Research Square

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Understanding women's satisfaction with miscarriage management: the role of shared decision-making, preparedness and emotional experiences BMC Reproductive Health

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Abstract

Background: Miscarriage is the most common complication of early pregnancy, yet relatively little quantitative evidence has compared women's experiences across different miscarriage management approaches. This study examined whether shared decision-making, preparedness, emotional experiences during miscarriage management, and satisfaction with care differed according to management type, and identified factors associated with women's overall satisfaction.

Methods: A cross-sectional online survey was completed by 322 women in England who had experienced a first-trimester miscarriage within the previous three years. Participants reported receiving expectant, medical (home/hospital), or surgical management. Measures assessed shared decision-making and preparedness, support during decision-making, emotional experiences during miscarriage management (loneliness, isolation, relief and comfort), satisfaction with treatment and care, and follow-up support. Group differences were examined using chi-square tests and one-way analyses of variance with appropriate post hoc comparisons. Hierarchical multiple regression identified predictors of treatment satisfaction and overall satisfaction with care.

Results: Women undergoing expectant management consistently reported poorer experiences than those receiving surgical management, including lower shared decision-making and preparedness, reduced support during decision-making, greater loneliness and isolation, lower relief and comfort, and lower satisfaction with their treatment and overall care. Shared decision-making and preparedness were the strongest independent predictor of both treatment satisfaction and overall satisfaction with care. After accounting for shared decision-making, the association between management type and satisfaction was substantially attenuated, indicating that decision-making experiences explained much of the observed difference between management approaches. Greater loneliness and isolation independently predicted lower overall satisfaction with care, whereas greater relief and comfort independently predicted higher satisfaction with treatment.

Conclusions: Women's experiences of miscarriage management are influenced not only by the treatment received but also substantially by how decisions are made and the support provided throughout the care pathway. Improving shared decision-making, realistic preparation, communication, and ongoing support, particularly for women choosing expectant management,may substantially enhance patient experiences regardless of the management approach selected.

Plain English Summary

Around one in eight recognised pregnancies in the first trimester end in loss, yet women's experiences of care vary considerably. Women may choose to wait for the miscarriage to happen naturally (expectant management), take medication to help complete the miscarriage (medical management), or undergo surgery. Although these approaches are clinically effective, less is known about how they influence women's experiences and satisfaction with care.

This study explored women's experiences of miscarriage management in England using an online survey completed by more than 300 women. We examined shared decision-making, preparedness, emotional experiences, and satisfaction with treatment and care.

Women who experienced expectant management consistently reported poorer experiences than those who underwent surgical management or medical management at home. They felt less involved in decisions about their care, less prepared for what to expect, and reported greater loneliness and isolation during their miscarriage. They also experienced lower levels of comfort and relief and were less satisfied with both their chosen treatment and their overall care.

The study found that feeling involved in decisions and well prepared for treatment was the strongest predictor of positive experiences. Women who felt prepared were more satisfied with both their treatment and overall care. Feeling greater relief and comfort was associated with higher treatment satisfaction, while lower feelings of loneliness and isolation were associated with greater overall satisfaction with care.

These findings suggest that improving communication, shared decision-making, realistic preparation, and follow-up support could substantially improve women's experiences of miscarriage care. Women choosing expectant management may particularly benefit from additional information, reassurance, and emotional support throughout the miscarriage process.

1. Background

Miscarriage is the most common complication of early pregnancy, affecting approximately one in eight recognised pregnancies in the United Kingdom, with most losses occurring during the first trimester [1]. Estimates suggest the true prevalence may be higher due to underreporting and losses occurring before clinical recognition [2]. Despite its frequency, miscarriage is associated with significant emotional, psychological, and physical consequences, including anxiety, depression, grief, trauma, and post-traumatic stress symptoms [3–6]. Healthcare experiences play an important role in women's adjustment following pregnancy loss, with compassionate communication, timely information, and emotional support associated with more positive outcomes, while poor communication and inadequate support may exacerbate distress [7].

First-trimester miscarriage can be managed expectantly, medically or surgically. Within the UK, care has increasingly shifted towards outpatient and day-case management, with expectant and medical management offered as alternatives to surgery [8]. Although these approaches differ in treatment success and the likelihood of requiring further intervention [9, 10], they are generally considered safe and acceptable, with little evidence of differences in longer-term psychological outcomes [11, 12]. Miscarriage management is recognised as a preference-sensitive decision, and NICE therefore recommends supporting women to make informed choices through shared decision-making, underpinned by timely, accurate, and balanced information about the benefits, risks, and likely experiences associated with each option [8].

Women's treatment preferences are influenced by both clinical and personal factors. Previous pregnancy experience, social support, employment, childcare responsibilities and financial circumstances may shape which management option is perceived as acceptable or feasible [13]. Clinical factors, including gestational age and miscarriage type, also influence which options are available and appropriate [14]. However, relatively little is known about how these characteristics influence women's subsequent experiences of care.

Despite recommendations promoting shared decision-making, qualitative studies consistently report shortcomings in women's experiences of miscarriage care. Across all management approaches, women frequently describe feeling underprepared for the physical and emotional realities of miscarriage, receiving insufficient information regarding pain, bleeding, treatment duration and recovery, and lacking realistic expectations of what the experience will involve [15–19]. Emotional concerns, including fear of seeing pregnancy tissue, uncertainty about treatment outcomes and anxiety surrounding surgery or anaesthesia, are not always explored during consultations, leaving some women feeling rushed, inadequately informed or excluded from decision-making [19–21]. Consequently, satisfaction with care appears closely linked to compassionate communication, realistic preparation, involvement in decisions and adequate time to consider treatment options [21].

Women's experiences also appear to vary according to management approach [15, 16]. Expectant management is often valued because it avoids surgery and allows miscarriage to occur naturally, but women commonly report prolonged uncertainty, pain, heavy bleeding and feelings of loneliness while managing the miscarriage at home [13, 19, 22, 23]. Medical management offers greater control over the timing and location of treatment [13], although its acceptability depends on adequate preparation, clear communication and continuity of care [13, 15]. Surgical management provides rapid and predictable resolution but does not necessarily result in a positive care experience, with women reporting unmet emotional needs and insensitive communication during hospital care [13, 15, 19, 22–24].

Although previous studies have described women's experiences of miscarriage management, few quantitative studies have simultaneously compared shared decision-making, preparedness, emotional experiences during miscarriage management, and satisfaction across management approaches [13, 15, 18, 25]. Furthermore, little is known about the relative contribution of these factors to women's overall satisfaction with care. This study addresses these gaps by examining both differences between management approaches and the mechanisms underpinning women's experiences

Building on previous research, this study aimed to compare women's experiences across expectant, medical, and surgical miscarriage management and to identify the factors that contribute most to satisfaction with miscarriage care. Specifically, we compared shared decision-making and preparedness, support during decision-making, emotional experiences during miscarriage management (loneliness, isolation, relief, and comfort), satisfaction with treatment and care, and follow-up support across management approaches. We also examined socio-demographic and pregnancy-related characteristics associated with management choice and, using hierarchical regression, identified the relative contribution of management type, shared decision-making, preparedness, and women's experiences to overall satisfaction with miscarriage care.

2. Materials and methods

2.1. Study design and setting

A descriptive cross-sectional study was conducted in England from 1 April to 31 July 2024 using a self-administered online Qualtrics survey distributed via social media and national charity networks.

2.2. Sample and recruitment

This manuscript reports on a subset of women who participated in a broader survey examining women's healthcare satisfaction, access to information, and support provision alongside perinatal grief symptoms following early pregnancy loss in England [26]. The total survey sample comprised 512 women aged 16 years or older residing in England who had experienced any type of pregnancy loss in the first trimester (< 13 weeks) within the previous three years. Of the 512 women who completed the broader survey, 322 (62.9%) self-reported requiring expectant, medical or surgical management of their miscarriage via an EPAU and were therefore included in the present analysis.

As participants were recruited using a convenience, non-probability sampling strategy, a priori sample size calculation based on probability sampling assumptions was not considered appropriate. Instead, the target sample size was informed by the planned statistical analyses, study feasibility, and previous national surveys of women who had experienced miscarriage [27–29]. A minimum sample of approximately 250 participants was considered sufficient to provide stable descriptive estimates and adequate statistical power for the planned inferential analyses. Recruitment exceeded this target, with 322 participants included in the final analyses, providing sufficient power to detect small effects and increasing the precision of the study estimates.

Participants were recruited using a self-selected convenience sampling strategy. Recruitment materials, including the participant information and advertisement, were reviewed by the study's Public Engagement Group (PEG), a diverse group of 12 women with lived experience of early pregnancy loss to ensure they were clear, accessible, and acceptable to women with lived experience of miscarriage. Eligible participants were directed via a QR code or web link to the online survey hosted on Qualtrics, where they could access the participant information sheet before providing informed consent.

A multi-channel recruitment strategy was used to maximise participation across England. The survey was promoted through the study website and social media platforms (Facebook, X, and Instagram), with regular posts used to increase visibility. Recruitment materials were also disseminated through the websites and social media channels of national charities, pregnancy loss organisations, and online peer-support groups supporting women and families affected by miscarriage. To improve inclusivity and reach diverse populations, advertisements were additionally shared through organisations working with underserved communities, including ethnic minority and LGBTQ+ groups.

2.3. Data collection survey

The questionnaire was developed following a review of the existing literature on women's experiences of miscarriage management [7, 15, 27, 30, 31] and relevant clinical guidance [8] and was refined in collaboration with the established PEG. The literature informed the domains included within the survey, while the PEG contributed to the content, wording, ordering, and acceptability of the questions to ensure they were relevant, comprehensive, and sensitive. PEG feedback informed revisions to the language used throughout the questionnaire, the inclusion of trigger warnings, and the option for participants to skip any questions they did not wish to answer.

The final questionnaire comprised predominantly closed-ended questions, including Likert-scale and multiple-choice items, examining women's experiences of miscarriage management, shared decision-making

and preparedness, support during decision-making, experiences during miscarriage management, satisfaction with treatment and care, and follow-up support. Participants who had experienced more than one miscarriage were asked to complete the questionnaire in relation to their most recent pregnancy loss. The full questionnaire has been published previously [26].

2.3.1. Socio-demographic and pregnancy history

The survey included socio-demographic items (e.g., age, ethnicity, relationship status, and socio-economic indicators such as education and occupational status). Questions also captured respondents' pregnancy history, including the number of previous pregnancy losses and the type of loss (first- or second-trimester miscarriage, termination for medical reasons [TFMR], stillbirth ≥ 24 weeks' gestation, and/or neonatal death within the first 28 days after birth), as well as whether respondents had any living children. Participants were also asked whether they had ever been diagnosed with infertility (defined as being unable to conceive after 12 months of trying) or secondary infertility (defined as being unable to carry a pregnancy to term after a previous live birth) by a healthcare professional (yes/no). In addition, respondents were asked whether they or their partner had ever received treatment for a fertility-related issue (yes/no). Participants were also asked how their early pregnancy loss was managed, selecting from complete miscarriage requiring no further treatment, expectant management, medical management (at home or in a healthcare setting), surgical management, other, or prefer not to say.

2.3.2. Shared decision-making and treatment preparedness

Seven study-specific items were developed, informed by literature on patient-centred care and miscarriage management, which highlights that, despite the availability of expectant, medical and surgical management options, patients may receive insufficient information, time and support to make informed treatment decisions [13, 17, 20, 32].

Participants rated the following statements: '*I felt informed of all the treatment options available, including the risks and benefits*'; '*I was given adequate time to decide the treatment option I chose*'; '*I felt supported to make a decision that was right for me*'; '*My worries and fears were considered by healthcare professionals*'; '*I was aware of what to do if there were any complications*', '*I had clear expectations of what to expect with the treatment option I chose*'; and '*Overall, I felt prepared for the treatment option I chose*'. Responses were rated on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree), with higher scores indicating more positive experiences.

A composite score for shared decision-making and preparedness was calculated as the mean of the seven items. Person-mean imputation was used where a single item was missing, provided that at least six of the seven items had been completed (n = 4). Cases with two or more missing items were excluded from analyses involving the composite measure. Exploratory factor analysis supported the unidimensional structure of the seven-item Shared Decision-Making and Preparedness scale. Sampling adequacy was excellent (KMO = .901), and Bartlett's test of sphericity was significant ($\chi^2(21) = 1244.17$, $p < .001$). A single factor explained 61.2% of the variance, with all items loading strongly on the underlying construct (factor loadings = .731–.840). The scale demonstrated excellent internal consistency (Cronbach's α = .916).

2.3.3. Support for decision-making regarding pregnancy remains

Three study-specific items were developed to assess women's experiences of support when making decisions about pregnancy remains. A warning highlighting the questions' sensitive nature was added, along with an option to skip this section.

Participants rated the following statements: '*Healthcare professionals discussed pregnancy remains in a sensitive manner* '; '*I was given sufficient information about the available options for pregnancy remains*'; and '*I was given adequate time to decide what I wanted to do with my pregnancy remains*'. Responses were rated on a 5-point Likert scale ranging from 1 (strongly agree) to 5 (strongly disagree), with lower scores indicating more positive experiences. Responses were summed to create a composite score ranging from 3 to 15. Person-mean imputation was applied where one item was missing, provided that at least two of the three items had been completed.

2.3.4. Support during the management of the miscarriage

Support during miscarriage management was assessed using a single item: '*I felt supported throughout the management of my miscarriage*'. Participants rated their agreement on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

2.3.5. Perceived loneliness and comfort of having a miscarriage at home/hospital

Four items, adapted from a previously published measure [27], assessed women's experiences of miscarriage management in relation to feelings of loneliness, isolation, relief, and comfort while experiencing miscarriage at home or in hospital. Participants rated responses on a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

Based on conceptual similarity, the items were combined into two composite scales. The Loneliness and Isolation scale comprised the items *'I felt lonely while having my miscarriage at home/hospital'* and *'I felt isolated while having my miscarriage at home/hospital'*. The Relief and Comfort scale comprised the items *'I felt relieved that I was able to have my miscarriage at home/hospital'* and *'I felt comfortable knowing I was able to have my miscarriage at home/hospital'*.

Responses to each pair of items were summed to create composite scores ranging from 2 to 10, with higher scores indicating greater loneliness and isolation or greater relief and comfort, respectively. Both scales demonstrated good internal consistency (Relief and Comfort: Cronbach's α = .88; Loneliness and Isolation: Cronbach's α = .91).

2.3.6. Overall satisfaction with the treatment option chosen

Satisfaction with the chosen management option was assessed using a single item: '*I am happy with the treatment option I chose*'. Responses were recorded on a 5-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

2.3.7. Overall satisfaction with care during miscarriage

Overall satisfaction with care was assessed using a single item: '*Overall, how satisfied are you with the care you received at the time of your early pregnancy loss?*' Responses were recorded on a 5-point Likert scale ranging from 1 (strongly dissatisfied) to 5 (strongly satisfied).

2.3.8. Overall satisfaction with follow-up care

Overall satisfaction with follow-up care was assessed using a single item: '*Overall, how satisfied are you with the follow-up care you received from your healthcare provider(s) after your miscarriage?*' Responses were recorded on a 5-point Likert scale ranging from 1 (strongly dissatisfied) to 5 (strongly satisfied).

2.4. Ethical considerations

The study was conducted in accordance with the Declaration of Helsinki and approved by the Research Ethics Committee of University of Bedfordshire Institute of Health Research Ethics Committee (Ref: IHREC1026). Informed consent was obtained from all participants, with consent implied through independent completion and submission of the online questionnaire. No identifiable information was collected, and participants were informed of their right to decline participation or withdraw from the study at any time without consequence.

Given the sensitive nature of pregnancy loss, the questionnaire was developed in collaboration with the PEG. The group reviewed the wording, content, and ordering of questions to ensure they were sensitive, acceptable, and minimally distressing. Trigger warnings were included throughout the questionnaire, and participants were reminded that they could skip any question they did not wish to answer without affecting their participation. Following completion, participants received a debrief sheet thanking them for their contribution, providing further information about the study, and signposting them to national support organisations should they experience distress.

2.5. Statistical analysis

Statistical analyses were conducted using IBM SPSS Statistics version 29 (IBM Corp., Armonk, NY, USA). Statistical significance was set at $p < .05$ (two-tailed). Descriptive statistics were used to summarise participant characteristics, miscarriage management approaches, and responses to individual questionnaire items. Continuous variables are presented as means and standard deviations (SD), while categorical variables are presented as frequencies and percentages.

Associations between miscarriage management type and socio-demographic and pregnancy-related characteristics were examined using chi-square tests of independence. Where significant associations were identified, adjusted standardised residuals (ASRs) were inspected to determine which cells contributed to the association.

Differences in shared decision-making and preparedness, support during decision-making, experiences of miscarriage management (relief and comfort; loneliness and isolation), and satisfaction outcomes across miscarriage management groups were examined using one-way analyses of variance (ANOVA). Effect sizes are reported as eta-squared (η^2). Assumptions of homogeneity of variance were assessed using Levene's

test. Where the assumption of homogeneity of variance was met, conventional one-way ANOVA with Tukey HSD post-hoc comparisons was used. Where homogeneity of variance was violated, Welch's ANOVA with Games–Howell post-hoc comparisons was used.

Hierarchical multiple linear regression analyses were conducted to identify factors associated with (1) satisfaction with the treatment option chosen and (2) overall satisfaction with care received. Variables were entered in three theoretically informed blocks. In Step 1, miscarriage management type was entered using dummy-coded variables, with surgical management as the reference category. Step 2 added shared decision-making and preparedness to examine whether decision-making experiences explained differences in satisfaction between management approaches. Step 3 added the emotional experience variables (relief and comfort; loneliness and isolation) to assess their independent contribution to satisfaction after accounting for management type and decision-making. Standardised regression coefficients (β), unstandardised coefficients (B), 95% confidence intervals (CI), changes in explained variance (ΔR^2), and model fit statistics are reported.

3. Results

A total of 322 women who had experienced a first-trimester miscarriage within the previous three years participated in the study. Participants ranged in age from 16 years and over, with most aged 31–35 years (41.9%), followed by 36–40 years (28.3%) and 26–30 years (16.5%). Women were recruited from across all regions of England, with the largest proportions residing in the South East (16.8%), East of England (15.8%), and South West (15.5%).

Most participants were aged 31–40 years (70.2%), married or cohabiting (94.4%), and White (95.5% of valid responses). The sample was highly educated, with 81.3% holding a university or postgraduate qualification, and most participants were employed full- or part-time (87.9%). Full participant characteristics are presented in Table 1.

Table 1
Descriptive socio-demographic characteristics of the sample (N = 322)

Variable		Frequency (%)	Valid
Age group	16 to 25 years	14 (4.3)	14 (4.3)
	26 to 30 years	53 (16.5)	53 (16.5)
	31 to 35 years	135 (41.9)	135 (41.9)
	36 to 40 years	91 (28.3)	91 (28.3)
	41 years+	29 (9.0)	29 (9.0)
Region in England	East of England	51 (15.8)	51 (15.9)
	East Midlands	30 (9.3)	30 (9.4)
	London	27 (8.4)	27 (8.4)
	North East	15 (4.7)	15 (4.7)
	North West	40 (12.4)	40 (12.5)
	South East	54 (16.8)	54 (16.9)
	South West	50 (15.5)	50 (15.6)
	West Midlands	35 (10.9)	35 (10.9)
	Yorkshire and the Humber	18 (5.6)	18 (5.6)
	Missing	2 (0.6)	
Relationship status	Married and living with partner	206 (64.0)	206 (64.2)
	Not married and living with partner	97 (30.1)	97 (30.2)
	In a relationship but not living with partner	9 (2.8)	9 (2.8)
	Divorced/Separated	2 (0.6)	2 (0.6)
	Single/Other	7 (2.2)	6 (2.2)
	Missing	1 (0.3)	
Ethnicity	White (British, Irish, Other)	279 (86.6)	279 (95.5)
	Asian or Asian British	8 (2.5)	8 (2.7)
	Black African/Caribbean or Black British	2 (0.6)	2 (0.7)
	Mixed or Multiple ethnic background	3 (0.9)	3 (1.0)
	Missing	30 (9.3)	
Education Level	Some secondary school or less	6 (1.9)	6 (2.1)
	Completed secondary school	18 (5.6)	18 (6.3)

Variable		Frequency (%)	Valid
	Post-secondary school technical training	30 (9.3)	30 (10.4)
	University degree	119 (37.0)	119 (41.3)
	Postgraduate Certificate or Diploma	65 (20.2)	65 (22.6)
	Postgraduate Degree (Masters or PhD)	50 (15.5)	50 (17.4)
	Missing	34 (10.6)	
Employment status	Employed full time	183 (56.8)	183 (63.1)
	Employed part time	72 (22.4)	72 (24.8)
	Self employed	16 (5.0)	16 (5.5)
	Student (Full/part time)	2 (0.6)	2 (0.6)
	Not employed	17 (5.3)	17 (5.9)
	Missing	32 (9.9)	
Household Income	< £20,000	11 (3.4)	11 (3.8)
	£20,000 to £39,999	28 (8.7)	28 (9.6)
	£40,000 to £59,999	57 (17.7)	57 (19.6)
	£60,000 to £79,999	60 (18.6)	60 (20.6)
	£80,000 to £99,999	58 (18.0)	58 (19.9)
	£100,000 to £149,999	40 (12.4)	40 (13.7)
	£150,000 or more	25 (7.8)	25 (8.6)
	Prefer not to say	12 (3.7)	12 (4.1)
	Missing	31 (9.6)	

The majority of participants experienced a missed miscarriage (58.7%), followed by incomplete miscarriage (21.4%) and blighted ovum (7.1%). Just over half of the women (51.6%) were experiencing their first miscarriage, while 48.4% reported two or more pregnancy losses, and 42.9% met the definition of recurrent miscarriage. Most pregnancy losses were diagnosed between 6 and 10 weeks' gestation (52.8%), with a further 39.8% occurring between 10 and 13 weeks.

Approximately one-quarter of participants (23.3%) had experienced their miscarriage within the previous 1–2 years, although women represented a broad range of time since loss, with 42.9% completing the survey within the first year following their miscarriage. Around one in six participants (17.4%) reported a diagnosis of infertility, and 12.1% had received fertility treatment. Nearly one-quarter (23.0%) had undergone medical investigations to determine the cause of their miscarriage. Overall, 58.7% of participants had at least one living child.

Regarding miscarriage management, approximately two in five women underwent surgical management (41.9%), just over one-third received expectant management (33.5%), and around one-quarter received medical management, either at home (17.4%) or in hospital (7.1%). Full pregnancy and miscarriage characteristics are presented in Table 2.

Table 2
Descriptive pregnancy characteristics of the sample (N = 322)

Variable		Frequency (%)
Pregnancy Loss Type	Chemical pregnancy (early pregnancy loss within the first five weeks	2 (0.6)
	Blighted Ovum (early pregnancy without an embryo)	23 (7.1)
	Incomplete miscarriage (miscarriage begins; pregnancy has not completely passed)	69 (21.4)
	Missed miscarriage (miscarriage without symptoms)	189 (58.7)
	Ectopic (pregnancy where fertilised egg implants outside of uterus)	16 (5.0)
	Molar (partial or complete)	6 (1.9)
	Termination for Medical Reasons (TfMR)	1 (0.3)
	Do not know/Missing	16 (4.9)
Number of miscarriages	One	166 (51.6)
	Two or More	156 (48.4)
Gestation when loss was established	< 6 weeks	20 (6.2)
	6–10 weeks	170 (52.8)
	10–13 weeks	128 (39.8)
	Missing	4 (1.2)
Time since loss occurred	< 1 month	35 (10.9)
	1–3 months	46 (14.3)
	3–6 months	57 (17.7)
	6–12 months	55 (17.1)
	1–2 years	75 (23.3)
	2–3 years	49 (15.2)
	Missing/Prefer not to say	5 (1.6)
Management of miscarriage	Medical Management (home)	56 (17.4)
	Medical Management (hospital)	23 (7.1)
	Surgical	135 (41.9)
	Expectant	108 (33.5)
Infertility	Diagnosed with infertility	56 (17.4)

Variable		Frequency (%)
	Self-and/or partner received infertility treatment	39 (12.1%)
Recurrent miscarriage	Yes	128 (42.9)
Medical investigation	Received test to investigate cause of miscarriage	74 (23.0)
Previous loss/es (14 weeks+)	Second trimester loss	7 (2.2)
	Termination for Medical Reasons	9 (2.8)
	Stillbirth	1 (0.3)
	Neonatal death	2 (0.6)
Living Child/ren	Yes	189 (58.7)
	No	132 (41.0)
	Missing/Prefer not to say	1 (0.3)

3.1.1. Women's socio-demographic and miscarriage characteristics by management type
Chi-square analyses examined associations between miscarriage management and participants' socio-demographic and pregnancy-related characteristics. Management type was not associated with age ($\chi^2(12, N = 322) = 18.37$, $p = .105$, Cramer's $V = .14$); living children ($\chi^2(3, N = 321) = 5.09$, $p = .166$, Cramer's $V = .13$); household income ($\chi^2(33, N = 291) = 24.60$, $p = .854$, Cramer's $V = .17$); educational attainment ($\chi^2(15, N = 288) = 17.88$, $p = .269$

Cramer's $V = .14$); or employment status ($\chi^2(15, N = 290) = 15.34$, $p = .428$, Cramer's $V = .13$).

The only characteristic associated with miscarriage management was previous miscarriage history ($\chi^2(3, N = 322) = 11.09$, $p = .011$, Cramer's $V = .19$). Examination of adjusted standardised residuals showed that women experiencing their first miscarriage were more likely than expected to undergo expectant management (ASR = 2.4), whereas women with two or more previous miscarriages were more likely than expected to receive surgical management (ASR = 2.4). No other management groups differed significantly from expected frequencies.
3.1.2. Shared decision-making and preparedness
Around three-quarters of women receiving surgical management (71.6–79.3%) or medical management at home (73.2–76.8%) agreed that they were well informed, had adequate time to make a decision, and knew what to do if complications occurred. In contrast, fewer than half of women undergoing expectant management agreed that they felt informed about treatment options (46.5%), had adequate time to decide (47.8%), or felt supported in making the right decision (40.2%). Women undergoing expectant management also reported the lowest levels of preparedness, with 49.5% disagreeing that they felt prepared for treatment and 44.3% disagreeing that they had clear expectations of what to expect. Consideration of women's worries and fears was relatively low across all management approaches, but was lowest for expectant management: 33.7% felt that their worries and fears had been considered, compared with 44.6% receiving medical management and 48.9% undergoing surgical management (Table 3).

The seven items were combined to provide a mean composite score for shared decision-making and preparedness. A one-way analysis of variance (ANOVA) demonstrated a significant effect of miscarriage management type on shared decision-making and preparedness ($F(2, 278) = 18.90$, $p < .001$, $\eta^2 = .12$), indicating that management type accounted for approximately 12% of the variance in shared decision-making and preparedness scores. Tukey post hoc comparisons showed that women who underwent expectant management reported significantly lower shared decision-making and preparedness than those who received medical management at home or surgical management. No significant difference was observed between the medical management at home group and the surgical management group (Table 4).

Table 3
Women's perceptions towards shared decision making and support of miscarriage management

Surgical Management			Expectant Management			Medical Management (Home)		
I felt informed of all the treatment options available including the risks and benefits								
Strongly agree/agree	107	79.3	Strongly agree/agree	47	46.5	Strongly agree/agree	42	75.0
Neither agree nor disagree	9	6.7	Neither agree nor disagree	16	15.8	Neither agree nor disagree	5	8.9
Strongly disagree/disagree	19	14.1	Strongly disagree/disagree	38	37.6	Strongly disagree/disagree	9	16.1
Total	**135**	**100**	**Total**	**101**	**100**	**Total**	**56**	**100**
I was given adequate time to decide the treatment option I chose								
Strongly agree/agree	103	76.9	Strongly agree/agree	43	47.8	Strongly agree/agree	41	73.2
Neither agree nor disagree	13	9.7	Neither agree nor disagree	20	22.2	Neither agree nor disagree	6	10.7
Strongly disagree/disagree	18	13.4	Strongly disagree/disagree	27	30.0	Strongly disagree/disagree	9	16.1
Total	**134**	**100**	**Total**	**90**	**100**	**Total**	**56**	**100**
I felt supported to make a decision that was right for me								
Strongly agree/agree	87	64.9	Strongly agree/agree	37	40.2	Strongly agree/agree	37	66.1
Neither agree nor disagree	23	17.2	Neither agree nor disagree	27	29.3	Neither agree nor disagree	12	21.4
Strongly disagree/disagree	24	17.9	Strongly disagree/disagree	28	30.4	Strongly disagree/disagree	7	12.5
Total	**134**	**100**	**Total**	**92**	**100**	**Total**	**56**	**100**
I was aware of what to do if there were any complications								
Strongly agree/agree	96	71.6	Strongly agree/agree	54	54.0	Strongly agree/agree	43	76.8
Neither agree nor disagree	12	9.0	Neither agree nor disagree	14	14.0	Neither agree nor disagree	3	5.4
Strongly disagree/disagree	26	19.4	Strongly disagree/disagree	32	32.0	Strongly disagree/disagree	10	17.9
Total	**134**	**100**	**Total**	**100**	**100**	**Total**	**56**	**100**
I had clear expectations of what to expect with the treatment option I chose								
Strongly agree/agree	89	65.9	Strongly agree/agree	37	38.1	Strongly agree/agree	23	41.1

Surgical Management			Expectant Management			Medical Management (Home)		
I felt informed of all the treatment options available including the risks and benefits								
Neither agree nor disagree	20	14.8	Neither agree nor disagree	17	17.5	Neither agree nor disagree	7	12.5
Strongly disagree/disagree	26	19.3	Strongly disagree/disagree	43	44.3	Strongly disagree/disagree	26	46.4
Total	**135**	**100**	**Total**	**97**	**100**	**Total**	**56**	**100**
All in all, I felt prepared for the treatment option I chose								
Strongly agree/agree	86	63.7	Strongly agree/agree	26	28.0	Strongly agree/agree	27	48.2
Neither agree nor disagree	16	11.9	Neither agree nor disagree	21	22.6	Neither agree nor disagree	9	16.1
Strongly disagree/disagree	33	24.4	Strongly disagree/disagree	46	49.5	Strongly disagree/disagree	20	35.7
Total	**135**	**100**	**Total**	**93**	**100**	**Total**	**56**	**100**
My worries and fears were considered by healthcare professionals								
Strongly agree/agree	66	48.9	Strongly agree/agree	35	33.7	Strongly agree/agree	25	44.6
Neither agree nor disagree	25	18.5	Neither agree nor disagree	14	13.5	Neither agree nor disagree	16	28.6
Strongly disagree/disagree	44	32.6	Strongly disagree/disagree	55	52.9	Strongly disagree/disagree	15	26.8
Total	**135**	**100**	**Total**	**104**	**100**	**Total**	**56**	**100**

** **Note.** Percentages are calculated using valid responses. Owing to a survey routing error, data are unavailable for 23 participants who underwent medical management in a healthcare setting.*

Table 4
Composite shared decision-making and preparedness score by miscarriage management type

Management type	*n*	Mean (SD)	95% CI	Post hoc[a]
Medical management (home)	56	3.44 (0.85)	3.22–3.67	a
Expectant management	91	2.88 (1.11)	2.65–3.11	b
Surgical management	134	3.68 (0.90)	3.52–3.83	a

Note. $F(2, 278) = 18.90$, $p < .001$, $\eta^2 = .120$. [a]*Groups sharing the same superscript do not differ significantly according to Tukey B post hoc comparisons ($\alpha = .05$).*

3.1.3. Communication and decision-making support regarding the management of pregnancy remains

Women who underwent surgical management consistently reported the most positive experiences, whereas those who underwent expectant management reported the least favourable experiences across all three

items. Fewer than one in four women undergoing expectant management felt healthcare professionals were sensitive when discussing options for the pregnancy remains (21.7%), and fewer than one in ten felt they had received sufficient information (9.9%) or adequate time (9.5%) to make an informed decision. Although women receiving medical management reported more positive experiences than those undergoing expectant management, fewer than half agreed they had received sufficient information (33.3%) or adequate time (35.3%) to consider their options. Even among women who underwent surgical management, fewer than half felt they had received sufficient information (49.2%) or enough time (39.4%) to decide what should happen to the pregnancy remains, highlighting this as an area requiring improvement across all management pathways (Table 5).

Table 5
Frequencies of women's experiences of miscarriage management, support for pregnancy remains decision-making, emotional experiences, and satisfaction with care.

Surgical Management			**Expectant Management**			**Medical Management**		
Healthcare professionals were sensitive when talking to me about my options around what to do with the remains of my baby/pregnancy								
Strongly agree/agree	77	59.7	Strongly agree/agree	18	21.7	Strongly agree/agree	22	42.3
Neither agree nor disagree	18	14.0	Neither agree nor disagree	15	18.1	Neither agree nor disagree	15	28.8
Strongly disagree/disagree	34	26.4	Strongly disagree/disagree	50	60.2	Strongly disagree/disagree	15	28.8
Total	**129**	**100**	**Total**	**83**	**100**	**Total**	**52**	**100**
I had the right amount of information I needed to decide on what I wanted to happen with the remains of my baby/pregnancy								
Strongly agree/agree	63	49.2	Strongly agree/agree	8	9.9	Strongly agree/agree	17	33.3
Neither agree nor disagree	19	14.8	Neither agree nor disagree	9	11.1	Neither agree nor disagree	7	13.7
Strongly disagree/disagree	46	35.9	Strongly disagree/disagree	64	79.0	Strongly disagree/disagree	27	52.9
Total	**128**	**100**	**Total**	**81**	**100**	**Total**	**51**	**100**
I was given the time I needed to consider my options on what I wanted to happen with the remains of my baby/pregnancy								
Strongly agree/agree	50	39.4	Strongly agree/agree	7	9.5	Strongly agree/agree	18	35.3
Neither agree nor disagree	24	18.9	Neither agree nor disagree	12	16.2	Neither agree nor disagree	10	19.6
Strongly disagree/disagree	53	41.7	Strongly disagree/disagree	55	74.3	Strongly disagree/disagree	23	45.1
Total	**127**	**100**	**Total**	**74**	**100**	**Total**	**51**	**100**

Note. *Percentages are calculated using valid responses. Owing to a survey routing error, data are unavailable for 23 participants who underwent medical management in a healthcare setting.*

A one-way analysis of variance (ANOVA) demonstrated a significant effect of miscarriage management type on satisfaction with support during the decision-making process regarding the management of pregnancy remains ($F(2, 261) = 28.55$, $p < .001$, $\eta^2 = .19$). Management type accounted for approximately 19% of the variance in satisfaction scores, representing a large effect. Women who underwent expectant management reported significantly lower satisfaction (M = 5.83, SD = 3.10) than those who received medical management

(*M* = 8.70, *SD* = 3.44, *p* < .001) or surgical management (*M* = 9.60, *SD* = 3.53, *p* < .001). No significant difference was observed between the medical and surgical management groups.

3.1.4. Perceived support during miscarriage management

Perceived support during miscarriage management varied across management type (Fig. 1). Nearly half of women undergoing surgical management (48.1%) agreed or strongly agreed that they felt supported throughout their miscarriage management, compared with 35.7% receiving medical management at home and 25.7% undergoing expectant management. Conversely, 60.0% of women undergoing expectant management disagreed or strongly disagreed that they felt supported, compared with 48.2% receiving medical management at home and 40.7% undergoing surgical management.

A one-way ANOVA demonstrated a significant effect of miscarriage management type on perceived support in decision-making ($F(2, 293) = 12.21$, $p < .001$, $\eta^2 = .077$), indicating that management type accounted for approximately 7.7% of the variance in perceived support. Tukey HSD post hoc comparisons showed that women who underwent surgical management reported significantly greater support in decision-making (*M* = 3.16, *SD* = 1.36) than those who underwent expectant management (*M* = 2.31, *SD* = 1.29; mean difference = 0.85, 95% CI [0.44, 1.25], *p* < .001). Perceived support among women receiving medical management at home (*M* = 2.79, *SD* = 1.28) did not differ significantly from either the expectant (*p* = .080) or surgical (*p* = .172) groups (Table 6).

Table 6
Perceived support in decision-making by miscarriage management type

Management type	***n***	**Mean (SD)**	**95% CI**	**Post hoc**
Expectant management	105	2.31 (1.29)	2.07–2.56	a
Medical management (home)	56	2.79 (1.28)	2.44–3.13	ab
Surgical management	135	3.16 (1.36)	2.93–3.39	b

Note. *$F(2, 293) = 12.21$, $p < .001$, $\eta^2 = .077$. Levene's test indicated that the assumption of homogeneity of variance was met*, $F(2, 293) = 0.88$, $p = .417$. *Groups sharing the same superscript do not differ significantly according to Tukey HSD post hoc comparisons were used ($\alpha = .05$).*

3.1.5. Perceived comfort/relief and loneliness/isolation

Participants were asked about feelings of loneliness, isolation, relief and comfort during miscarriage management. Women undergoing expectant management reported the highest levels of loneliness (84.3%) and isolation (78.4%), compared with 70.4% and 60.0%, respectively, among women undergoing surgical management. Conversely, relief and comfort were more commonly reported following surgical management (67.4% and 69.6%, respectively) than expectant management (53.9% and 49.0%). Women receiving medical management at home reported relatively high levels of relief (69.1%) but lower levels of comfort (56.4%), while approximately half of those receiving medical management in hospital reported relief (50.0%) and comfort (50.0%); however, this subgroup was small (*n* = 22). Full response distributions are provided in Supplementary File 1, Table S1.

As shown in Table 7, experiences during miscarriage management varied by management type. Relief and comfort differed significantly by management approach, Welch's $F(3, 78.68) = 3.35$, $p = .023$, $\eta^2 = .03$. Games–Howell post-hoc comparisons indicated that women who underwent surgical management reported

significantly greater relief and comfort than those who underwent expectant management (mean difference = 0.72, 95% CI [0.08, 1.36], p = .020). No other pairwise differences were statistically significant.

Loneliness and isolation also differed significantly across management types ($F(3, 310) = 6.83$, $p < .001$, $\eta^2 = .062$). Levene's test confirmed the assumption of homogeneity of variance ($F(3, 310) = 1.86$, $p = .137$); therefore, we used Tukey HSD post hoc comparisons. Women who underwent expectant management reported significantly greater loneliness and isolation than those who received medical management at home, medical management in hospital, or surgical management, whereas no significant differences were observed between the latter three groups (Table 7).

Table 7
Experiences during miscarriage management by management type

Outcome	Management type	n	Mean (SD)	95% CI	Post hoc
Relief and comfort	Medical management (hospital)	22	6.55 (2.54)	5.42–7.67	ab
	Medical management (home)	55	7.24 (1.84)	6.74–7.73	ab
	Expectant	102	6.80 (2.01)	6.41–7.20	a
	Surgical	135	7.53 (1.72)	7.23–7.82	b
Loneliness and isolation	Medical management (hospital)	22	7.00 (2.00)	6.11–7.89	a
	Medical management (home)	55	7.00 (2.40)	6.35–7.65	a
	Surgical	135	7.38 (2.23)	7.00–7.76	a
	Expectant	102	8.39 (2.05)	7.99–8.80	b

Note. Values are presented as mean (SD) with 95% confidence intervals. For relief and comfort, Levene's test indicated unequal variances (p = .003); therefore, Games–Howell post hoc comparisons were conducted. For loneliness and isolation, the assumption of homogeneity of variance was met (p = .137); therefore, Tukey HSD post hoc comparisons were used. Groups sharing the same superscript do not differ significantly at α = .05.

3.1.6. Overall satisfaction with miscarriage treatment, overall care and follow-up

Women were also asked about their satisfaction with the treatment option they received, the care provided during their miscarriage, and follow-up care after pregnancy loss. Supplementary File 1, Table S2 provides the full response distributions.

Women who underwent surgical management generally reported greater satisfaction with treatment and overall care than those undergoing expectant management. Three-quarters (75.6%) were happy with the treatment option they received, compared with 48.3% of those managed expectantly and 47.3% of those receiving medical management at home. Satisfaction with treatment differed significantly by management approach, Welch's $F(2, 129.83) = 13.61$, $p < .001$. Games–Howell post-hoc comparisons indicated

significantly greater satisfaction following surgical management than medical (p = .001) or expectant management (p < .001), while medical and expectant management did not differ (p = .966).

Similarly, overall satisfaction with care was highest among women undergoing surgical management (54.9%) and lowest among those managed expectantly (33.7%). Overall satisfaction differed significantly by management approach, $F(2, 311) = 6.87$, p = .001, η^2 = .04. Post-hoc comparisons indicated significantly lower satisfaction following expectant management than medical (p = .021) or surgical management (p = .001), with no difference between medical and surgical management (p = .906).

Across all management groups, satisfaction with follow-up care was low. Fewer than one in five women reported being satisfied with follow-up care, while 52.2% to 78.2% reported being dissatisfied or strongly dissatisfied. Follow-up satisfaction did not significantly differ by management approach, Welch's $F(2, 178.01) = 2.90$, p = .058.

Table 8
Satisfaction following miscarriage management by management type

Outcome	Management type	n	Mean (SD)	95% CI	Post hoc
Treatment satisfaction	Medical	55	3.25 (1.21)	2.93–3.58	b
	Expectant	89	3.20 (1.24)	2.94–3.46	b
	Surgical	131	3.92 (1.00)	3.75–4.10	a
Overall satisfaction	Medical	77	3.14 (1.20)	2.87, 3.42	a
	Expectant	104	2.64 (1.25)	2.40, 2.89	b
	Surgical	133	3.22 (1.25)	3.00, 3.43	a
Follow-up satisfaction	Medical	75	2.39 (1.17)	2.12, 2.66	-
	Expectant	101	1.98 (1.01)	1.78, 2.18	-
	Surgical	131	2.14 (1.10)	1.95, 2.33	-

Groups with different superscript letters differ significantly at p < .05. Games–Howell post-hoc comparisons were used for treatment satisfaction due to unequal variances; Tukey HSD was used for overall satisfaction. Post-hoc comparisons are not reported for follow-up satisfaction because the omnibus Welch test was not statistically significant. For overall and follow-up satisfaction, medical management includes participants managed at home or in hospital; treatment-satisfaction data were available only for participants managed at home because of a survey routing error.

Predictors of treatment satisfaction

A hierarchical multiple regression was conducted to examine whether management type, shared decision-making and preparedness, and experiences following miscarriage management predicted treatment satisfaction (Table 9).

In Step 1, management type significantly predicted treatment satisfaction, explaining 8.7% of the variance ($F(2, 264) = 12.58$, $p < .001$, $R^2 = .09$). Compared with surgical management (reference group), both medical management at home ($\beta = -.22$, $p < .001$) and expectant management ($\beta = -.28$, $p < .001$) were associated with significantly lower treatment satisfaction.

Adding shared decision-making and preparedness in Step 2 significantly improved the model, accounting for an additional 30.5% of the variance ($\Delta R^2 = .31$, $\Delta F(1, 263) = 131.78$, $p < .001$). Shared decision-making and preparedness emerged as the strongest predictor of treatment satisfaction ($\beta = .59$, $p < .001$). After adjustment, the association between expectant management and treatment satisfaction was no longer significant ($\beta = -.05$, $p = .337$), although medical management at home remained independently associated with lower treatment satisfaction ($\beta = -.17$, $p = .001$).

In the final model, experiences following miscarriage management (relief and comfort, loneliness and isolation) explained a further 3.4% of the variance in treatment satisfaction ($\Delta R^2 = .03$, $\Delta F(2, 261) = 7.74$, $p < .001$), resulting in a final model accounting for 42.6% of the variance ($R^2 = .43$, adjusted $R^2 = .42$, $F(5, 261) = 38.71$, $p < .001$). Shared decision-making and preparedness remained the strongest independent predictor of treatment satisfaction ($\beta = .50$, $p < .001$), while greater relief and comfort was also independently associated with higher treatment satisfaction ($\beta = .21$, $p < .001$). Loneliness and isolation was not independently associated with treatment satisfaction ($\beta = .01$, $p = .851$). Medical management at home remained associated with lower treatment satisfaction compared with surgical management ($\beta = -.16$, $p = .002$), whereas expectant management was not significantly associated with treatment satisfaction after accounting for shared decision-making and experiences ($\beta = -.05$, $p = .335$).

Table 9
Hierarchical multiple regression predicting overall satisfaction with treatment option (N = 267)

Predictor	B	SE B	β	95% CI for B	p
Step 1: Management type					
Medical management	-0.65	0.18	-0.22	-1.00, -0.29	< .001
Expectant management	-0.72	0.16	-0.28	-1.03, -0.41	< .001
Model statistics					
R^2 = .09, Adj. R^2 = .08, ΔR^2 = .09, $F(2,264) = 12.58$, $p < .001$					
Step 2: Shared decision-making and preparedness					
Medical management	-0.49	0.15	-0.17	-0.78, -0.19	.001
Expectant management	-0.13	0.14	-0.05	-0.41, 0.14	.337
Shared decision-making & preparedness	0.67	0.06	0.59	0.56, 0.79	< .001
Model statistics					
R^2 = .39, Adj. R^2 = .39, ΔR^2 = .31, $\Delta F(1,263) = 131.78$, $p < .001$					
Step 3: Experiences of miscarriage management					
Medical management	-0.47	0.15	-0.16	-0.76, -0.18	.002
Expectant management	-0.13	0.14	-0.05	-0.40, 0.14	.335
Shared decision-making & preparedness	0.57	0.07	0.50	0.44, 0.70	< .001
Relief and comfort	0.13	0.03	0.21	0.07, 0.20	< .001
Loneliness and isolation	0.01	0.03	0.01	-0.05, 0.06	.851
Final model statistics					
R^2 = .43, Adj. R^2 = .42, ΔR^2 = .03, $\Delta F(2,261) = 7.74$, $p < .001$					

Note

†Reference category = surgical management. Positive coefficients indicate greater treatment satisfaction. Medical management refers to participants who received medical management at home.

Predictors of overall satisfaction with miscarriage management

A hierarchical multiple regression was conducted to examine whether management type, shared decision-making and preparedness, and experiences following miscarriage management predicted overall satisfaction with care (Table 10).

In Step 1, management type significantly predicted overall satisfaction, explaining 4.4% of the variance ($F(2, 271) = 6.29$, p = .002, R^2 = .04). Compared with surgical management (reference group), women who

underwent expectant management reported significantly lower overall satisfaction (β = –.22, p < .001), whereas medical management at home was not significantly associated with satisfaction (β = –.03, p = .694).

Adding shared decision-making and preparedness in Step 2 significantly improved the model, explaining an additional 53.6% of the variance (ΔR^2 = .54, $\Delta F(1, 270) = 345.35$, p < .001). Shared decision-making and preparedness emerged as the strongest predictor of overall satisfaction (β = .78, p < .001). After adjustment, neither medical management (β = .03, p = .479) nor expectant management (β = .08, p = .090) was significantly associated with overall satisfaction.

In the final model, experiences following miscarriage management (relief and comfort, loneliness and isolation) explained a further 1.8% of the variance (ΔR^2 = .02, $\Delta F(2, 268) = 5.90$, p = .003), resulting in a final model accounting for 59.8% of the variance in overall satisfaction (R^2 = .60, adjusted R^2 = .59, $F(5, 268) = 79.86$, p < .001). Shared decision-making and preparedness remained the strongest independent predictor (β = .71, p < .001), while greater loneliness and isolation was independently associated with lower overall satisfaction (β = –.13, p = .002). Relief and comfort was not independently associated with overall satisfaction (β = .06, p = .199). After adjustment for shared decision-making and experiences, expectant management showed a small positive association with overall satisfaction (β = .09, p = .044), whereas medical management at home remained non-significant (β = .02, p = .622).

Table 10
Hierarchical multiple regression predicting overall satisfaction (N = 267)

Predictor	B	SE B	β	95% CI for B	*p*
Step 1: Management type					
Medical management	-0.08	0.20	-0.03	-0.48, 0.32	.694
Expectant management	-0.59	0.17	-0.22	-0.93, -0.25	< .001
Model statistics					
R^2 = .04, Adjusted R^2 = .04, ΔR^2 = .04, $F(2,271) = 6.29$, p = .002					
Step 2: Shared decision-making and preparedness					
Medical management	0.10	0.13	0.03	-0.17, 0.36	.479
Expectant management	0.21	0.12	0.08	-0.03, 0.45	.090
Shared decision-making & preparedness	0.98	0.05	0.78	0.87, 1.08	< .001
Model statistics					
R^2 = .59, Adjusted R^2 = .58, ΔR^2 = .54, $\Delta F(1,270) = 345.35$, $p < .001$					
Step 3: Experiences of miscarriage management					
Medical management	0.07	0.13	0.02	-0.20, 0.33	.622
Expectant management	0.24	0.12	0.09	0.01, 0.48	.044
Shared decision-making & preparedness	0.88	0.06	0.71	0.77, 1.00	< .001
Relief and comfort	0.04	0.03	0.06	-0.020, 0.10	.199
Loneliness and isolation	-0.08	0.02	-0.13	-0.12, -0.03	.002
Final model statistics					
R^2 = .60, Adjusted R^2 = .59, ΔR^2 = .02, $\Delta F(2,268) = 5.90$, p = .003					

Note

†Reference category = surgical management. Positive coefficients indicate g*reater overall satisfaction with care. Medical management refers to participants who received medical management at home.*

4. Discussion

This study examined women's experiences of miscarriage management across surgical, expectant and medical approaches. Overall, women undergoing surgical management reported more positive experiences than those managed expectantly, with women receiving medical management generally falling between these groups. Surgical management was associated with greater shared decision-making and preparedness, higher treatment satisfaction, greater relief and comfort, and greater overall satisfaction with care. In

contrast, women managed expectantly consistently reported poorer experiences, particularly in relation to preparedness, support, loneliness and isolation.

4.1. Patient satisfaction and management type

Women who underwent surgical management generally reported more positive experiences than those undergoing expectant management, including greater support, relief and comfort, and higher satisfaction with treatment and care. These differences may partly reflect the contrasting characteristics of the management pathways. Surgical management offers greater certainty and more rapid resolution of miscarriage [21] and takes place within a healthcare setting, potentially providing more immediate access to professional support, symptom management and reassurance. Previous qualitative research similarly found that women choosing surgical management valued both the rapid resolution of miscarriage and the support provided by hospital staff [22].

Conversely, expectant management is characterised by greater uncertainty regarding when miscarriage will occur and the duration and severity of symptoms, with much of the experience taking place at home. Previous qualitative research has described anxiety surrounding pain and bleeding, feeling inadequately prepared for the experience, and perceptions that professional support diminished as the miscarriage progressed [22]. These contextual differences may help explain why women undergoing expectant management reported poorer experiences in the present study. However, higher satisfaction with surgical management should not be interpreted as evidence that it is inherently preferable, as women's preferences and priorities regarding miscarriage management vary [16, 23]. The observed differences may therefore reflect not only the management approach itself, but also how each pathway is delivered and experienced.

4.2. Shared decision-making and preparedness

The regression analyses provide important insight into what may underpin these differences. Although management type was initially associated with satisfaction, this relationship was substantially attenuated after shared decision-making and preparedness were included in the models. Shared decision-making and preparedness emerged as the strongest independent predictor of both satisfaction with the treatment chosen and overall satisfaction with care. Thus, how informed, prepared and involved women felt appears to be more strongly associated with satisfaction than the management approach itself.

This finding builds on previous research showing that women's experiences of miscarriage care are influenced by the quality and timing of information, preparation for what treatment may involve, and meaningful involvement in treatment decisions [13, 17, 18, 21, 32]. A recent scoping review similarly identified discrepancies between miscarriage care recommendations and individuals' needs and preferences [32]. This study extends this evidence by quantitatively showing that shared decision-making and preparedness can make a substantial independent contribution to satisfaction after accounting for management type.

Taken together, these findings support conceptualising high-quality miscarriage management as a person-centred, preference-sensitive process rather than judging care primarily by the clinical pathway selected. Across expectant, medical, and surgical management, quality appears to depend on whether women receive

clear information, are adequately prepared for what to expect, have sufficient time to deliberate, and are meaningfully involved in decisions that reflect their preferences and concerns [13, 18, 21]. Our findings therefore reinforce the importance of individual preferences and shared decision-making when considering management options. However, the variance explained by the current models indicates that these factors represent only part of the experience of care, with other clinical, interpersonal, organisational and individual factors also likely to contribute. Future research should examine these additional influences and how they interact with women's preferences and clinical circumstances to shape experiences of miscarriage care [13, 22].

4.3. Loneliness, isolation, relief and comfort

Emotional experiences during miscarriage management also made distinct contributions to satisfaction. Women undergoing expectant management reported greater loneliness and isolation and lower relief and comfort than those undergoing surgical management. These findings highlight an important dimension of miscarriage management beyond treatment effectiveness or choice: how women experience the miscarriage itself. Previous research has similarly highlighted unmet emotional support needs following miscarriage and the importance of women's interactions with healthcare services in shaping their experiences [7, 28, 30].

The present study extends this evidence by demonstrating distinct relationships between emotional experiences and different dimensions of satisfaction. Greater relief and comfort independently predicted higher satisfaction with the treatment chosen, whereas greater loneliness and isolation independently predicted lower overall satisfaction with care. This distinction suggests that comfort and relief may be more closely tied to women's appraisal of the management approach itself, while loneliness and isolation may be more closely associated with their broader experience of care and support.

The association between loneliness and overall care satisfaction is particularly noteworthy given that much miscarriage management occurs outside healthcare settings. Recent network analysis of women who had experienced miscarriage identified feelings of isolation as one of the most influential indicators of miscarriage-related psychological distress, with greater connectivity between distress indicators among women who experienced miscarriage at home compared with those experiencing miscarriage in hospital [33]. Feelings of isolation may therefore reflect not simply where miscarriage occurs, but whether women feel sufficiently connected to professional support throughout the process. This suggests that the relational and emotional dimensions of miscarriage care warrant consideration alongside its clinical management.

4.4. Follow-up care

Dissatisfaction with follow-up care was high across management groups, with no significant differences according to management type. This contrasts with the clearer differences observed between management pathways for treatment experiences and suggests that shortcomings in follow-up may represent a broader issue within miscarriage care rather than a feature of any particular management approach.

This finding is important because women's needs do not necessarily end once the miscarriage itself has been medically resolved. Follow-up provides an opportunity to address ongoing physical concerns, discuss recovery, respond to emotional needs and identify women who may require additional support. Previous research has similarly identified gaps in continuity of care, emotional support and access to appropriate

services following miscarriage [27, 28, 30–32]. The present findings add to this evidence by suggesting that dissatisfaction with follow-up may extend across management pathways rather than being concentrated within a particular treatment group.

The consistently poor ratings observed across management approaches therefore highlight the importance of continuity beyond the immediate management of miscarriage. Timely, accessible follow-up may help ensure women continue to feel supported and have opportunities to seek advice or further care after active management ends.

4.5. Clinical implications

The findings have several implications for the delivery of miscarriage care. Most importantly, they suggest that women's experiences depend not only on the management option selected, but on how they are informed, prepared and supported throughout the process. This aligns with NICE and wider recommendations emphasising individualised information, informed choice and shared decision-making [8, 32, 34, 35]. The persistence of poorer experiences despite these established principles may indicate a gap between recommended and experienced care [32].

Particular attention may be warranted for women undergoing expectant management, which NICE recommends as the first-line approach where clinically appropriate and acceptable to the woman [8]. NICE emphasises clear information about what to expect, including pain and bleeding, alongside safety-netting and access to professional support. Our findings reinforce the importance of delivering expectant management as an actively supported pathway, ensuring women are adequately prepared while maintaining choice in accordance with their preferences and clinical circumstances.

The findings also reinforce the importance of addressing emotional alongside physical needs. This is consistent with NICE guidance on sensitive, individualised support, access to counselling and support services, and follow-up after pregnancy loss [8], as well as wider evidence identifying acknowledgement of loss, compassionate communication and emotional support as central to high-quality care [28, 32, 36, 37]. Maintaining connection with healthcare services may be particularly important for women managing miscarriage at home, where feelings of loneliness and isolation may be heightened.

Finally, the high level of dissatisfaction with follow-up across all management groups suggests that continuity beyond the immediate management of miscarriage warrants greater attention. Recent evidence similarly identifies the absence of structured psychological follow-up as an important gap in post-miscarriage care [38]. Follow-up could provide an opportunity to assess ongoing physical and emotional needs, provide information and signposting, and identify women who may benefit from additional support. However, evidence on the effectiveness of specific psychological follow-up interventions remains limited [39], suggesting further research is needed to establish the optimal timing, format, and intensity of post-miscarriage support.

4.6. Strengths and Limitations

This study has several strengths. It is one of the few UK quantitative studies to comprehensively compare women's experiences across different miscarriage management approaches. Rather than focusing primarily

on clinical outcomes or treatment effectiveness, the study examined a broad range of patient-reported outcomes, including shared decision-making and preparedness, support during decision-making, emotional experiences during miscarriage management, and satisfaction with treatment and care. Furthermore, the use of hierarchical regression analyses enabled us to move beyond describing differences between management groups by identifying the factors that independently contributed to women's satisfaction. This approach showed that shared decision-making and preparedness were more strongly associated with satisfaction than management type itself, providing clinically meaningful evidence to inform improvements in person-centred miscarriage care.

The findings should also be interpreted in light of several limitations. First, the cross-sectional design precludes conclusions regarding causality, and it is not possible to determine the temporal relationships between women's experiences and satisfaction with care. Second, data were based on self-report and may therefore be subject to recall bias, although eligibility was restricted to women who had experienced a miscarriage within the previous three years to minimise this effect. Third, participants were recruited using a convenience sampling strategy, which may limit the representativeness and generalisability of the findings. Finally, due to an error in the questionnaire routing, women receiving inpatient medical management were not presented with all shared decision-making and preparedness items. Consequently, inferential analyses involving these outcomes were restricted to women undergoing expectant management, medical management at home, and surgical management. Future research should specifically examine whether experiences of medical management differ between home and healthcare settings, including how setting influences preparedness, support and satisfaction. Further qualitative research is also warranted to explore women’s experiences in greater depth and to consider healthcare professionals’ perspectives on supporting women through decision-making and miscarriage care. Examining both perspectives may help identify individual and service-level factors that facilitate or constrain the delivery of person-centred care.

4.7. Conclusion

Women's experiences varied significantly according to miscarriage management approach; however, the quality of shared decision-making and preparedness emerged as stronger determinants of satisfaction than the management approach itself. Women who felt informed, involved in decisions, and adequately prepared for what to expect reported more positive experiences regardless of treatment received, whereas loneliness and isolation were associated with poorer overall satisfaction. These findings highlight the importance of viewing miscarriage management as a person-centred, preference-sensitive process in which communication, realistic preparation, and emotional support are integral components of high-quality care. Strengthening shared decision-making, providing clear and balanced information, and offering proactive follow-up support, particularly for women undergoing expectant management, represent important opportunities to improve women's experiences of miscarriage care. Future research should evaluate interventions designed to enhance these aspects of care and determine whether improvements in decision-making translate into better psychological outcomes following pregnancy loss.

Abbreviations

EPAU Early Pregnancy Assessment Unit

GP General Practitioner

HCP Healthcare practitioners

NHS National Health Service

NICE National Institute for Health and Care Excellence

PEG Public Engagement Group

TFMR Termination for Medical Reasons

Declarations

Ethics approval and consent to participate

This study was conducted in accordance with the Declaration of Helsinki and was approved by the Research Ethics Committee of the Institute for Health Research at the University of Bedfordshire. Informed consent was obtained from all the participants.

Consent for publication

Not applicable.

Availability of data and materials

The datasets used and/or analysed during the current study are available from the corresponding author upon reasonable request.

Competing interests

The authors declare that they have no competing interests.

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Authors' contributions

JW, FP and EJC devised the project and conceived and designed the study. A.R. supported the acquisition and interpretation of the data. FP and JW supervised the project. EJC and FP analysed and interpreted the

survey data. EJC wrote the manuscript with support from FP. All authors discussed the results and contributed to the final manuscript.

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Figures

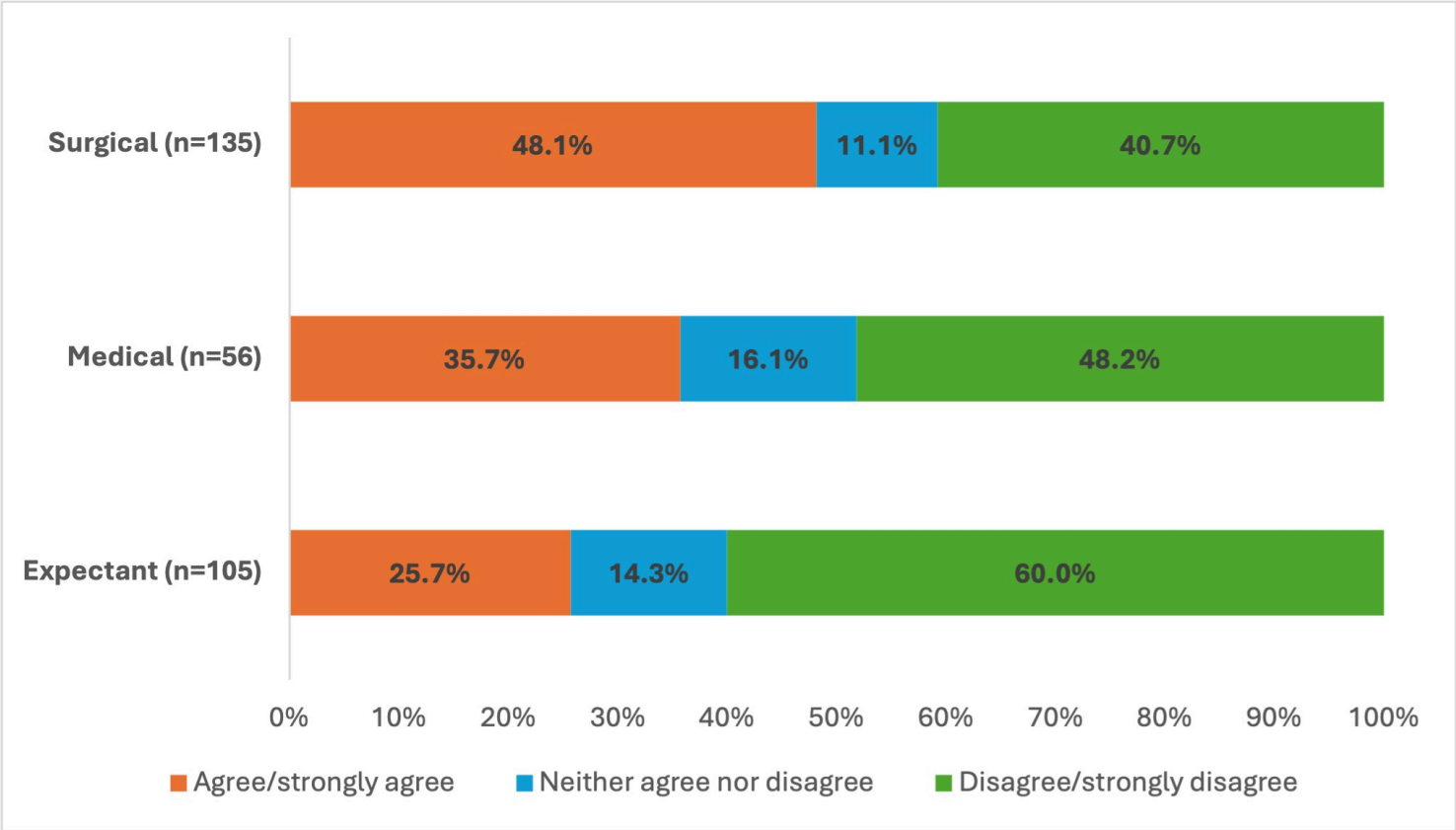


Figure 1

Perceived support during miscarriage management by management approach

Note. *Percentages represent responses to the statement, 'I felt supported throughout the management of my miscarriage'. Percentages are calculated using valid responses. Owing to a survey routing error, data are unavailable for 23 participants who underwent medical management in a healthcare setting.*

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