AJR FOCUS ON:

Women in Interventional Radiology: How Are We Doing?

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OBJECTIVE. This article describes survey findings as well as provides a narrative description of the issues facing women in interventional radiology (IR) today.

MATERIALS AND METHODS. In an attempt to reflect the experiences of as many women interventional radiologists as possible, a survey was conducted via a post on the Women in Interventional Radiology page of SIR Connect, the online members-only forum of the Society of Interventional Radiology (SIR). The survey consisted of 62 items, including demographics, marital and parental status, experiences in training, relationships with coworkers and patients, and details about career achievements and goals. Respondents were encouraged to write comments. We analyzed responses for trends and reviewed comments.

RESULTS. Ninety-nine surveys were completed. Women at all phases of training and practice and in a broad range of practice settings were represented. Many women responding to the survey reported experiences with gender bias, discrimination, and sexual harassment.

CONCLUSION. Further research is needed to better understand gender bias in IR and how it affects women throughout their training and careers. From this research, evidence-based interventions can be implemented to help level the playing field for all. Women are committed to and passionate about IR, and IR needs women to succeed so that the field can continue to thrive.

Keywords: gender equity, interventional radiology, women

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Women have been historically underrepresented in interventional radiology (IR). Although many articles have addressed reasons why women may not choose IR, there has been very little written about what it is like for the women currently in IR. This article describes survey findings as well as provides a narrative description of the issues facing women in IR today. Relevant literature from other specialties is discussed. Finally, recommendations are made to address some of the gender inequities existing in IR today.

Not since the 1960s have gender matters been more in the news. The Women's March, #MeToo movement, and Harvey Weinstein have brought issues such as sexual harassment, pay inequity, and gender discrimination to the forefront. Terms such as unconscious bias, microaggression, and diversity and inclusion have entered our everyday vernacular. Women are empowered to speak about the inequities they have faced in the workplace, institutions are looking at their policies, and men are thinking about their actions and inactions. IR is not immune from this discussion. Women's experiences are different than men's. We believe that understanding and validating these differences are the first steps to making our specialty a more equitable environment for all.

Women have been interventional radiologists since the beginning of the specialty. In 1973, Helen Redman, Ethel Finck, and Renate Soulen were among the first Fellows in the Society of Cardiovascular and Interventional Radiology. When applying to radiology residency, Dr. Soulen was told by her first-choice program that because of her "determination to have a family, we do not think you are a good fit" [1]. She did find a residency and ultimately selected a position that combined clinical care and research. She credits a "liberated" husband and excellent household help with her ability to balance her work and family responsibilities. But it was not always a female-friendly environment. In those days, physician bathrooms were for men only. After complaining about this at a staff meeting, she found a bedpan on her desk with a note that said, "If urgent, use this" [1].

Although some may find her story amusing, if you are a woman working in a male-dominated specialty, this is offensive. Fortu-

TABLE 1: Characteristics of Survey Respondents

Characteristic	No. of Survey Respondents
In training	
Medical student	8
Radiology resident	7
IR or DR resident	4
IR fellow	6
Interventional radiologist	72
0–2 years of experience	22
3–5 years of experience	15
6–10 years of experience	11
11–20 years of experience	14
> 20 years of experience	10
Nurse practitioner	2
Practice setting	
Academic	51
Nonacademic	8
Hospital	15
Partner in DR group	8
Partner in IR group	3
Employed by practice	9
VA employee	5
Military employee	1
Other	15
Marital status	
Married	58
Single	29
Live-in partner	8
Divorced or separated	3
Partner's work status	
Full time	41
Full time and call	16
Part time	13
Not employed	10

Note—Partner's work status includes women with noncommunal partners. DR = diagnostic radiology, IR = interventional radiology.

nately, most women today do not experience such blatant harassment. But we do feel the sting of being in the minority and of sometimes not feeling welcome despite the fact that we are as passionate about IR as our male colleagues are. There are overt and subtle actions and assumptions that affect opportunities for leadership, professional development, mentoring, and recruiting and training the next generation. The purpose of this article is to review our experiences and tell our stories. What is it like to be a woman in IR today? How does our gender influence the course of our career? And, finally, what can be done to help make IR as gender equitable as possible?

Materials and Methods

In an attempt to reflect the experiences of as many women interventional radiologists as possible, we conducted a survey. For 1 week, the survey was posted on the Women in Interventional Radiology page of SIR Connect, the online members-only forum of the Society of Interventional Radiology (SIR). The survey consisted of 62 items, including demographics, marital and parental status, experiences in training, relationships with coworkers and patients, and details about career achievements and goals. Respondents were encouraged to write comments. We analyzed responses for trends and reviewed comments. We have included our personal stories as well as those told to us. Specific details have been modified to protect individuals' privacy. In addition, relevant studies in the literature from other specialties are presented.

Results

Ninety-nine surveys were completed. Women at all phases of training and practice were represented (Table 1). Two respondents were nurse practitioners, and eight were medical students. Most are full-time interventional radiologists, and others practice a combination of diagnostic radiology (DR) and IR. Respondents represent a broad range of practice settings, including academics, IR freestanding facilities, IR and DR private practices, and hospital and government employment.

Family Life

Choosing to get married and choosing whether or not to have children are personal decisions. Being an interventional radiologist should not preclude having a family. Having a family and a career should not be mutually exclusive. But, there are sacrifices. Many women in our survey expressed the sentiment that "you can have it all, just not at the same time."

All physicians face challenges balancing work and home life. Physically demanding careers with long and unpredictable hours can make finding a balance difficult for interventional radiologists. Among the survey respondents, 67% of female interventional radiologists are married or in long-term relationships, and 48% have children. Unfortunately, research has shown that being married and having a family pose more challenges for women than men [2]. Among female surgeons, being married or in a committed relationship is associated with more emotional exhaustion than being single. Similarly, female surgeons with children are more emotionally exhausted than those without children. This is not the case for married male surgeons and those with children. They are significantly less exhausted than single men and those without children [2]. Of the survey respondents who are in couples, 32% are with other physicians. Ly et al. [3] found that female physicians were more likely than male physicians to be married to another physician and were also more likely to have a spouse who works outside the home. Although some believe that having a partner in medicine offers benefits such as understanding the demands of job, a 2010 survey of surgeons concluded that physicians married to other physicians have more difficulty balancing work and family life than when one partner is not a physician [4]. Balancing two demanding careers is obviously more challenging than one.

Among the female interventional radiologists surveyed, many said that they equally share household responsibilities with their partner (Fig. 1). However, more than 50% of respondents reported doing the majority of the laundry, cooking, daily cleaning, paying the bills, and grocery shopping. They also are the family coordinators and reported being the ones who schedule and attend doctor's appointments with their children and teacher conferences. Many women use their vacation time to stay home when their children are sick. These findings are reflective of trends among all families and couples. Other researchers have found that regardless of the number of hours worked outside the home, women performed 67% of the household tasks [5]. Overall, most women spend much more of their time cooking, cleaning, and taking care of children than their husbands [5].

Working together with a supportive spouse is essential for a woman to balance a successful professional career with family life. In her book *Lean In*, Sheryl Sandberg [6] states that the "single most important career decision that a woman makes is whether she will have a life partner and who that partner is." Forty-five years ago, Dr. Soulen and her husband realized this; they worked together to raise three children and balance two careers. Women in IR are doing this today as well, but even with the most supportive partner, it remains a challenge.

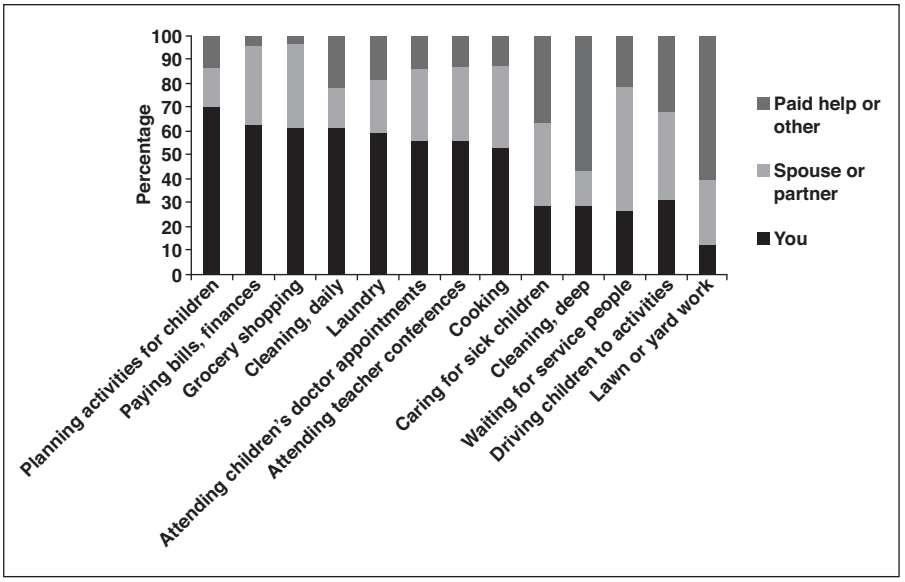

Fig. 1—Bar graph shows survey results. Many respondents said that they equally share household responsibilities with their partner. However, more than 50% of respondents reported doing majority of laundry, cooking, daily cleaning, paying bills, and grocery shopping. They also are family coordinators and reported scheduling and attending doctor's appointments with their children and teacher conferences.

Pregnancy

The experience of pregnant women in IR is quite variable. Many reported that they have supportive colleagues and adequate maternity leave. However, some work in hostile environments with overt animosity toward the pregnant woman. Many women work in practices with no parental leave policy or the policy is unknown. Call expectations are unclear. Having to use vacation time for maternity leave is not rare. Fifty-three percent of survey respondents felt that the length of their maternity leave was inadequate. For trainees, there is the additional burden that the American Board of Radiology requires that a resident take no more than a maximum number of 120 days of leave over 4 years [7]. This requirement can be a challenge for a pregnant resident to meet. As a result, many women trainees take a very short maternity leave to not disrupt the start of their fellowships.

Survey responses indicated that most women who breastfeed their babies report difficulties managing this while working. Inadequate pumping facilities and inflexible schedules are the common obstacles. Women have to pump in restrooms and shared offices. Privacy is a problem. Some women feel that there is inadequate time between cases and that maintaining a milk supply is difficult.

There are many potential negative side effects of pregnancy on work. In other specialties, there is evidence showing that pregnant residents receive worse reviews than their nonpregnant colleagues [7–9]. Rangel et al. [8] reported that 39% of female surgical residents who had children during their surgical residency strongly considered leaving their training and that 29.5% would discourage female medical students from pursuing careers as surgeons because balancing pregnancy and motherhood with training is so difficult. Although we don't have similar data for women in IR, these studies show the potential negative effects that inflexible schedules and subtle biases can have on pregnant women.

Pregnancy and motherhood are normal life events. Similarly, early fatherhood should be recognized as an essential time for men to spend with their families. Accommodation for these experiences must be normalized. Maternity leave and paternity leave represent a relatively short time in the course of a career. Taking this time should not be penalized; it should be celebrated and encouraged.

Gender Bias, Discrimination, and Harassment

Although 19% of women responding to our survey said they were discouraged from pursuing a career in radiology, 43% were discouraged from becoming an interventional radiologist. Women are told as early as high school that they are not smart enough to be a doctor or that the field is too competitive. Some women are told that they are too nice. Many women are told that being an interventional radiologist is too much work or is not compatible with having a family. Women are falsely advised that radiation exposure is too dangerous. According to our survey, many women were encouraged to pursue breast imaging as a better lifestyle job. Discouragement can come from many angles and throughout a woman's career. DR faculty and some interventional radiologists tell women that IR is not a good field for women and especially for women who want a family. Imagine thinking that you want to have a career that is interesting and challenging and helps people and being told that it is not a good field for you because you are a woman. Luckily there are influential role models who encourage women. Male interventional radiologists are the role models most frequently reported by survey respondents, but almost one-third of women interventional radiologists said that they had a female interventional radiologist as a role model in training. Despite some negative experiences, most female interventional radiologists who responded to the survey reported that their training was a positive experience.

One-third of trainees and half of women in IR practice reported experiencing discrimination based on their gender. Women feel that assumptions are made about their career goals. They are overlooked for leadership positions and encouraged to focus on other areas, including education. They see that men are given more opportunities for research or speaking. Women report that they feel that they have to be better than the men to be treated equally and to earn the respect of their partners and referring physicians.

Gender bias is experienced in other ways. Ninety-one percent of survey respondents reported being mistaken for a nurse. Every female interventional radiologist has to work to be identified as the physician in the room. It is a common experience that patients or even referring physicians will assume that the man in the room, not the woman, is the attending physician even if he is a nurse, medical student, or junior trainee. Most women say they are treated differently by patients. More than half of the women surveyed said they are treated differently than their male colleagues by their male partners, nurses, and technologists. Research has shown that female physicians have a more difficult time working with female nurses than male physicians [9, 10]. These problems are not unique to IR, but they make each day a little more challenging and a little more of a struggle.

In every specialty of medicine that has available data, men earn more money than women [10, 11]. Surveys that adjust for experience, number of patients seen, and other factors show a discrepancy between what men and women earn. Although many women in IR say that their salaries are similar to their partners', 46% of the women surveyed reported a lack of salary transparency in their practice. At the very least, this opens the door for additional investigation.

Sexual harassment is a traumatic and demoralizing experience. Twenty-two percent of women responding to our survey experienced sexual harassment during training, and 47% reported experiencing sexual harassment in practice. Women are subjected to unwelcome advances, suggestive and rude comments, and poor behavior. Only 18% of women who reported being victims of sexual harassment had reported these experiences. Survey respondents said that they do not think they will be taken seriously or they do not want to hurt their training or career opportunities. Of those who did report sexual harassment, some faced ostracism by colleagues or felt that their complaints were disregarded. Women who have been victims and filed lawsuits were then told as a requirement of their settlement that they are not allowed to talk about what happened to them. Although sexual harassment is something experienced by women in all fields of medicine [11, 12], these data are based on current women interventional radiologists and trainees. This is not from the past. This is not in some other specialty. This is us.

Career Development

There is no doubt that IR is currently a male-dominated specialty. Underrepresented in number, women also often feel undervalued. Women are not perceived to be the thought leaders of the specialty or the clinical experts. Five women have been President of the SIR. However, women are not well represented in top leadership positions in other IR organizations and meetings. Very few women are invited as featured or keynote speakers [12, 13]. Very few women are sought after to serve as industry liaisons.

Some may say that many women are not qualified for these positions. More than half of our respondents are involved in research. Kothary et al. [13] and Perez et al. [14] recently showed that the top quartile of women in IR conducting research had a higher median H-index than the top quartile of men. Despite this, at early career stages, women have historically been overlooked and excluded from research and speaking opportunities. Women may not be asked to participate because it is assumed that they are not interested or do not have the time. However, as their careers progress, women may not be as successful as men at getting attention for the work they have completed. Although there are subtle gender differences that may account for this discrepancy, such as women not usually drawing attention to their accomplishments, there is also evidence that gender discrimination is a contributing factor [14–16]. Excluding women from opportunities—whether they are hospital committee appointments, research projects, speaking engagements, or societal leadership—progressively accumulates and leads to greater disparities. The men who are offered these opportunities advance quickly and are given more opportunities while the women are not. Unconscious gender bias is an important factor here, and the result is that women do not ascend the career ladder as far or as quickly as men. Over time, women may take on less-statured roles and are dissuaded from other leadership opportunities. Often women lack the mentors to advise them about the critical steps for self-promotion. Not knowing which opportunities are the most valuable, women will do what is asked of them, not necessarily what will make them most successful. For example, a woman may agree to head a wellness committee instead of asking for a role on the departmental operations committee.

Discussion

For the first time in history, there are more women enrolling in medical school than men [16], and the integrated IR residency was the most competitive specialty in the 2018 match [17, 18]. Although historically fewer than 10% of interventional radiologists have been women, they represent 26% of all medical students currently matching into the integrated IR residency [18, 19]. What explains this discrepancy? Clearly, IR is a career that can attract women. But is it a career that promotes and supports its women? Will the women entering IR training be discouraged by the environment or challenges? What can we do to ensure that women in IR have the same career opportunities as men? How can we show women that their contributions are valued as much as those of men? Can we adapt IR so women who want to have families, conduct research, and speak nationally and become chiefs and chairs can do so? How can we change the culture of IR from a boys' club and ensure the end of sexual harassment and gender bias?

There are many barriers to change. Deipolyi et al. [19, 20] reported how their practice modified the work schedule so that each day some physicians are reliably able to leave work on time. This proactive step improves the quality of life for everyone but may make the job more attractive to women. Are there other steps that can make IR more equitable? Including women in the decision-making helps. In scientific organizations, when women are members of selection committees, they tend to nominate other women [20, 21]. Looking beyond assumptions will also help. Ask women if they are interested in an opportunity. Recommend women as participants. Establish clear policies about parental leave when men and women are hired. Make it easy for women to breastfeed their children while working. Be transparent about salary and steps to promotion. Look at your leadership teams. Are they diverse?

Further research is needed to better understand gender bias in IR and how it affects women throughout their training and careers. From there, evidence-based interventions can be implemented to help level the playing field for all. Women are committed to and passionate about IR. IR needs women to succeed so that the field can continue to thrive.

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