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# Perspectives of pregnancy and motherhood among general surgery residents: A qualitative analysis

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#### ARTICLE INFO

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#### ABSTRACT

*Introduction:* Prior work shows pregnancy during surgical residency may negatively impact career satisfaction and increase risk of attrition. We sought to gain deeper insight into the experience of childbearing trainees.

*Methods*: An electronic survey with three open-ended questions was sent to surgeons who had  $\geq 1$  pregnancy during a US general surgery training program. Transcripts were analyzed using directed content analysis and the constant comparative approach.

Results: Six themes characterized the pregnancy experience of 219 surgeons in residency. Respondents: 1)desired work modifications during the late stages of pregnancy due to health concerns; 2)regarded maternity leave as too short; 3)perceived stigma related to pregnancy; 4)expressed need for greater lactation and childcare support; 5)desired mentorship on work-family integration; 6)placed value on supportive colleagues and faculty.

*Conclusion:* Pregnancy is challenging during surgical residency. These findings may inform policy changes to improve retention and recruitment of women trainees who wish to begin families during residency.

Summary: Surgical residents who go through pregnancy during training face challenges that may negatively impact career satisfaction. This qualitative study of responses to open-ended questions in a national survey of 219 pregnant surgical residents characterizes the experience of childbearing in training. Respondents described the desire for work modifications late in pregnancy due to health concerns and longer maternity leave, had concerns about stigma related to pregnancy in training, expressed need for greater lactation and childcare support, desired mentorship on work-life integration, and placed value on supportive peers and faculty.

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#### Introduction

Women make up half of recent medical school graduates and one-third of general surgery applicants.<sup>1,2</sup> Studies suggest that

https://doi.org/10.1016/j.amjsurg.2018.07.036 0002-9610/© 2018 Elsevier Inc. All rights reserved. stereotypes of the surgical lifestyle and the desire to have a family deter women from the profession. Among those who enter surgical residency programs, attrition is a concern.<sup>3</sup> Despite duty hour restrictions, lifestyle considerations continue to be one of the greatest drivers of trainees leaving the specialty.<sup>4,5</sup> Generational changes in family priorities may contribute to work-life balance concerns, including more women who choose to have children during surgical residency rather than wait until completion of training as in the past.<sup>6</sup> The impact of female gender on the risk of attrition varies across studies.<sup>4,5,7</sup> Prior work<sup>8</sup> suggests that women who go through pregnancy during surgical training have significant risk of

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career dissatisfaction, with 39% seriously considering leaving residency and 30% reporting they would advise female students against the profession due to difficulties balancing family and career. To recruit and retain the brightest candidates to the field, we must understand the perceptions of a growing group of trainees who undergo pregnancy during residency.

Previous surveys on pregnancy during graduate medical education provide insight into perceived stress related to faculty and peer attitudes,<sup>6</sup> inflexible educational requirements,<sup>9</sup> guilt over the burden imposed on colleagues by maternity leave,<sup>10</sup> challenges with breastfeeding and childcare, <sup>10–12</sup> and concern for maternalfetal health.<sup>13</sup> However, information from many of these studies is constrained by limiting input to issues predetermined by the researchers in structured, forced-choice questionnaires. In addition, many surveys focus on negative rather than positive experiences. Surgical leaders and educators must gain a deeper understanding of the complex and multifaceted challenges facing pregnant residents to inform effective policy changes that mitigate career dissatisfaction and risk of attrition. The current study builds on prior work by characterizing the perspectives of pregnant surgical residents in depth and identifying positive influences that improve the experience of childbearing trainees though qualitative analysis of open-ended questions.

#### Methods

Study design and participants

As previously reported, <sup>8</sup> a 74-question survey was electronically distributed in January 2017 to all active members of the Association of Women Surgeons (AWS), to members of the Association of Program Directors in Surgery (APDS) listserv, and through social media platforms including Facebook and Twitter. Two closed groups in Facebook were utilized, the Physician Moms Group and Surgeon Moms Group, in which access to membership is by private invitation of another physician or surgeon. Program directors were asked to forward the link to current and past female trainees. Participation was elective and responses were anonymous. The survey was available online for 4 weeks. Women who had  $\geq 1$  pregnancy during an Accreditation Council for Graduate Medical Education-accredited United States training program, and who graduated or were anticipated to graduate 2007 or later, were included.

The structured portion of the survey collected information on demographics, timing of pregnancy during residency, program information, and postgraduate fellowship or practice plans. Questions addressed topics of working while pregnant, maternity leave policies, lactation and childcare support, and career satisfaction. Survey development and responses to the structured questions were previously published.<sup>8</sup>

To gain a deeper understanding of participants' perspectives, three open-ended questions were included:

- "What is the main change that would have made your experience of pregnancy during surgical residency more manageable?"
- "Is there anything else you want to share about your experience of pregnancy during training?"
- "Are there any topics we did not address or aspects of residency programs that we should ask about?"

A qualitative approach, which is ideally suited for understanding

complex social experiences, expectations, and attitudes, was used to examine responses <sup>14</sup> All responses were collected and managed using REDCap (Research Electronic Data Capture), a secure, webbased data capture tool hosted at Brigham and Women's Hospital. The study was approved by the APDS Committee on Research and granted exemption by the Partners Human Research Committee Institutional Review Board.

#### Qualitative content analysis

Directed content analysis was used to assess responses to the open-ended questions. In this approach, initial codes are generated from existing research or theories. Codes are added as new concepts emerge, which are organized into categories to support or refute prior theories. Although no a priori hypotheses were developed regarding the respondent comments, focus groups held to develop the initial survey informed initial themes. These included: maintenance of reputation while pregnant, maternity leave issues, childcare challenges, and feasibility of nursing/pumping milk in the postpartum period.

Three researchers (ELR, MCA, MC) reviewed the free-text responses and coded them independently using standard techniques of directed qualitative content analysis. 16 A preliminary coding scheme based on the survey themes was iteratively refined and used to analyze the data using the constant comparative approach, a systematic process used in qualitative research.<sup>17</sup> Open coding procedures allowed new themes to be identified in addition to the established themes, and revisions were applied to all responses that had been previously coded. The team met at regular intervals to discuss codes and differences were reconciled by consensus until 100% agreement was reached. A finalized codebook was created and entered into Atlas.ti 8 (Scientific Software Development, GmbH) Berlin) textual software. Content analysis generated major themes and subthemes, and relevant quotes were classified according to these. The responses were continuously reviewed until thematic saturation was reached, determined by repetitive patterns and lack of new ideas or themes.<sup>16</sup>

#### Results

347 women (mean [SD] age, 30.5 [2.7] years) participated in the study and met inclusion criteria. 219 (63.1%) responded to the open-ended questions. There were no significant differences in demographics, training program characteristics, or training program level during pregnancy between those who answered the open-ended questions and those who did not.

Qualitative content analysis revealed 6 major themes with subthemes that characterized the experiences of residents who were pregnant during surgical training. These are presented below and in Table 1 with illustrative quotes.

Theme 1: desire for work modification during the late stages of pregnancy due to health concerns

Pregnant residents expressed concern about the impact of rigorous rotations on maternal and fetal health. Those who were required to make up the call they would miss during maternity leave perceived the increased workload adversely affected their health and influenced pregnancy outcomes. Respondents who reported pregnancy complications, including preterm delivery and fetal loss, attributed these outcomes to heavy work schedules close to delivery.

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