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Treatment Decisions at the Time of Miscarriage Diagnosis

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Abstract

Objective—To describe the factors patients and physicians prioritize during first-trimester miscarriage management, and assess what drives satisfaction with care.

Methods—We conducted a mixed-methods study of clinically stable women seeking surgical, medical, or expectant miscarriage treatment. Women with first trimester fetal demise or anembryonic gestation (n=55) completed demographic and psychosocial surveys. Using purposive sampling, 45 (82%) completed in-depth interviews. Fifteen obstetricians were interviewed. Participants described factors that informed their counseling (physicians) or decision-making (patients). Content analysis used an integrated approach with inductively and deductively derived codes. Patient-derived themes were stratified by treatment choice. Associations between variables and treatment choices were analyzed.

Results—Thirty-four women (62%) received surgical, 19 (35%) received medical and two (4%) received expectant management. Physicians expected that women with prior pregnancies have strong management preferences, and indeed, multigravid patients were less likely to change their initial treatment choice after counseling than primigravid patients (12% vs. 42%, odds ratio 0.18 [95% CI 0.04, 0.81] p=0.03). Physicians favored patient-centered decisions and patients chose the treatment that they thought would least affect other responsibilities. Those ultimately receiving surgical management had a higher monthly income (adjusted OR 1.30 (1.04, 1.63) p=0.023) and more social support (adjusted OR 2.45 (1.07, 5.61) p=0.035) than the medical group. The surgical group cited loss acceptance, a favorable perception of surgery, and a desire to expedite the miscarriage as decisive factors. The medical group endorsed control over, and timed completion

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of, the miscarriage in a more intimate setting, an aversion to surgery or anesthesia, and a perception of improved fertility preservation as decisive factors. Regardless of treatment choice, satisfaction with treatment was linked to a supportive clinical team and expeditious resolution.

Conclusion—Prior pregnancy experiences, obligations, and socio-demographic factors influence miscarriage management decision-making. Structured counseling, especially for primigravid patients, could improve both the physician and the patient experience with miscarriage care.

INTRODUCTION

Miscarriage is the most common complication of pregnancy, affecting approximately one in four pregnant women [1]. Treatment options have evolved over recent years and now include uterine aspiration (in the office or operating room, under local anesthesia or sedation), medical management with prostaglandin analogues (most commonly misoprostol), or expectant management. Although all three treatment options are generally considered safe, the therapies are experientially different both clinically and logistically, and offer different amounts of patient participation [2]. Provider bias and training, as well as the clinical resources available, can determine how management options are presented to patients [3].

Patient satisfaction with treatment may be higher when women's preferences are taken into account in the decision-making process [2,4]. Data on the nature of these preferences and evidence-based facilitators of the decision-making process are limited, and more representative of women residing in the UK, where the healthcare environment is different from the US [5-7]. Given that there are management options for women obtaining miscarriage care in U.S. urban tertiary care centers, this study used mixed methods to synthesize a better understanding of patient-level and physician-level factors that impact treatment choice and ultimate satisfaction, with the goal of informing improvements in patient-centered miscarriage care.

MATERIALS AND METHODS

We used a convergent parallel mixed methods design [8] to conduct this study from January 2014-January 2015. In this type of design, qualitative and quantitative data are collected simultaneously and interpreted once the two data streams are merged. Patient participants were recruited from the clinical practices of the Hospital of the University of Pennsylvania as well as the Hospital's Emergency Department (ED) at the time of miscarriage diagnosis. Many initiated clinical care at EDs or outpatient practices outside of our institution and either self-referred or were referred to our institution for clinical care. Eligible patients could have had symptoms that prompted them to seek care (for example, bleeding or cramping), or could have had the diagnosis of a nonviable pregnancy made incidentally at the time of a viability ultrasound, but all patients were clinically stable enough to be offered options for clinical management, and none carried the diagnosis of incomplete or inevitable abortion or required urgent intervention. A patient was eligible to participate if she was 1) 18 and over, 2) had an ultrasound diagnosis of an embryonic gestation or embryonic or fetal demise in the first trimester (5-12 completed weeks of pregnancy) confirmed by 2 clinicians, neither of whom were the investigator of record, 3) willing to provide informed consent, and was 4)

English speaking. This study was approved by the Institutional Review Board of the University of Pennsylvania and all participants gave written informed consent.

At enrollment, which was after the miscarriage diagnosis had been made, but before a treatment plan was finalized, the patient participants completed validated questionnaires that included demographics, psychosocial assessments including the Center for Epidemiologic Studies Depression Scale (CES-D) [9], the Beck Anxiety Inventory (BAI) [10], the Perceived Stress Scale (PSS) [11], the PTSD Checklist-Civilian (PCLC) [12], and the Social Support Interview [13], as well as questions about pregnancy loss management preferences. Following survey completion, an open-ended, semi-structured interview was scheduled to be completed within 7 days. Interviews were conducted in-person or over the telephone by trained research staff from the Mixed Methods Research Lab at the University of Pennsylvania. We used a semi-structured interview script with standardized prompts to ensure consistency with content (see Appendix 1, available online at <http://links.lww.com/xxx>). The script was based upon our research question, a literature review and the Integrated Behavioral Model [14]. It explored logistical, social, health, and personal factors that significantly impacted the patient's decision when choosing treatment for early pregnancy loss. Duration of interviews was approximately 30 minutes. All participants received reimbursement for time and travel. Forty-five patient-participant interviews were necessary to reach thematic saturation, when no new ideas related to management choice emerged. We used a purposive sampling approach to achieve adequate representation from individuals who received active (surgical or medical) management.

Physician participants (attending obstetricians and gynecologists) were recruited from area academic and community practices, including sites where the patient participants were diagnosed or treated, in order to assess counseling practices of the range of providers. All managed miscarriage patients, but not all offered all three methods themselves (some referred out for office-based uterine aspiration, for example). Physicians participated in open-ended, semi-structured interviews designed to identify key considerations that physicians cited as important when counseling patients regarding miscarriage management. Interviews were conducted in-person or over the telephone by trained Mixed Methods Research Lab staff. A semi-structured interview script was created to ensure consistency with content (see Appendix 2, available online at <http://links.lww.com/xxx>).

Associations between maternal demographic and clinical variables and treatment outcomes were computed using Stata 14 (Statacorp LP). Evaluations included Kruskal-Wallis and Wilcoxon rank tests, and logistic regression. Multivariate analysis included variables with significance <0.1 in bivariate analysis. Interviews were recorded, transcribed, de-identified and entered into qualitative data analysis software (NVivo 10.0) for coding and analysis. We conducted a content analysis by developing a coding scheme using an integrated approach to coding. This involved establishing a set of codes based upon a line by line reading of the interviews. The investigator team read through five interviews to identify key ideas that were present in the transcripts. These ideas became grounded theory codes. Each code was defined and decision rules for use of each code was entered into the codebook. In addition, several a priori codes were established to capture key elements of our research questions (e.g. satisfaction with decision) [15-18]. Coding was performed by the Mixed Methods

Research Lab. In order to ensure reliability of the coding scheme, a total of 12 transcripts were independently coded by two coders. The coding in those transcripts was compared using the inter-rater reliability function in NVivo 10.0 and inconsistencies were resolved through discussion between the two coders in an iterative process. After each iteration, the coding scheme was refined. The final inter-rater reliability was 94.4%. Quantitative analysis and qualitative analysis were performed by different teams.

RESULTS

The quantitative characteristics of all fifty-five patient-participants were assessed. Just over half of participants (55%) stated that their first choice of miscarriage management was surgical, 18 (33%) said their first choice was medical management, and 7 (13%) participants initially opted for expectant management. After counseling, 34 (62%) participants made a final choice to receive surgical management, 19 (35%) participants received medical management, and 2 (4%) participants received expectant management. The patient-population's demographics, obstetric histories and psychosocial metrics, stratified by treatment received, are shown in Table 1.

In bivariate comparisons, the 34 participants receiving surgical management were significantly ($p<0.05$) more likely than the 19 receiving medical management to be educated beyond high school, to have a higher monthly income and were less likely to report being depressed. The thirteen measures of social support tested were similar between the 2 groups except for one ('Generally speaking, when you may need help in doing something, or advice, information support, etc., do you turn to the people available to you?' [13]) which was statistically significantly higher in participants receiving surgical management.

Table 2 gives the odds ratios, 95%CI and significance of these bivariate comparisons and shows that in the multivariate analysis, monthly income and high score on the social support measure showed significant association ($p<0.05$) with receiving surgical treatment. In the adjusted model, there was a 30% higher odds of surgical treatment for each \$400 bracketed increase in salary, and 2.45-fold increase for each reported step higher in social support. The only factor that distinguished the 2 participants who ultimately committed to expectant management was higher order gravidity (G10 and G12, respectively). Multigravidae were less likely to change their initial treatment choice after counseling than primigravidae (12% vs. 42%, odds ratio 0.18 [95%CI 0.04, 0.81] $p=0.03$). Fifty percent of the women who switched treatments were primigravid, compared to 18% primigravida among women who did not switch treatment ($p=0.03$), but otherwise there were no significant socio-demographics associated with switching treatment choice after physician counseling.

Qualitative themes from patient interviews were summarized (representative quotes of the dominant considerations are shown in Table 3). Though not a focus of the interview script, many participants described frustration with a lengthy process of obtaining a definitive diagnosis, or of finding a treating provider, or both, as heavily influencing their management choice. Once a definitive demise diagnosis was received, women described coming to terms with the loss, and a desire for closure. "I was ready to move on from the horrible news I've heard. I felt like once I got this news, I just wanted it out." Overall, and regardless of

management choice, participants emphasized a need to control or predict when and where they would complete their miscarriage. “The pill seemed like a better option because I had more control over the situation. Even though I didn’t have control of what happened, it felt like I had some control of how I handled it.” This theme was often discussed in conjunction with their need to fulfill work and home responsibilities. For example, a woman who chose surgical management stated, “I didn’t want to be miscarrying at work. That would be number one. So [either] the medicine or the procedure. And then I went with the procedure because I didn’t want to prolong it in case everything didn’t happen the first time.” In addition to considering how their management choice would affect those around them, participants also considered how the treatment would be experienced personally. “The sight of blood... that’s just not something I can deal with, let alone the evidence of a baby or something” stated a woman who chose surgical over medical or expectant management.

Further qualitative themes were revealed by patient participants (representative quotes are shown in the second half of Table 3). Previously pregnant women relied on their past experience to inform their miscarriage management choice and many cited previous spontaneous and induced abortion experiences as allowing them to anticipate what surgical or medical management would entail. “I chose to do it at home because I already know what it is to get the surgery part. It was more intimate being home...being angry and sad ... I did not want to take it out on anybody else.” A few women stated they felt uncomfortable with surgical management because they associated it with induced abortion, “the one that sounded like abortion, that wasn’t a good option for me because I had one prior, and I don’t have good memories of that.” Others explained they were not religious or said that their beliefs did not play a role because the pregnancy was no longer viable. “The procedure I got had nothing to do with an abortion ... I had to get it done. [but] I don’t believe in killing a ‘baby’ that’s healthy and will make it.” Some women who had experienced multiple losses or were highly invested in childbearing explained that their choice for procedure was motivated by a desire for genetic testing or generally “*getting answers*” as a motivation for choosing a procedure, while others believed medical management to be more aligned with fecundity preservation. “So we would like to start trying again as soon as we can. So I didn’t really want to do the natural route. I just didn’t want to be waiting. I think also once I got to the clinic, I was like, I don’t know if I feel comfortable about like doing surgery. So between that and talking to my mom, the medication seemed like the best route for me.”

The patient-participant population valued the physician counseling, “*Once she [the doctor] explained each procedure and what it entailed, I knew what I wanted to do.*” And patients often relied on their support system in conjunction with the physician recommendation, “*[the doctor’s opinion] was a big part of my decision. And then I was reassured by my partner to go ahead with proceeding.*”

Thematic saturation was reached after interviews with 15 physicians and their demographics are shown in Table 4. Physicians described their role in treatment decision-making. “*There are many situations where [patients] turn it back on me and ask me what I would do if I were them and so I think that tends to be reflective of the importance of my role.*” Physicians were sensitive to the complexity of the decision, and that the full counseling requires acknowledgement of how women balance their preferences, their responsibilities, as well as

system limitations, “patients, once they get a diagnosis like this, want to end the pregnancy and move on with their grieving as quickly and efficiently as possible The procedures that require them to wait for pre-op testing and then get a spot in the day unit to get their termination done are often less preferred than something that can be done quickly ... I think it has mostly to do with how fast they can get it done, how discretely they can get it done and how quickly they can get back to their lives afterwards... For me as a consultant it would be easier if I had more physicians who did manual aspirations in the office.”

Physician-participants appreciated that patients diagnosed with miscarriage have a range of expectations about their pregnancy, and that this can influence how a patient makes a management decision: “their knowledge about miscarriage in general affects it [their decision]... *I think that if [the miscarriage diagnosis] came as a shock... they aren't able to make a decision and then come back deciding they want a rapid cure.*” Physician participants described that patients have different relationships with their pregnancies, and that this influences how they respond to the news of the miscarriage which may modify the counseling process. “They need to feel that the provider isn't judgmental, because sometimes – like for instance, if the patient didn't want to be pregnant in the first place, and now they're there with a miscarriage, sometimes they're relieved.” Some reported that they are able to assess the patient's tolerance for pain and bleeding while discussing treatment choices. As these preferences become clear, the best management choice emerges. “...the way I phrase it is if you're willing to go through the process of the miscarriage at home ...without rushing to the emergency room as soon as you start bleeding, then I say that's what you should do.”

Ten (18%) of the 55 participants received a treatment strategy that was different from what they stated they intended to do before they had completed the clinical counseling process (Table 5). These participants often described being influenced by their provider, in some cases, their family and friends, as well as the failure of expectant management to provide timely resolution. Six women switched from expectant to surgical management, one woman switched from expectant to medical management, two women switched from surgical to medical management, and one woman switched from medical to surgical management. Women who switched their management choice from expectant management to surgical management often did so in reaction to their dissatisfaction with the length of time required to receive a definitive pregnancy loss diagnosis: “At that time it had already been two weeks, and I just didn't feel like waiting anymore. So then I went ahead and we scheduled the procedure.” Women also switched to surgical management because they became concerned about the risk of incomplete abortion with medical or expectant management: “...when she said that sometimes [medical management] doesn't work the first time, that it was necessary to use it again or still end of having a D&E, I was already sad enough that I really didn't want it to drag out.”

Regardless of treatment choice, patient satisfaction was linked with the presence of supportive and compassionate staff, having sufficient information regarding miscarriage procedures and confidence in the quality of their care: “Absolutely, they addressed every question, concern we had. And I felt like they gave the best care that they possibly could.” Most women described relief that the miscarriage was complete: “I honestly emotionally felt better the next day. It was just like now we can move on. It's over, as opposed to thinking

about how I thought I was pregnant for three weeks and I wasn't anymore.” Those women who received medical management reported the process was better than anticipated: “It was fine. Actually I was described that it could be a lot worse, like a lot of bleeding. I had pain, but I mean, it was bearable. It was fine. So yes, it was okay. It was okay. I was expecting something worse actually.” Those women who were thoroughly informed by their doctor on what to anticipate while using the medication felt more comfortable with the process: “They let me know exactly what to do beforehand, and so that made everything easier. Keeping up with the – knowing what to do with the medication... That's what we did, they let me know I could lay down, get a movie, get a favorite food, et cetera.”

DISCUSSION

In this mixed-methods study of women seeking management for a current, clinically stable, first trimester miscarriage, we found that the choice of management strategy was influenced by the woman's socio-economic status, the opinion of those she trusts (including her physician), her experience with the current pregnancy, her past pregnancy experiences (or lack thereof), and the time investment required for treatment. Physicians from a variety of practice settings had independent insight into the majority of these considerations. In our population, women who had had prior personal experience with any pregnancy, and more specifically an interrupted pregnancy (spontaneous or induced abortion) were able to use this knowledge-base to inform their management preferences for the current pregnancy, while women without prior pregnancy experiences were less likely to bring strong opinions to the clinical encounter and looked to their physician team for directive counseling. Prior literature has suggested that specialized attention from medical providers can be therapeutic to women and couples experiencing pregnancy loss [19, 20]. Our results suggested specifically that women new to pregnancy rely more heavily on their clinician for guidance, and that they might benefit most substantively from care from providers with expertise in miscarriage management experiences and outcomes.

Women reported the importance of having control and self-determination in concluding their miscarriage in a timely manner. In our sample, many women of higher socio-economic status chose surgical management, and cited the need to return to work and family obligations as a primary rationale. While both patients and obstetricians value the flexibility and less invasive qualities of medical management, concerns about the probability of incomplete abortion, as high as 15-37% [2] limited its utilization by many. An improved medication regimen for embryonic and fetal demise, or a clinical prediction rule for success, is warranted so that women have the option for this management strategy without sacrificing timely completion of the abortion.

Our data uncovered that satisfaction with management is driven by the experience with the care received, rather than one specific therapeutic option over another. Satisfaction was mainly driven by efficiency of care, confidence in quality of care, sensitive providers, and effective two-way communication. Both the physician and patient-level data show alignment in considering the individual needs of the patient as well as her external demands when choosing a treatment course. Prior studies have suggested that provider treatment preferences influence treatment recommendations [3], but our mixed method data show that

physicians hoped to facilitate the patient making her *own* management decision. Physicians grappled with the counseling the process, stating simultaneously that the management choice should be patient-driven, but that their medical knowledge and experience was of value. Our patient-level data also show (and support what others have suggested [4]) that not all women feel equipped to make the management decision. The data highlight that a critical gap exists in how to structure patient-centered miscarriage management counseling. Primigravidity could be an alert that a patient may require more in-depth guidance on miscarriage management decision making. A decision tool to aid in patient counseling and shared-decision making, could be of benefit.

Our study has limitations. All patient participants were recruited from a single clinical research site and all participants were English speaking to maximize integrity of the linguistic subtleties during data interpretation, so our results may not be generalizable. However, many women were referred from other practices and hospitals in the region, so the range of their clinical care experience was representative of many different practice patterns. Similarly, while the physicians we interviewed were all obstetricians and gynecologists, so may not be representative of all pregnancy-care providers [3], they came from a range of practice sites, clinical expertise, races and both sexes. While our sample size was small, the distribution of our population was diverse, and our use of purposive sampling allowed us to describe a wide range of experiences, and attaining thematic saturation enabled us to distill the range of ideas in the population. Given that we found class differences in miscarriage experience and management choice, regional differences may also occur. Future research to validate our findings nationally would be useful.

Our study populations' narratives make clear that women do not make a miscarriage management decision in a vacuum, but instead their management preferences are highly influenced by the woman's a priori experience with the diagnostic and treatment process of the miscarriage (length of time, quality of their interactions with the clinical team) in addition to her personal pregnancy history and social pressures. Meanwhile, physicians grapple with systems limitations to delivering timely, patient-centered care. The ready availability of highly sensitive urine pregnancy tests and early pregnancy recognition has revealed the high prevalence of pregnancy loss and recent data show that misconceptions and feelings of isolation are all too common [19]. Pregnancy loss has been traditionally been considered inevitable and untreatable by mainstream medicine, and support services therefore emerged as an adjunctive, not integrated, social movement [21]. Given the incidence and prevalence of this diagnosis, one million times annually in the United States [22, 23], it is time to ameliorate our approach to miscarriage care. This study highlights some of the systems, therapeutic, and counseling gaps that can be addressed in clinical care and advanced by future research.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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REFERENCES

1. Jones RK, Kost K. Underreporting of induced and spontaneous abortion in the United States: an analysis of the 2002 National Survey of Family Growth. *Stud Fam Plann.* 2007; 38:187–97. [PubMed: 17933292]
2. Neilson JP, Hickey M, Vazquez J. Medical treatment for early fetal death (less than 24 weeks). *Cochrane Database Syst Rev.* 2006:CD002253. [PubMed: 16855990]
3. Dalton V, Harris L, Gold KJ, Kane-Low L, Schulkin J, Guire K, et al. Provider knowledge, attitudes, and treatment preference for early pregnancy failure. *Am J Obstet Gynecol.* 2010; 202:531. e1-8. [PubMed: 20227674]
4. Wallace R, Goodman S, Freedman LR, Dalton V, Harris L. Counseling women with early pregnancy failure: utilizing evidence, preserving preference. *Patient Educ and Counseling.* 2010; 81:454–61.
5. Petrou S, Trinder J, Brocklehurst P, Smith L. Economic evaluation of alternative management methods of first trimester miscarriage based on results from the MIST trial. *BJOG.* 2006; 113:879–89. [PubMed: 16827823]
6. Smith LF, Frost J, Levitas R, Bradley H, Garcia J. Women's experiences of three early miscarriage management options: a qualitative study. *Br J Gen Pract.* 2006; 56:198–205. [PubMed: 16536960]
7. Trinder J, Brocklehurst P, Porter R, Read M, Vyas S, Smith L. Management of miscarriage: expectant, medical, or surgical? Results of randomized controlled trial (miscarriage treatment (MIST) trial). *BMJ.* 2006; 332:1235–40. [PubMed: 16707509]
8. Curry LA, Krumholz HM, O' Cathain A, Plano Clark VL, Cherlin E, Bradley EH. Mixed methods in biomedical and health services research. *Circ Cardiovasc Qual Outcomes.* 2013; 6:119–23. [PubMed: 23322807]
9. Radloff LS. The CES-D Scale: A self-report depression scale for research in the general population. *Appl Psych Meas.* 1977; 1:385–401.
10. Beck A, Epstein N, Brown G, Steer RA. BAI: An inventory for measuring clinical anxiety: Psychometric properties. *J Consult Clin Psych.* 1988; 56:893–7.
11. Cohen S, Kamarck T, Mermelstein R. A global measure of perceived stress. *J Health Soc Behav.* 1983; 24:386–96.
12. Lang AJ, Stein MB. An abbreviated PTSD checklist for use as a screening instrument in primary care. *Behav Res Ther.* 2005; 43:585–94. [PubMed: 15865914]
13. O'Hara MW, Rehm LP, Campbell SB. Postpartum depression: A role for social network and life stress variables. *J Nerv Ment Dis.* 1983; 171:336–41. [PubMed: 6854298]
14. Montano, DE.; Kasprzyk, D. Theory of reasoned action, theory of planned behavior, and the integrated behavioral model. In: Glanz, K.; Rimer, BK.; Viswanath, K., editors. *Health Behavior: Theory, Research and Practice.* 5th. Jossey Bass; San Francisco (CA): 2015. p. 104-33.
15. Bernard, HR. *Social research methods: Qualitative and quantitative approaches.* Sage Publications; Thousand Oaks (CA): 2013.
16. Morse, JM. Designing Funded Qualitative Research. In: Denzin, NK.; Lincoln, YS., editors. *The SAGE Handbook of Qualitative Research.* 1st. Sage Publications Ltd.; Thousand Oaks (CA): 1994. p. 220-35.
17. Bernard, HR. *Research Methods in Anthropology (Qualitative and Quantitative Approaches).* 3rd. Walnut Creek (CA): AltaMira Press: 2002. *Qualitative Data Analysis I: Text Analysis;* p. 440-88.
18. Bradley EH, Curry LA, Devers KJ. Qualitative data analysis for health services research: developing taxonomy, themes, and theory. *Health Serv Res.* Aug.2007 42:1758–72. [PubMed: 17286625]
19. Bardos J, Hercz D, Friedenthal J, Missmer SA, Williams Z. A national survey on public perceptions of miscarriage. *Obstet Gynecol.* 2015; 125:1313–20. [PubMed: 26000502]
20. Van P. Conversations, coping, & connectedness: A qualitative study of women who have experienced involuntary pregnancy loss. *Omega-J Death Dying.* 2012; 65:71–85.
21. Layne LL. Pregnancy and infant loss support: a new, feminist, American, patient movement? *Soc Sci Med.* 2006; 62:602–13. [PubMed: 16194590]

22. Katz, VL. Spontaneous and recurrent abortion: etiology, diagnosis, treatment. In: Katz, VL.; Lentz, GM.; Lobo, RA.; Gershenson, DM., editors. *Comprehensive gynecology*. 6th. Elsevier Mosby; Philadelphia (PA): 2012. p. 335-59.
23. Centers for Disease Control and Prevention. National Center for Health Statistics, National Vital Statistics Reports. Vol. 60. Centers for Disease Control and Prevention; Atlanta (GA): 2012.

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Table 1

Baseline patient participant demographic, clinical and psychosocial characteristics according to miscarriage management received.

Characteristics (n=55)		Expectant (n=2)	Medical (n=19)	Surgical (n=34)
Age (years)		35 (35-36)	29 (19-41)	33 (18-44)
Race	Black	2 (100)	10 (53)	15 (44)
	White	0 (0)	7 (37)	14 (41)
	Other/missing	0 (0)	2 (10)	5 (15)
Ethnicity	Non-Hispanic	2 (100)	18 (95)	33 (97)
	Hispanic	0 (0)	1 (5)	1 (3)
Married or cohabiting	No	2 (100)	10 (53)	11 (32)
	Yes	0 (0)	9 (47)	23 (68)
Education	<=High school	1 (50)	10 (53) [*]	7 (21)
	>=Some college	1 (50)	9 (47) [*]	27 (79)
Monthly income >\$1200	No	1 (50)	12 (63) ^{**}	10 (30)
	Yes	1 (50)	7 (37) ^{**}	24 (70)
Gravidity (current)	1	0 (0)	6 (32)	6 (18)
	2+	2 (100)	13 (68)	28 (82)
Parity	0	0 (0)	9 (47)	13 (38)
	1+	2 (100)	10 (53)	21 (62)
Spontaneous abortions	0	0 (0)	14 (74)	21 (62)
(previous)	1+	2 (100)	5 (26)	13 (38)
Induced abortions	0	0 (0)	13 (68)	21 (62)
	1+	2 (100)	6 (32)	13 (38)
Depressed	No (<16) ¹	0 (0)	3 (16) [*]	15 (45)
	Yes (>=16) ¹	2 (100)	16 (84) [*]	18 (55)
Anxiety	No (<16) ²	0 (0)	12 (63)	21 (64)
	Yes (>=16) ²	2 (100)	7 (37)	13 (36)
Stress	No (<13.7) ³	0 (0)	4 (21)	12 (36)
	Yes (>=13.7) ³	2 (100)	15 (79)	21 (64)
PTSD symptoms	No	0 (0)	15 (79)	25 (78)
	Yes	2 (100)	4 (21)	7 (22)

Median and range or n (%) are shown,

¹CES-D score

²Beck Anxiety Inventory

³Perceived Stress Scale. Medical vs. Surgery

*
p<0.05 Chi squared test

**
p<0.01 Kruskal-Wallis rank test.

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Table 2

Factors related to choosing Surgical rather than Medical treatment for miscarriage: results of logistic regression analysis

Factor	Unadjusted OR (95%CI)	P	Adjusted OR ¹ (95%CI)	P
Monthly income ²	1.32 (1.08, 1.62)	.006	1.30 (1.04, 1.63)	.023
Education				.4
<= High school	Reference			
>= Some college	4.29 (1.26, 14.60)	.020		
Social support q15 ³	2.81 (1.37, 5.75)	.005	2.45 (1.07, 5.61)	.035
Depressed (CES-D score)				
No (<16)	Reference		Reference	
Yes (>=16)	0.23 (0.05, 0.92)	.038	0.27 (0.06, 1.28)	.098

OR, odds ratio; CI, confidence interval. N=55 (34 received surgical management and 19 received medical management).

¹Multivariate analysis included Monthly income, Social support q15 (Question 15: 'when you may need help ... do you turn to the people available to you?') and Depressed in a combined model.

²Monthly income was measured in brackets of \$400 per month, with a base bracket of \$0.

³Social support was measured on a 5-point Likert scale (1:Never, 2:Rarely, 3:Sometimes, 4:Usually, 5:Always) and was found to be linearly related to the probability of surgical treatment.

⁴When Education was included in a separate regression in place of Income (due to collinearity), the Education adjusted OR was 2.82 (0.69, 11.45), p=.148.

Table 3

Major patient consideration themes regarding miscarriage management

Theme	Medical	Surgical
Acceptance of Pregnancy Loss	<i>I really, honestly, I didn't want to wait it out, like I said, because I already didn't know how long ... the fetus didn't have a heartbeat inside me and I really didn't want to wait just for that reason.</i>	<i>I was ready to move on from the horrible news I've heard. I felt like once I got this news, I just wanted it out.</i>
Timing & Control of Miscarriage Process	<i>So when she gave me the pills she said I can either take them today or tomorrow... And as long as it gets done, that's the only thing I care about.</i>	<i>I didn't want to be miscarrying at work. That would be number one. So [either] the medicine or the procedure. And then I went with the procedure because I didn't want to prolong it in case everything didn't happen the first time.</i>
Home & Work Responsibilities	<i>So I'd rather be in the comfort of my own home with a bed, TV or whatever the case is, so I can be comfortable.</i>	<i>I'm a manager of about 150 people and I make decisions for them every day that I go to work. So it's hard for me to follow behind somebody else's ideas, decision, choice, opinion. And I have three children: one that's in college and two small children – ten and five. And that's just not something that I wanted to happen at home, especially at work.</i>
Pain & Physical Aversions	<i>Yeah, natural passing was just taking too long. I couldn't bear the pain of with the D&C, so I just figured the pill was my last option.</i>	<i>I faint at the sight of blood... that's just not something I can deal with, let alone the evidence of a baby or something.</i>
Prior pregnancy experience:	<i>I chose to do it at home because I already know what it is to get the surgery. It was more intimate being home. I know ... the first time I miscarried being angry and you're sad ... I did not want to take it out on anybody else.</i>	<i>Since I'd had abortions in the past I knew what it was like. It's just about whether or not they were going to scrape it out, or use a vacuum ... other than that, I knew that was going to happen.</i>
Understanding of Management Choices	<i>The option to let it pass on its own...I wouldn't know exactly when ...and I wanted it to be the right time and place. I don't want it just to happen anywhere. So that wasn't good for me. So then the one that sounded like abortion, that wasn't a good option for me because I had one prior, and I don't have good memories of that. And the pill seemed like a better option because I had more control over the situation. Even though I didn't have control of what happened, it felt like I had some control of how I handled it.</i>	<i>...she offered me to either let it pass through or to take a vaginal medicine to have it pass through. Either – but both of those options I felt like I would've had to come back to the hospital to make sure everything was fully out, so I figured that by me getting it aspirated right here that everything will be out and I wouldn't have to come back to go through the trauma again.</i>
Health and Safety	<i>I chose it because I didn't want the scaring [from surgery]</i>	<i>But I know from what my mother-in-law said, if I was carrying a dead baby, that toxins would be going through my body. That's why I decided, to get the D&C.</i>
Opinions of Physician, Family, and Friends	<i>It was a very personal decision to take the medication. I was afraid of the other option. Actually I called [my doctor who] ... was an important part of the decision.</i>	<i>My first thought was to get this over with as quickly as possible. And so I was leaning towards the surgical route a little bit. My mom, a nurse, helped advise me too. So that was instrumental in picking the decision I did.</i>

Table 4

Physician demographics

Characteristic		Value
Age (years)		46 (32-63)
Gender	Female	7 (47)
	Male	8 (53)
Race	African-American	2 (13)
	White	12 (80)
	Asian	1 (7)
Ethnicity	Non-Hispanic	14 (93)
	Hispanic	1 (7)
Hospital	University Hospital	5 (33)
	Community Hospital 1	3 (20)
	Community Hospital 2	5(33)
	Community Hospital 3	2 (13)
Years in Practice		15 (1.5-34)
Specialty	Obstetrics/Gynecology	9 (60)
	Gynecology	2 (13)
	Maternal Fetal Medicine	3 (20)
	Perinatal genetics	1 (7)

Median and range or n (%) are shown. N=15

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Table 5

Initial and final treatment decisions of women who changed their management method after counseling, and corresponding satisfaction.

ID	Gravidity	Direction of management change	Satisfied with final outcome?
18	1	Expectant to Medical	Yes
26	1	Expectant to Surgical	Yes
27	1	Expectant to Surgical	Yes
32	1	Medical to Surgical	Yes
55	1	Surgical to Medical	Yes
25	2	Expectant to Surgical	Yes
28	3	Expectant to Surgical	Yes
42	3	Surgical to Medical	Not known
39	5	Expectant to Surgical	Yes
12	7	Expectant to Surgical	Not known

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Table 6

Major physician consideration themes regarding miscarriage management

Theme	Representative quote
<i>Opinions of Physician, Family, and Friends</i>	<i>You know, it's my responsibility to give them an even picture where I'm trying not to seemingly support one over another. If for a particular patient I do, I'll tell them that, you know what? I like this one. And then I'll tell them why I like that one, and not the other options. And I'll tell them why I don't like the other options, and [then] they have some sense of what my thought process is.</i>
<i>Pain & Physical Aversions</i>	<i>I phrase it... if you are willing to go through the process of the miscarriage at home [...] then I say that's what you should do. But I tell them if they're the type of person that's going...rush to the emergency room; they're going to end up with a D&E anyway.</i>
<i>Timing & Control of Miscarriage Process</i>	<i>It would be easier if I had more physicians who did manual aspirations in the office. There's really only one person who does that and as a result a lot of these patients ... then have some limits in the options available to them.</i>
<i>Prior Pregnancy Experience</i>	<i>I think with the ones who've had it before ... they've sort of already made up their mind ... if they had a decent experience with the certain option they'll go for that or if they didn't, they'll go for something else...</i>
<i>Understanding of Management Choices</i>	<i>I generally give detailed information about the risks, benefits and alternatives including the percentage of success and the likelihood of further complications and I help them make a decision that's right for them.</i>