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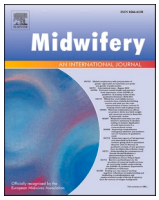

Shared decision-making in maternity care in Saudi Arabia: A cross-sectional study

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ABSTRACT

Background: Shared decision-making (SDM) in maternity care involves women actively in decisions, thereby reducing decisional conflicts and enhancing satisfaction with care.
Aim: To investigate SDM and the factors associated with it, and its correlation with respect in maternity care in Saudi Arabia.
Methods: A comprehensive, nationwide online questionnaire-based study was conducted between January to May 2023, involving women aged 18 years and above who were either pregnant or had experienced pregnancy/childbirth in the past 12 months. The Mothers' Autonomy in Decision-Making (MADM) scale and the Mothers of Respect Index (MORi) were used. Low to very low SDM was defined as a score of $\leq$ 24 on the MADM and low to very low respected was defined as a score of $\leq$ 49 on the MORi.
Results: A total of 505 women completed the survey. Low to very low SDM was reported by 137 (34.1 %, 95 confidence interval (CI), 29.6 % - 38.9 %) women. Factors significantly associated with low to very low SDM included seeing different obstetricians of different gender at each visit (adjusted odds ratio (AOR) 2.0, 95 % CI, 1.0 – 3.9), not meeting the same obstetrician throughout the pregnancy (AOR 2.6, 95 % CI, 1.2 – 5.6) and having an instrumental vaginal birth (AOR 6.67, 95 % CI, 1.6 - 28.1). There was a positive association between low to very SDM and feeling of low to very low respect (($\chi 2 = 83.8173$, $p < 0.001$).
Conclusion: More than one-third of women experienced low to very low SDM in maternity care. This should alert healthcare providers to the importance of continuity of care in Saudi Arabia.

Statement of Significance

- **Problem**
  Despite global benefits, shared decision-making (SDM) in Saudi maternity care remains unexplored. Sociocultural norms, healthcare system issues, and poor interpersonal care hinder women's SDM and limit their satisfaction with maternity services.
- **What is Already Known**
  Shared decision-making globally enhances maternity care outcomes and satisfaction. However, cross-cultural dissatisfaction persists due to influences on SDM and perceived respect.
- **What this Paper Add**
  It emphasises the significance of the women's relationship with the healthcare providers, especially the preference for familiarity with obstetricians, and their gender highlighting the importance of continuity of care in Saudi Arabia.

Introduction

Shared decision-making (SDM) is a collaborative process where patients and healthcare providers (HCPs) jointly make treatment decisions, integrating medical information with a woman's unique values, opinions, and concerns (Alruwaili et al., 2023; Elwyn et al., 2023, 2012). In maternity care, the necessity of SDM is magnified due to the critical nature of decisions surrounding prenatal screening, birthing plans, and postpartum care. These decisions have lasting impacts on both mother and child, highlighting the essential role of SDM in ensuring these choices are made collaboratively and thoughtfully (Guerrero et al., 2020).

The benefits of employing SDM in maternity care are evident as it enhances the overall consultation experience, reduces decisional conflicts, and improves satisfaction with childbirth experiences (Attanasio

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et al., 2018; Molenaar et al., 2018; Poprzeczny et al., 2020). This shift is attributed to the move away from one-way informed consent to a more fair, two-way discussion between women and HCPs (Ryan and Brandi, 2021). Furthermore, respect in maternity care is integral to SDM, ensuring that SDM, cultural background, and personal preferences are honoured (WHO, 2018a). A recent umbrella review synthesising 26 global studies of SDM in maternity care revealed several key obstacles to effective SDM, including constrained consultation times, communication weaknesses with HCPs, cultural norms, parents' knowledge gaps, and healthcare system limitations (Alruwaili et al., 2023).

Despite the importance of SDM in global maternity care, there is a significant lack of research on its detailed aspects and implementation in non-Western contexts including Saudi Arabia. The Saudi healthcare context, particularly in maternity care, differs considerably from Western models in terms of cultural norms, gender dynamics, and organisation of services. Maternity care in Saudi hospitals is influenced by the patriarchal nature of medicine, which limits women's involvement in decision-making about their childbirth and care. For instance, only two (22 %) out of nine public hospitals in Jeddah allow family members to be present during childbirth (Altaweli et al., 2014), potentially leaving women feeling unsupported, which contrasts with the cultural emphasis on familyism. Furthermore, pregnant women in Saudi Arabia have no choice regarding birthplace, with only hospital-based childbirth options available, and no alternatives such as home births, birthing centres, or midwifery-led units (Alghamdi et al., 2023; Altaweli et al., 2014). This hierarchical, physician-dominated environment may create barriers to respectful, collaborative SDM around women's preferences. Given the vital impact of SDM on maternal experiences and perinatal outcomes, research is needed to understand how SDM is practised and perceived within Saudi maternity services. Therefore, this study aims to investigate SDM, its associated factors, and its correlation with respect in maternity care in Saudi Arabia.

Methods

Study design and setting

This nationwide cross-sectional, online questionnaire-based study was conducted in Saudi Arabia from January to May 2023. Online questionnaires provide a wider reach, efficient data management, and cost savings compared to traditional surveys. They offer participants greater convenience and anonymity, which encourages honest responses. Additionally, online questionnaires enable timely data collection and are environmentally friendly (Menon and Muraleedharan, 2020). The use of online surveys in Saudi Arabian communities has been demonstrated to enhance participant comfort and willingness to disclose sensitive information, attributed to reduced social pressures and increased anonymity (Al-Saggaf and Begg, 2004; Almotairi and Bataineh, 2020). The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist was followed for preparing this manuscript (STROBE, 2023).

Participants

To be eligible for this study, women had to be aged 18 years and above and be either pregnant at the time of the study or had experienced pregnancy and/or childbirth within the preceding 12 months in Saudi Arabian hospitals. Additionally, participants needed to have made decisions related to various aspects during pregnancy and/or childbirth. A list of decisions was provided, which include choices about prenatal genetic testing, medication use during pregnancy, pregnancy termination, induction of labour, choice of birthplace, preference mode of birth (such as normal vagina birth, caesarean section, or vaginal birth after a previous caesarean section), type of pain relief or anaesthesia during labour (e.g., epidural or general anaesthesia), having episiotomy, and using assisted birth methods (e.g., forceps or vacuum extraction). Participants were also provided with "other" option to specify any decisions not listed.

Sampling and study procedures

Participants were recruited from social media given the popularity of social media in Saudi Arabia, where 76.9 percent of women are users (Alotaibi and Alotiby, 2022). Additionally, purposive sampling was employed by contacting women's community charities across Saudi cities. These organisations are integral to women's health, education, and social welfare, focusing on empowering women through various resources and programs designed for their needs (Ali and Shokry, 2020). By collaborating with these charities, we could engage a network of women, reaching even those in disadvantaged communities. These partnerships were essential in promoting our study effectively as the charities sent messages and emails to their members. To broaden our participant base, we also implemented snowball sampling, asking women to share the survey with peers. This method proved effective in enhancing participant diversity.

The study information sheet and questionnaires were available in both Arabic and English, catering to participants' language preferences. This bilingual approach was implemented to address the primary language in Saudi Arabia, Arabic, while also acknowledging that English is increasingly nativised and reflective of local cultural, religious, and social values and beliefs (Mahboob and Elyas, 2014). This ensured that language was not a barrier to participation, allowing all women interacting with the maternity healthcare system to participate comfortably in their preferred language. Interested individuals could access the study by scanning a QR code or clicking a link in the advertisements, which redirected them to a detailed landing page containing an explanatory statement and the study questionnaire.

Study questionnaire

The study questionnaire consisted of four sections. The first section focused on demographic characteristics, including age, language spoken at home, education level, marital status, employment status, family income, citizenship (Saudi Citizen vs non-Saudi Citizen), region and place of residence.

Pregnancy and childbirth characteristics collected in the second section included information about participants' last pregnancy and/or childbirth history, including parity, pregnancy status at the time of survey completion, type of pregnancy, complications experienced during pregnancy or childbirth, and mode of birth (if applicable).

The third section inquired about healthcare provision characteristics including whether participants received antenatal education, the involvement of midwives or obstetricians during pregnancy and childbirth, the gender of obstetricians, and the familiarity with their obstetrician. Additionally, it sought information about the companions present during antenatal visits, the chosen birthplace, and the types of decisions made. The selection of these variables was based on previous studies on SDM in maternity care (Alruwaili et al., 2023; Vedam et al., 2017a, 2017b).

Assessment of shared decision making and respect in maternity care

The fourth section of the questionnaire covered participants' experiences of SDM, respect and perceived barriers of SDM during maternity care. Shared decision-making in maternal care was assessed using the Mothers' Autonomy in Decision Making (MADM) scale (Vedam et al., 2017a) . It's been utilised in past research as a valid and reliable tool for assessing SDM (Feijen-de Jong et al., 2020). This scale comprises seven items, each with a score ranging from 1 to 6, resulting in a total score of 7 to 42 with higher scores indicating higher SDM. The scale evaluates three main areas: SDM, provision and clarity of maternity care information, and respect for women's choices. Scores on the MADM scale

were later categorised into very low SDM (7–15), low SDM (16–24), moderate SDM (25–33), and high SDM (34–42) Vedam et al. (2017a). For the analysis, we combined low to very low scores into one category called 'low to very low SDM' (scores 7 to 24) and moderate to high scores into another category 'high to very high SDM' (scores 25 to 42).

The Maternity Care Respect Index (MORi) was utilised to measure the level of respect women received from their HCPs during pregnancy (Vedam et al., 2017b). This index comprises 14 items, each with a score ranging from 1 to 6, resulting in a total score range of 14 to 84. The index assesses women's overall experiences during maternity care, focusing on their comfort in communication, perceived pressures, respect for personal and cultural preferences, and potential instances of discriminatory treatment based on various factors. Respect levels from the MORi were later categorised into very low (14–31), low (32–49), moderate (50–66), and high (67–84) respect (Vedam et al., 2017b). For the analysis, we combined low to very low scores into one category called 'low to very low respect ' (scores 14 to 49) and moderate to very high scores into another category called 'high to very high respect ' (scores 50 to 84).

To employ the MADM and MORi scales in the Arabic language, we followed WHO recommendations for translation (WHO, 2018b). Initially, the original English scales were translated into Arabic using a 'forward translation' process carried out by an accredited translator fluent in both English and Arabic.

An expert panel, consisting of two midwives with master's degrees, two nurses with doctoral degrees, and a consultant obstetrician, all proficient in both Arabic and English, reviewed and confirmed the accuracy of the translation.

The Arabic version was then independently translated back into English by another accredited translator to validate the accuracy and appropriateness of the initial translation. In the final phase, we compared the back-translated English version to the original scales and found no significant discrepancies, confirming the accuracy of the translation process.

At the end of the questionnaire, using an open-ended question woman were asked to describe any perceived barriers they faced during their pregnancy and childbirth regarding SDM.

Both the English and Arabic questionnaires were piloted tested with 40 participants (comprising 14 pregnant women and 26 who had recently given birth) to evaluate response times, the clarity of instructions and questions, and the language compatibility of the surveys. No changes were needed after the pilot testing of the questionnaire. The pilot responses were not included in the overall analysis, as they were used solely to refine the survey tools and ensure clarity before the main data collection.

Sample size

The sample size of 385 women was determined based on an assumed prevalence of low to very low SDM on the MADM questionnaire being 50 %, allowing for the highest required sample size, with a margin of error of ±5 %. This sample size was sufficient to conduct multivariate logistic regression while adhering to the guideline of maintaining a ratio of at least 30 observations per variable included in the regression analysis (Kleinbaum et al., 1988).

Statistical analyses

Numerical and categorical variables are summarised using mean (SD) or frequencies (percentages) where appropriate. The association between the level of SDM and the level of respect were examined using the Chi-squared test. The distribution of the missing data is detailed in Fig. 1.

To understand the factors associated with SDM, multivariate logistic regression models were performed. This analysis was designed to determine if the addition of pregnancy and childbirth characteristics, followed by healthcare provision variables, improved the prediction of SDM over and above demographic characteristics. Variables were selected for the regression models based on their univariate p-values ($p < 0.2$) and the relevance highlighted in previous studies on SDM in maternity care (Feijen-de Jong et al., 2020).

Model 1 explored associations between SDM with demograaphic characteristics, including age, education, monthly family income, and place of residence. Model 2 incorporated the variables from Model 1 as well as pregnancy and childbirth characteristics, such as parity (nulliparous or multiparous), type of pregnancy (natural conception or assisted reproductive technologies (ARTs)), complications during pregnancy and childbirth, and mode of birth (normal vaginal birth, vaginal birth after induction of labour, an instrumental vaginal birth or caesarean section). Model 3 further expanded upon Model 2, integrating healthcare provision characteristics such as received antenatal education, midwife being engaged throughout pregnancy, obstetrician gender, midwife being engaged during childbirth (sole obstetrician, sole midwife, or midwife in collaboration with obstetricians), familiarity with the obstetrician (knew the obstetrician well, met the obstetrician briefly or did not meet the obstetrician), and birthplace (public or private hospital).

The fit of each model was evaluated using Nagelkerke ^{R2} and Hosmer and Lemeshow's goodness-of-fit test to ensure the robustness and reliability of the analysis. A statistical significance (α) was set at 0.01. Data was analysed using Stata Software V.18 (Stata Corporation, College Station, TX, USA).

Ethical consideration

This study was approved by the Research Ethics Committee of the Ministry of Health in Saudi Arabia (Registration No: H-13-S-071) and Monash University Human Research Ethics Committee in Australia (Approval No: 34,701). Participants provided implied consent by completing the survey after reviewing the explanatory statement. Participation in the survey was voluntary, and no incentive was provided to the participants. All participant data remained anonymous and Monash University's data protection and privacy procedures were adhered to for storage of research data. All authors vouch for the accuracy of the data.

Results

Participants characteristics

A total of 1145 women started the survey; of these, 649 were considered ineligible, leaving 505 who completed the survey (Fig. 1). The median age of women was 31 years old with an interquartile range of 28–34 years old. A majority ($n = 364$, 72.1 %) of women were aged between 25 and 34 years. Moreover, $n = 439$, 86.9 % had attained an education level beyond high school, and $n = 497$, 98.4 % were married. Participants represented various regions of Saudi Arabia, with $n = 155$, 30.7 % from the Central Division. Notably, $n = 450$, 90.2 % were multiparous, having previously given birth to one or more children (Table 1).

Of the 482 participants, 62.2 % of pregnant women experienced complications, with the most common being anaemia. At the time of the survey, $n = 116$, 24.1 % were currently pregnant and thus questions regarding childbirth were not applicable to them, while the majority ($n = 366$, 75.9%) had given birth less than a year ago. Of those who had given birth ($n = 366$, 75.9%), over half experienced childbirth complications ($n = 203$, 56.1 %), mostly related to increased volume of amniotic fluid.

Throughout pregnancy, a majority of women ($n = 314$, 65.2 %) had consultations with female obstetricians only. The majority of women ($n = 395$, 85.3 %) reported receiving shared care for their maternity care, involving an obstetrician, or family doctor, while 14.7 % ($n = 68$) were exclusively under the care of midwives. During childbirth, most women

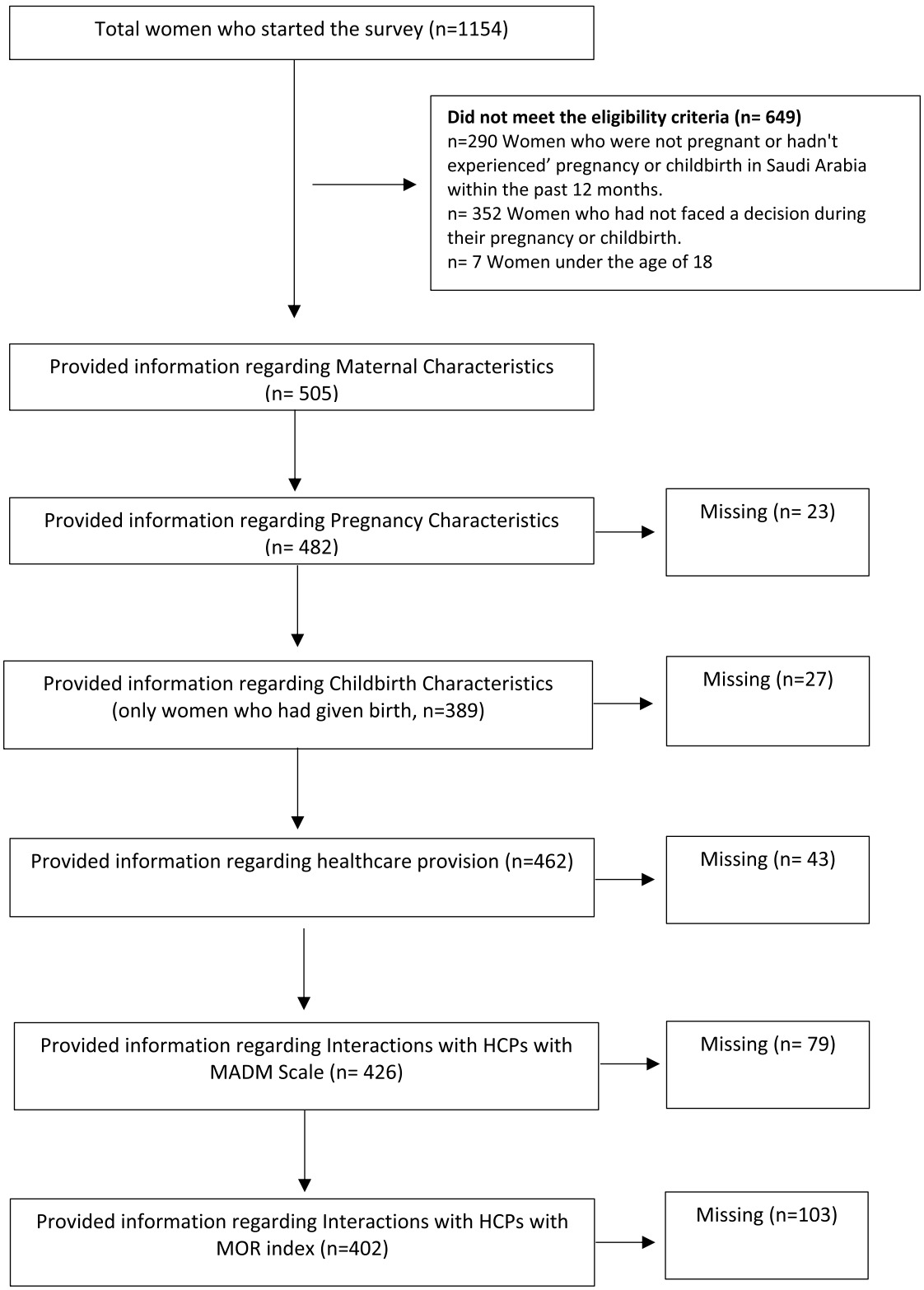

Fig. 1. Flow chart of the Study
Abbreviations: MADM, Mothers Autonomy in Decision Making; MORi, Mothers on Respect index.

were attended by an obstetrician ($n = 225$, 62.2 %), gave birth in public hospitals ($n = 192$, 53.0 %) and had not met their obstetrician before childbirth ($n = 207$, 57.2 %).

The majority of women faced decisions related to childbirth. Specifically, $n = 145$, 31.4 % made choices regarding pain relief during labour, $n = 142$, 30.7 % decided on the mode of birth, and $n = 136$, 29.4 % the induction of labour. Furthermore, $n = 117$, 25.3 % faced decisions concerning the selected their birthplace. In comparison, fewer women had to make decisions about genetic screening ($n = 61$, 13.2 %) and medication intake during pregnancy ($n = 46$, 9.9 %).

Table 1
Participants' characteristics.

Variables	n (%)
DEMOGRAPHIC CHARACTERISTICS, $n = 505$	
Age (years), Median (IQR)	31 (28–34)
Age (years)	
18–24	33 (6.5)
25–34	364 (72.1)
35–49	108 (21.4)
Language	
Arabic	498 (98.6)
English	3 (0.6)
both English and Arabic	4 (0.8)
Education level	
High school or less	66 (13.1)
Beyond high school	439 (86.9)
Marital status	
Married	497 (98.4)
Unmarried (widowed, divorced/separated)	8 (0.2)
Income	
<5000	67 (13.3)
5000 to 10,000	171 (33.9)
>10,000	267 (52.9)
Saudi Arabi citizen	
Yes	489 (96.9)
Living region in Saudi	
Northern division	129 (25.5)
Southern division	42 (8.3)
Central division	155 (30.7)
Eastern division	75 (14.9)
Western division	104 (20.6)
Place of residence	
City	447 (88.5)
Village	58 (11.5)
Marriage age (years)	
Mean (SD)	23 (5.0)
PREGNANCY CHARACTERISTICS, $n = 505$	
Parity (6 missing)	
Nulliparous	49 (9.8)
Multiparous	450 (90.2)
Pregnancy status at the time of survey completion (23 missing)	
Pregnant	116 (24.1)
Gave birth within the last year	366 (75.9)
Pregnancy type (23 Missing)	
Natural conception	454 (94.2)
Assisted Reproductive Technology (ART)	28 (5.8)
Pregnancy complications, $n = 300$ (23 Missing)	
Anaemia	126 (42.0)
Anxiety and depression not requiring psychiatric medication	60 (20.0)
Urinary Tract Infections	55 (18.3)
Pregnancy Haemorrhoids	51 (17.0)
Gestational Diabetes	45 (15.0)
Preeclampsia	7 (1.4)
CHILDBIRTH CHARACTERISTICS (applicable only to participants who have given birth, $n = 389$)	
Childbirth complications, $n = 203$[a]	
Increased Amniotic fluid	38 (18.7)
Fetal distress	36 (17.7)
Prolonged labour (non-progressive labour)	35 (17.2)
Perineal tears/ laceration	35 (17.2)
Post-term pregnancy	32 (15.8)
Birth mode (27 missing)	
Normal vaginal birth	129 (35.6)
Vaginal birth after induction of labour	92 (25.4)
An instrumental vaginal birth	15 (4.1)
Caesarean section	126 (34.8)
HEALTHCARE PROVISION CHARACTERISTICS, $n = 505$	
Obstetrician gender (23 missing)	
Male	82 (17.0)
Female	314 (65.2)
Different gender every time	86 (17.9)
Familiarity with obstetrician (27 missing)	
Knew obstetrician well	82 (22.7)
Met obstetrician briefly before childbirth	73 (20.2)

(*continued on next page*)

Table 1 (*continued*)

HEALTHCARE PROVISION CHARACTERISTICS, $n = 505$	
Not meet obstetrician before childbirth	207 (57.2)
Midwife engagement throughout pregnancy (23 Missing)	
Absence of midwife in the maternity care team	395 (85.3)
Midwife solely in maternity care	68 (14.7)
Midwife engagement during childbirth (27 missing)	
Sole obstetrician	225 (62.2)
Sole midwife	41 (11.3)
Midwife in collaboration with obstetricians	96 (26.5)
Birthplace (27 missing)	
Public hospital	192 (53.0)
Private hospital	170 (47.0)
Antenatal visits companion (23 missing)	
Alone	130 (26.9)
Husband	296 (61.4)
Family or friend	56 (11.6)
Decision type made during pregnancy and/or childbirth, $n = 462$	
Termination of pregnancy	8 (1.7)
Prenatal genetic screening tests	61 (13.2)
Medication use during pregnancy	46 (9.9)
Birthplace	117 (25.3)
Use of pain relief during labour	145 (31.4)
Mode of birth	142 (30.7)
Induction of labour	136 (29.4)
Episiotomy	78 (16.7)
Assisted birth	17 (3.6)
Other (hysterectomy, cervical cerclage, and preterm labour)	5 (1.1)

Abbreviations: SD, Standard deviation; IQR, Interquartile range.
[a] Women who had a childbirth complication.

Association of shared decision-making and feeling of respect

Of the 402 women, 137 (34.1 %, 95 % CI: 29.6 – 38.9), reported low to very low SDM in maternity care, and 80 (19.9 %, 95 % CI: 16.3 – 24.1) reported low to very low respect. Of the 137 women who reported low to very low SDM, 62 (45.3 %) also reported low or very low respect, whereas of the 265 women who reported high to very SDM, only 18 (6.8 %) reported low to very low respect ($chi^2 = 83.8$, $p < 0.001$) (Table 2).

Factors associated with SDM

When adjusted for demographic characteristics such as age, education level, monthly income, and place of residence in Model 1, women in the lower income category were 2.5 times more likely to report low to very low SDM compared with women in the highest income category (95 % CI = 1.3–4.6, $p = 0.01$).

Model 2 retained the demographic variables and included additional variables related to pregnancy and childbirth characteristics. The impact of income on SDM remained significant. In this model, factors such as pregnancy complications (OR=1.6, 95% CI= 1.0–2.7, $P = 0.1$), childbirth complications (OR=1.5, 95 % CI= 0.9–2.5, $p = 0.1$), having an instrumental vaginal birth (OR=6.4, 95 % CI= 1.6–25.7, $P = 0.01$), and undergoing caesarean section (OR=0.6, 95 % CI=0.3–1.0, $P = 0.05$) were predictors of low to very low SDM.

With the addition of healthcare provision variables in Model 3, the previously significant income variable was no longer a predictor. Instead, having an instrumental vaginal birth (OR = 6.7, 95 % CI = 1.6–28.2, $p = 0.01$), different obstetrician gender every time (OR=2.0, 95 % CI= 1.0 −3.9, $P = 0.05$) and not meeting an obstetrician before childbirth (OR= 2.6, 95 % CI= 1.2–5.6, $P = 0.01$) appeared as new significant predictors of low to very low SDM. These variables in Model 3 collectively accounted for 10 % of the variance in SDM (Table 3). Hosmer and Lemeshow's test for Model 3 yielded a p-value of 0.95 ($p > 0.05$), indicating a good fit of the model to the data. Refer to Appendix Table A.1 for the results of SDM using the MADM Scale.

Perceived barriers to shared decision making

Perceived barriers to SDM were reported by women, which impacted SDM. Among them, nearly one-third of women ($n = 117$, 29.9 %) believed that their obstetrician or midwife knew best. Furthermore, 69 women (17.6 %) did not receive the clear information needed to make their decision, and an additional 69 women (17.6 %) cited their health condition at that time as hindering their ability to make an informed decision.

The open-ended responses from 12 participants were analysed using narrative analysis. These narrative barriers were examined, and they emerged into two main areas: 1) communication and information challenges, and 2) institutional constraints. This qualitative approach

Table 2
Association of SDM and respect in maternity care.

	High to very high respect 80 % [95 % CI: 75.9 – 83.7]	**Low to very low respect** 19.9 % [95 % CI: 16.3 - 24.1]	**Total**
High to very high SDM 65.9 % [95 % CI: 61.1 – 70.4]	247 [93.2 % of 265] [76.7 % of 322]	18 [6.8 % of 265] [22.5 % of 80]	265 (65.9 %)
Low to very low SDM 34.1% [95 % CI: 29.6 – 38.9]	75 [54.7 % of 137] [23.3 % of 322]	62 [45.3 % of 137] [77.5 % of 80]	137 (34.1 %)
Total	322 [80.1 % of 402] [100 % of 322]	80 [19.9 % of 402] [100 % of 80]	402 (100 %)

Table 3
Logistic regression analysis assessing the relationship between various factors and SDM.

Variables[a]	N [b]	Model 1 OR (95 % CI), p-value; R^2=2 %	MODEL 2 OR (95 % CI), p-value; R^2= 7%	MODEL 3 OR (95 % CI), p-value; R^2= 10 %
DEMOGRAPHIC CHARACTERISTICS				
Age, years	426	1.0 (0.9–1.0); 0.8	0.8 (0.9–1.0); 0.6	1.0 (0.9–1.0); 0.3
Education level				
High school or less	53	0.6 (0.3–1.2); 0.2	0.9 (0.4–1.9); 0.7	0.8 (0.4–1.9); 0.7
Beyond high school	373	Reference	Reference	Reference
Monthly family income				
<5000	53	2.5 (1.3–4.6); 0.01 [c]	2.5 (1.1–5.3); 0.02[c]	2.0 (0.9–4.6); 0.1
5000 to 10,000	142	1.1 (0.7–1.8); 0.6	1.1 (0.7–1.9); 0.7	0.9 (0.5–1.6); 0.7
>10,000	231	Reference	Reference	Reference
Place of residence				
City	374	Reference	Reference	Reference
Village	52	1.3 (0.7–2.4); 0.4	1.6 (0.8–3.3); 0.2	1.3 (0.6–2.9); 0.6
PREGNANCY AND CHILDBIRTH CHARACTERISTICS				
Parity				
Nulliparous	43	Reference	Reference	
Multiparous	383	1.1 (0.3–3.7); 0.9	1.4 (0.4–5.1); 0.6	
Pregnancy type				
Natural conception	398	Reference	Reference	
Assisted Reproductive Technology	28	0.6 (0.2–1.7); 0.3	1.0 (0.3–3.0); 1.0	
Pregnancy complications				
Without complications	157	Reference	Reference	
With complication/s	269	1.6 (1.0–2.7); 0.1	1.3 (0.8–2.3); 0.3	
Childbirth complications				
Without complications	143	Reference	Reference	
With complication/s	188	1.5 (0.9–2.5); 0.1	1.2 (0.7–2.1); 0.5	
Mode of birth				
Normal vaginal birth	118	Reference	Reference	
Vaginal birth after induction of labour	85	0.8 (0.5–1.5); 0.5	0.8 (0.4–1.5); 0.5	
An instrumental vaginal birth	14	6.4 (1.6–25.7); 0.01[c]	6.7 (1.6–28.2); 0.01[c]	
Caesarean section	114	0.6 (0.3–1.0); 0.05[c]	0.7 (0.3–1.3); 0.2	
HEALTHCARE PROVISION CHARACTERISTICS				
Received antenatal education				
No	341		Reference	
Yes	85		0.8 (0.4–1.6); 0.6	
Midwife engagement throughout pregnancy				
No midwife in the caring team	351		Reference	
Midwife alone or involved in caring	61		1.1 (0.6–2.3); 0.8	
Midwife Engagement During Childbirth				
Sole obstetrician	204		Reference	
Sole midwife	37		0.9 (0.4–2.1); 0.8	
Midwife in collaboration with obstetricians	90		1.0 (0.6–1.9); 0.9	
Obstetrician Gender				
Female	278		Reference	
Male	78		0.7 (0.3–1.5); 0.4	
Different gender every time	70		2.0 (1.0–3.9); 0.05[c]	
Familiarity With Obstetrician				
Knew obstetrician well	74		Reference	
Met obstetrician briefly before childbirth	67		1.4 (0.6–3.3); 0.4	
Not meet obstetrician before childbirth	190		2.6 (1.2–5.6); 0.01[c]	
Birthplace				
Public hospital	162		Reference	
Private hospital	150		1.1 (0.6–1.9); 0.9	

Abbreviations: CI, Confidence Interval; OR, Odds Ratio.
Model 1 was adjusted for demographic characteristics such as including age, education, income, and place of residence.
Model 2 was adjusted for variables included in model 1 and for pregnancy and childbirth characteristics such as parity, pregnancy type, complications, and birth mode.
Model 3 expanded upon Model 2 by adding healthcare provision characterises such as antenatal education, midwife engagement, obstetrician gender, birth attendant, familiarity with obstetrician, and birthplace.
[a] These variables were selected based on literature-driven factors and univariate p-values ($p \leq 0.2$).
[b] Number of women who completed the MADM Scale.
[c] Indicates statistical significance at $p \leq 0.05$.

allowed for an in-depth exploration of the participants' lived experiences and perspectives (Table 4).

Discussion

This study investigates the levels of SDM among women in maternity care in Saudi Arabia. Our findings indicate that in Saudi Arabia 1 in 3 women experienced low to very low SDM in maternity care and 1 in 5 women reported low to very low respect in maternity care. Women who reported low to very low SDM also reported low to very low respect. After adjusting for different demographics, pregnancy and childbirth, and healthcare provision characteristics, three factors associated with low to very low SDM in maternity care include the use of instruments during childbirth, changes in the obstetrician's gender for each visit and

Table 4
Barriers to SDM.

Type of Barriers	n (%)
I believed that my obstetrician or midwife knows best.	117 (29.9)
I did not receive clear information that I needed to make my decision	69 (17.6)
I believed that only the obstetrician or midwife could make decisions.	41 (10.5)
I received so much information that it hindered my ability to make my decision based on priority.	32 (8.2)
My knowledge regarding my condition was not clear to make a decision.	47 (12.0)
At the time, my health status hindered me from making the best decision for myself.	69 (17.6)
I felt my obstetrician or midwife prompted me to make a decision based on his/ her preference.	42 (10.7)
My obstetrician or midwife used medical words I did not understand it.	15 (3.8)
My obstetrician or midwife's body language or the way he/she closed the conversation made me feel uncomfortable asking questions.	25 (6.4)
I believe that my obstetrician or midwife thought that I did not prefer to be involved in decision-making.	23 (5.9)

Themes	Other barriers as described by women
Communication and information challenges	• *Doctors appeared rushed, used medical words, and the presence of trainee doctors made things more confusing.* • *I was required to undergo a C-section without receiving clear explanations, which caused me significant stress.* • *My specific birth preferences, like avoiding episiotomy, forceps, and immediate cord clamping, were simply ignored.* • *My primary doctor didn't fully grasp my medical condition, which led to referrals to unfamiliar doctors.* • *I sensed that my doctors were making decisions without involving me in the decision-making.* • *I felt like my doctors were condescending, doubting my ability to make decisions for myself.*
Institutional constraints	• *I received contradictory advice from different doctors, regarding my need for a C-section at 37 weeks.* • *I felt limited in my choices due to hospital policies or the unavailability of my preferred options.* • *I was moved to the operating room for an emergency C-section without being asked for my consent, which was distressing.* • *The advice and timing provided by my doctors conflicted with my birth preferences due to hospital protocols.* • *I felt like I couldn't influence the healthcare team's decisions, and it made me feel powerless.* • *I pressured by doctors to choose a caesarean section for my twin births, even when there wasn't a clear medical need.*

unfamiliarity with the obstetrician before childbirth. The most common reason for perceived barriers to SDM was that women believed that their obstetrician or midwife knew best.

The cultural and religious influences on SDM within the Saudi context merit further examination based on the present findings. Previous research in non-maternity Saudi healthcare settings has highlighted how the deep integration of Islamic principles and societal norms shapes attitudes toward medical authority (Bakur et al., 2022). While Islam endorses patient-centred care, ingrained respect for physician expertise can perpetuate the traditional "doctor knows best" belief (Niazi and Kalra, 2013). This cultural tendency to defer to providers' recommendations conflicts with the open communication and collaborative decision-making process integral to SDM models (Alabdullah et al., 2023). These findings contrast with Western SDM paradigms that more strongly emphasise women's empowerment and self-determination, particularly during the experience of childbirth (Obeidat, 2013; Vogels-Broeke et al., 2023). In Saudi Arabia's patriarchal sociocultural milieu, such prioritisation of individual preferences is a relatively novel concept in healthcare. As SDM protocols expand within the Saudi health system, deliberate efforts must bridge this cultural disconnect by increasing health literacy on women's participation rights while fostering providers' acceptance of collaborative decision-making roles (Alabdullah et al., 2023). Cultivating the mutual understanding and trust integral to SDM will likely require gradual cultural shifts at institutional and societal levels.

The study highlights the association between the women's perceptions of respect received from HCPs and their involvement in SDM around maternity care decisions. Women reporting lower levels of participation in decision-making were more likely to report lower levels of respect aligning with findings from other research in Saudi Arabia (Alghamdi et al., 2023). This issue is further evidenced by an Indonesian study where over 80 % of women scored respect from HCPs as low (Maulina et al., 2023). This underscores that respectful maternity care settings might not be optimal due to high HCPs workloads, which limits their time with women. The reasons might also include differences in care quality between public and private hospitals, communication barriers and socio-demographic discrimination (Alghamdi et al., 2023). These factors are compounded by a predominantly medical approach to childbirth and limited birthing options outside of hospital settings in Saudi Arabia (Alghamdi et al., 2023). By embracing a collaborative, culturally competent approach focused on dignity and respect in nuanced doctor-women interactions within Saudi culture, HCPs can support optimal SDM and outcomes.

The study also reveals that changes in the obstetrician's gender between appointments and the lack of a prior relationship with the obstetrician were associated with lower SDM. This highlights how continuity of care and developing familiarity and trust between women and obstetricians over time are key facilitators of effective SDM in maternity care. When women cannot build rapport with a consistent obstetrician, it inhibits open communication and collaboration critical for SDM during pregnancy and childbirth. Additionally, in the Saudi context, women have a strong preference for female obstetricians, reflecting cultural sensitivities around gender dynamics (Subki et al., 2021). Ensuring women see the same obstetrician throughout pregnancy and have access to female obstetricians, if desired, could significantly improve participation and satisfaction with SDM. This continuity of care model also positively impacts coordination and information transfer between HCPs (D'haenens et al., 2020). Overall, maternity HCPs should also be mindful of establishing trust and clear communication when meeting a woman for the first time to mitigate obstacles to SDM.

We found women who had instrumental vaginal birth were more likely to report low to very low SDM. Instrumental interventions like forceps or a vacuum often necessitate quick decisions, precluding meaningful women involvement (Chawanpaiboon et al., 2023). This is compounded by the stressful labour environment, which can inhibit women from processing information and expressing preferences (Migliorini et al., 2023). The study underscores the need for pre-emptive discussions and informed consent processes anticipating such interventions. Evidence suggests foreknowledge and preparation can enhance SDM among women even when instrumental birth is required (Vogels-Broeke et al., 2023). Healthcare providers should prioritise SDM throughout prenatal care, ensuring women understand potential birth scenarios and risks, including the possibility of instrumental birth.

Finally, several barriers that prevent effective SDM were identified, including challenges in communication and information exchange between women and HCPs, inadequate support for women to fully participate in decisions, and institutional limitations on their choices. This highlights the need for more comprehensive approaches to improving women's engagement, such as implementing interpreted services or decision aids to meet different communication needs and capabilities. Additionally, healthcare policies should be strengthened to increase access to support, respect individual choices around and

encourage active participation in care plans. Overall, a balance must be achieved between medical expertise and women's personal preferences through improved communication strategies and policy changes that increase SDM.

Strengths and limitations

Our study provides the first insights into women's experiences of SDM and respect during maternity care in Saudi Arabia through community-based, cross-sectional data. The provision of bilingual questionnaires in Arabic and English catered to the inclusivity of non-Arabic speaking participants. Online data collection likely encouraged honest responses, enhancing validity. Additionally, the use of online surveys allowed us to gather a geographically diverse sample from across Saudi Arabia. It's important to note that our study participants' distribution was generally similar to the actual female population distribution across these divisions (Ministry of Health, 2024), reflecting the national demographics and overcoming the logistical challenges associated with traditional data collection methods.

However, the study has limitations. First, including women who gave birth within the past 12 months might introduce recall bias, as participants could remember events selectively or inaccurately based on their own experiences, emotions, or beliefs. However, existing research demonstrates that women's memories of childbirth remain vivid, specific, and accurate even years later (Simkin, 1992; Suzuki and Okubo, 2022; Takehara et al., 2014; Waldenström, 2003) Second, although we collaborated with women's community charities to recruit a diverse sample, including women from lower socioeconomic backgrounds, our study sample is skewed towards higher education levels. Specifically, 86.9 % of our participants had education beyond high school, compared to the national percentage of 41.9 % for women aged 18–49 who have completed high school (Census, 2022). Therefore, results may not be fully generalisable. Third, the sample size in the instrumental vaginal births is relatively small, and the results should be interpreted with caution. Fourth, the lack of differentiation between emergency and planned caesarean sections is a notable gap. Lastly, while online recruitment facilitated breadth, it may have excluded women without digital access. These aspects highlight areas for future research and consideration in interpreting our study's outcomes.

Recommendations

Further qualitative research through interviews, focus groups, and observational methods could provide depth around women's complex pregnancy and childbirth experiences. In particular, exploring husband and family influence on women's SDM in maternity care deserves attention within the Saudi cultural context. As Saudi healthcare develops, gaining perspectives from maternity HCPs (obstetricians, midwives and nurses) is crucial to fully understand and support positive maternal care.

Conclusion

This study, for the first time in Saudi Arabia, identifies a significant number of women with low SDM and reports an association between low SDM and low respect in maternity care. It also highlights a link between low SDM and reduced respect. Furthermore, the research highlights the role of specific contributors to low SDM in maternity care, including changes in the obstetrician's gender for each visit, lack of familiarity with the obstetrician before childbirth and instrumental childbirth. Notably, a prevalent barrier to SDM perceived by women is the belief that their obstetrician or midwife knows best, suggesting a need for interventions aimed at empowering women in their decision-making processes during maternity care. The findings indicate the importance of establishing continuity of care and a move towards practices that better respect women's voices and preferences in maternity care, aiming for a more responsive, respectful, and tailored healthcare approach for women in Saudi Arabia and potentially other settings.

CRediT authorship contribution statement

Tahani Ali Alruwaili: Writing – review & editing, Writing – original draft, Project administration, Methodology, Formal analysis, Data curation. **Kimberley Crawford:** Writing – review & editing, Supervision. **Ensieh Fooladi:** Writing – review & editing, Supervision, Formal analysis.

Declaration of competing interest

The authors have no conflicts of interest.

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Supplementary materials

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