18.8
Back massage	4	0.8
Information explained to the mother that was most appreciated		
General examination and findings	154	28.6
Orientation on ward environment	142	26.4
Vaginal examination and findings	102	18.9
Meal time/told what to eat and not to eat	78	14.5
Reason for caesarean section	32	5.9
Explained the care given and how to behave during labour	17	3.2
Progress of labour	7	1.3
The sex of the baby	5	0.9
When to breastfeed/feed the baby	2	0.4
Action/procedure most appreciated done with mother's verbal or written permission		
Abdominal palpation and vaginal exam	203	47.1
Caesarian section	142	32.9
Vaginal examination	58	13.5
Cutting episiotomy	10	2.4
Augmentation of labour and induction of labour	8	1.9
Tubal ligation	8	1.9
Hysterectomy	2	0.5
Choice or preference granted to mother that was most appreciated		
Allowed to take foods of choice	190	36.1
Allowed to take preferred birth position	131	24.9
Allowed to pray	118	22.5
Allowed to take soft drink	31	5.9
Placed in calm environment	31	5.9
Allowed visitors	19	3.6
Allowed to listen to music	4	0.8
Allowed to wear clothes of choice	2	0.4
Privacy that mother most appreciated		
Covered during vaginal examination	549	98.6
There were screens/room wall blocking views	8	1.4
Confidentiality that mother most appreciated		
My health conditions during and delivery was not communicated/shown to other clients	531	97.4
Other health information discussed with only health staff	8	1.5
Other health information were discussed when other clients are not listening	6	1.1
Dignity and respect that mother most appreciated		
Not humiliated	371	69.9
Cared with birth compassion	70	13.2
Touched in a dignified or respectful manner	37	6.9
Not verbally abused/Was spoken in respectful manner	35	6.6
The newborn was touched in a dignified manner	11	2.1
Service was somehow good (fifty-fifty)	4	0.7
The newborn was cared with compassion	2	0.4
Called by my proper name	1	0.2
Equitable healthcare that mother most appreciated		
Received equitable care like others	572	97.4
Had freedom to take decisions about all care /what happens to my body	8	1.4
My newborn was free from discrimination	7	1.2
Highest level of health care that mother most appreciated		
My newborn was attended by health care provider while needed care	281	55.7
I was provided care in timely manner	206	40.8
I was provided care in clean and safe environment	12	2.4
I was attended by skilled health care provider	6	1.2

possess the knowledge on how to breastfeed (UNICEF, 2019). The majority were not allowed to have a birth companion during labour and childbirth, similar to the findings of a study conducted in Rwanda by Mukamurigo, which reported a very limited number of birth

Table 2
Chi-Square analysis of categorical variables ($n = 610$).

Characteristics	Low RMC n (%)	High RMC n (%)	P-value
Level of education			0.644
No formal education	18 (26)	52(74)	
Primary	78(29.5)	208(74.5)	
Secondary and tertiary	77(31.5)	168(68.5)	
Religion			0.789
Christian	176(30)	412 (70.1)	
Muslim	6(27.5)	16 (73%)	
Gestational age			0.741
Term	162(30.5)	372 (69.5)	
Preterm	9 (28.5)	23 (72)	
Post-term	11(25)	33 (75)	
Time of delivery			0.676
During night	102(30.5)	232 (69.5)	
During day	80 (29)	196 (71)	
Condition of the baby			0.204
Baby was in good condition	161(29)	393(71)	
Baby had birth asphyxia	14 (39)	22 (61)	
Stillbirth	5(38.5)	8 (61.5)	
Baby was dead immediately	2 (66.5)	1 (33.5)	
Baby died later after birth	0 (0)	4 (100)	
Age of the mother			0.766
18–20	25(29)	62(71)	
21–25	50(28.5)	125(71.5)	
26–30	52(34)	101(66)	
31–35	36(30.5)	82(69.5)	
36–40	15(24)	48(76)	
41–44	4(28.5)	10(71.5)	
Marital status			**0.006**
Married by common law	61(32)	129(68)	
Cohabitating	75(24.5)	230(75.5)	
Single mothers	46(40)	69(60)	
Occupation of mother			**0.001**
Homemaker	9(29)	22(71)	
Farming	94(26)	267(74)	
Small sales	36(45.5)	43(54.5)	
Employed	9(19)	39(81)	
Not employed	14(30)	33(70)	
Survives on chores	20(45.5)	24(54.5)	
Gravida			0.681
Gravida 1	58(26.5)	161(73.5)	
Gravida 2	44(31.5)	96(68.5)	
Gravida 3	39(32)	83(68)	
Gravida 4	17(29)	42(71)	
Gravida 5 and more	24(34)	46(66)	
Previous living children			0.420
No child	70(28)	178(72)	
One child	46(29)	113(71)	
Two children	36(34.5)	68(65.5)	
Three children	26(34)	50(66)	
Four children and more	4(17.5)	19(82.5)	
Mode of delivery			**0.001**
Vaginal delivery	130(35)	244(65)	
Caesarean section	52(22)	184(78)	

companions being permitted to enter the labour wards and stay with the mother (Mukamurigo et al., 2019). This may be attributed to inadequate facilities lacking private rooms or partitions to maintain the mother's privacy, the narrowed space of the room, and the preference of some mothers not to have their husbands present (Doba et al., 2023).

In the descriptive analysis, the median threshold for RMC in this study was established at 80. Similar to the study conducted in Rwanda by Mukamurigo et al. (2017a), the participants rated good experiences during childbirth between 80% and 100%. In the current study, the mean value was 78.9%, which is similar to the findings of a study conducted in Nigeria where the mean of the self-reported RMC score was 79%; however, they used no clear cut-off standardized tool to define the RMC level (Esan et al., 2022). We understand that RMC is a delicate subject that should be counted with caution because a woman can experience 14 out 15 items but the missing item may be very traumatic, such as being free from abuse and mistreatment. It is wrong to say that a mother was respected if she endured physical abuse such as being

Table 3
Logistic regression.

Variable	*N* = 610 Category	RMC percentage n (%) Low RMC	High RMC	Crude OR [CI 95%]	P-value	Adjusted OR [CI 95%]	P-value
Gestational age	Term	162(30.5)	372(69.5)	1		1	
	Preterm	9(28.5)	23(72)	1.11[.50, 2.45]	0.791	1.26[.51–3.11]	0.585
	Post-term	11(25)	33(75)	1.30[.64, 2.64]	0.459	1.55[.70–3.41]	0.313
Religion	Christian	176(30)	412(70.1)	1		1	
	Muslim	6(27.5)	16(73)	1.13[.43, 2.95]	0.789	1.33[.48–3.70]	0.582
Time of delivery	During the night	102(30.5)	232(69.5)	1			
	During the day	80(29)	196(71)	1.07[.75, 1.52]	0.676	1.06[.72–1.54]	0.678
Baby condition	Baby was in good condition	161(29)	393(71)	1		1	
	Baby had birth asphyxia	14(39)	22(61)	.64[.32, 1.28]	0.214	.55[.25–1.19]	0.167
	Stillbirth	5(38.5)	8(61.5)	.65[.21, 2.03]	0.465	.78[.21–2.84]	0.571
	Baby was dead immediately	2(66.5)	1(33.5)	.20[.01, 2.27]	0.197	.15[.01–2.21]	0.163
Age of mother	18–20	25(29)	62(71)	1		1	
	21–25	50(28.5)	125(71.5)	1.00[.57, 1.77]	0.978	1.01[.53–1.93]	0.949
	26–30	52(34)	101(66)	.78[.44, 1.38]	0.403	.80[.37–1.71]	0.597
	31–35	36(30.5)	82(69.5)	.91[.50, 1.68]	0.784	1.07[.45–2.53]	0.880
	36–40	15(24)	48(76)	1.29[.61, 2.71]	0.501	1.55[.53–4.51]	0.296
	41–44	4(28.5)	10(71.5)	1.00[.28, 3.51]	0.990	.86[.18–4.02]	0.953
Marital status	Married by common law	61(32)	129(68)	1		1	
	Cohabitation	75(24.5)	230(75.5)	1.45[.97, 2.16]	0.069	1.53[.95–2.46]	0.097
	Single mother	46(40)	69(60)	0.70[.43, 1.14]	0.162	.79[.41–1.49]	0.392
Occupation of the mother	Homemaker	9(29)	22(71)	1		1	
	Farming	94(26)	267(74)	1.16[.51, 2.61]	0.717	1.48[.61–3.57]	0.461
	Small business	36(45.5)	43(54.5)	.48[.20, 1.19]	0.116	.71[.27–1.85]	0.454
	Employed	9(19)	39(81)	1.77[.61, 5.12]	0.290	3.01[.95–9.55]	0.099
	Not employed	14(30)	33(70)	.96[.35, 2.61]	0.943	1.27[.44–3.65]	0.681
	Survives on chores	20(45.5)	24(54.5)	.49[.18, 1.30]	0.153	.67[.22–2.02]	0.513
Gravida	Gravida 1	58(26.5)	161(73.5)	1			
	Gravida 2	44(31.5)	96(68.5)	.78[.18, 1.08]	0.076		
	Gravida 3	39(32)	83(68)	.76[.17, 1.57]	0.251		
	Gravida 4 and more	41(31.8)	88(68.2)	.89[.08, 1.12]	0.075		
Living children	No child alive	70(28)	178(72)	1			
	One child alive	46(29)	113(71)	.96[.79, 4.55]	0.150		
	Two children alive	36(34.5)	68(65.5)	.74[.34, 3.18]	0.923		
	Three children alive and more	30(30)	69(70)	.75[.44, 6.72]	0.431		
Education level	No formal education	18(26)	52(74)	1		1	
	Primary	78(29.5)	208(74.5)	0.82[.45, 1.49]	0.531	.70[.36–1.33]	0.344
	Secondary and tertiary	77(31.5)	168(38.5)	0.75[.41, 1.37]	0.359	.67[.32–1.42]	0.314
Mode of delivery	Vaginal delivery	130(35)	244(65)	1		1	
	Caesarian section	52(22)	184(78)	1.88[1.29, 2.74]	**0.001**	2.11[1.40–3.17]	**0.001**

kicked, pinched, and beaten during childbirth. Therefore, RMC tool items must be properly weighted, and we suggest that RMC is only declared at 100%, however, in the current study, only 36 (5.9%) mothers reported experiencing all 15 RMC items. Lack of a clear RMC cut-off is a critical issue in RMC studies, and we suggest that this be determined in future studies.

In the current study, 70.2% of participants received RMC, and in two studies conducted in urban and rural areas of Ethiopia respectively, 82.4% received RMC (Kitaw and Tessema, 2019) in Addis Ababa and 39.4% in South Gondar zone, northwest Ethiopia (Ferede et al., 2022). The variation in RMC scores and percentages may depend on the location of the study. Wassihun and Zeleke (2018) argue that women from urban areas tend to report more RMC than those from rural areas. This differs from a study conducted in Iran that had a RMC score of 62.5% (Hajizadeh et al., 2020). In the current study, most participants were from rural areas and some were from district towns.

In chi-square analysis, we found that there is an association between three socio-demographic factors and reported high RMC. These factors were marital status, occupation, and mode of delivery. In the current study, after performing bivariate and multivariate logistic regressions, there was no longer any association for the two factors marital status and occupation. Literature argues that marital status and occupation of the mother may influence how she receives and perceives care (Hughes et al., 2022; Afulani et al., 2021). However, it should be noted that predictors of positive or negative RMC experiences can differ across countries, settings, and cultures (Afulani et al., 2019).

The logistic regression from this study reported that Caesarean sections were associated to reported RMC. Similar to findings from studies conducted in Ethiopia (Ferede et al., 2022; Mengistie et al., 2022), Caesarean section delivery was two-fold associated to the reported RMC. In the current study's hospitals, the protocol for Caesarean sections, either elective or emergency, is very clear and straightforward. Before performing a Caesarean section, a mother must sign a consent form, and during the operation, the mother is cared for by a big team that includes a physician, midwives, nurses, and an anaesthesiologist. In addition, the medical pain management protocol is strictly followed before, during, and after the operation, and the mother is closely monitored. During this process, the mother may feel more respected than during the normal delivery process. The selected hospitals in the current study do not have medical labour pain management protocol for normal delivery. The mother feels much pain from the beginning of labour until the end and even in the immediate post-partum, and painkillers are not routinely administered. During the entire process of labour, the mother is cared for by one or two health personnel, and the mother may feel uncomfortable with the labour process and monitoring. Furthermore, the duration of labour during normal delivery is longer than for Caesarean sections, and the mother can feel upset and not respected if she was not prepared well before labour. Although our study sites don't yet use pharmacological pain management, such as epidural anaesthesia, for those having vaginal births, many women might not even be aware that such medications exist. Literature argue that women perceive pain as a part of the normal childbirth process, so they don't raise complaints about it (Bowser and Hill, 2010).

The current study's strengths include the relatively large sample size

(n = 610) and the probability sampling. We addressed an important knowledge gap because the evidence on RMC in Rwanda is limited, and to our knowledge, this is the first quantitative study that describes the experience of RMC in Rwanda using the updated RMC scale. Our findings are the baseline to inform further studies in the field of quality maternity care. This study depicts the RMC status (prevalence) in the Eastern province and may drive health care providers and hospital management to take action to increase the RMC level and to sustain the existing best practices in order to achieve better experiences during labour and to improve the outcome of labour. However, this study's limitations include being conducted on the hospital premises because although the participants were discharged and ready to go home, the study was prone to desirability bias response. In the current study, we did not use the standardized defined cut-off to report the RMC level received by the women because it does not exist in literature; we recommend that future studies work on this.

In conclusion, though a large number of mothers reported being respected during their recent labour experience, RMC must still be improved for mothers who deliver vaginally so that they feel as respected as those who have a Caesarean section. Mothers should be provided with information on breastfeeding before and after delivery. In addition, mothers should be provided with information on caring for their babies. Note that self-reported RMC is always associated with personal perceptions, depends on context (Esan et al., 2022), and is multidimensional and dynamic (Hughes et al., 2022). A standardized cut-off RMC is needed to identify the level of RMC received by mothers, and we suggest the proper weighting of RMC tool items because RMC is a delicate subject.

Ethical approval

Ethical clearance was received from the Institutional Review Board of the College of Medicine and Health Sciences of the University of Rwanda with a reference 385/CMHS-IRB/2021, the National Health Research Committee from the Ministry of Health of Rwanda with a reference NHRC/2022/PROT/003, and the Health Research Ethical Committee of Wits University (South Africa) with a reference M220265. Permission was obtained from the five hospitals. The participants signed consent forms before participation.

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Clinical trial registry and registration number

Not applicable.

Declaration

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CRediT authorship contribution statement

Alice Muhayimana: Writing – original draft, Funding acquisition, Investigation, Methodology, Conceptualization, Data curation, Formal analysis. **Irene Kearns:** Writing – review & editing, Formal analysis, Methodology, Supervision, Conceptualization, Data curation. **Gishoma Darius:** Writing – review & editing. **Tengera Olive:** Writing – review & editing. **Uhawenimana C. Thierry:** Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Supplementary materials

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