35 Scientific and Medical Careers: Gender and Diversity

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Abstract

Women students and employees are underrepresented in scientific contexts. Similarly, though the number of women medical students is quickly reaching parity with men, women are still underrepresented in the most lucrative medical specialties and at the top of medical hierarchies. Women's experiences in both of these contexts are very similar, yet scholars rarely explore or describe this similarity. In this chapter, we begin to fill this gap by examining the role of the "leaky pipeline", tokenism, the "chilly climate," and career/family concerns for women in both science and medicine.

Despite the steady increase of women entering the workforce over the past few decades, women's representation in science, technology, engineering and math (STEM) and certain medical fields is still relatively low. This underrepresentation has important consequences not only for gendered wage parity and for women's workplace satisfaction, but also for scientific innovation (Beede, Julian, & Langdon, 2011). Overall, women's earnings are only about 80% as much as men's (National Partnership for Women & Families, 2016); their lack of math and science credentials and resulting underrepresentation in STEM careers or in lucrative medical specialties may be one of the leading causes of this wage gap (Boulis & Jacobs, 2008; Davies & Guppy, 1997; Jena, Khullar, Ho, Olenski, & Blumenthal, 2015; Weinberger, 1998). Women, particularly women of color, are underrepresented at the highest levels of academic STEM departments and medical institutions (Committee on Maximizing the Potential of Women in Academic Science and Engineering, 2007; Lautenberger, Dandar, Raezer, & Sloane, 2013; Merchant & Omary, 2010; Nonnemaker, 2000; Valian, 1998), and are evaluated more harshly than their men peers (Basow, Phelan, & Capotosto, 2006; McOwen, Bellini, Guerra, & Shea, 2007). Women also receive substantially less mentoring than men, experience higher rates of gender discrimination and unwanted sexual attention than their men peers and women peers in non-science departments, face higher expectations related to service, and rate their departmental climates most negatively (Hirshfield & Joseph, 2012; Johnsrud, 2002; Martin, 1994; Sonnert & Holton, 1995; Xie & Shauman, 2003).

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Scholars have used multiple frameworks to explain and understand women's experiences in both STEM and medicine,[1] yet they rarely discuss these contexts together. Indeed, numerous sociologists and scholars of higher education have made a concerted effort to understand the causes and consequences of women's underrepresentation in STEM fields and careers. These efforts are mirrored by scholars within medicine and medical education, yet these two groups of scholars rarely cite each other or work to highlight these similarities. In an effort to bridge these two literatures, in this chapter we focus on several of the (interrelated) models used most frequently in sociological scholarship, namely the "leaky pipeline", tokenism, the "chilly" climate, and career/family balance, to describe women's experiences in both STEM fields and in medicine.[2]

1 The Leaky Pipeline

One of the most common metaphors used to describe and understand the dearth of women in STEM or medical fields is that of the "leaky pipeline". Scholars argue that women, particularly women of color, "leak out" at various stages by taking fewer math and science courses in their secondary schools, switching out of STEM majors during college, and choosing not to pursue STEM careers post-graduation (Etzkowitz, Kemelgor, & Uzzi, 2000; Xie & Shauman, 2003). While the so-called "leaky pipeline" appears to leak less in medicine, women are less represented in the most powerful and lucrative specialties and positions (Boulis & Jacobs, 2008; Gjerberg, 2002; Ku, 2011; Martin, Arnold, & Parker, 1988). Although some of these "leaks" seem to be related to gendered choices or preferences, others may be attributed to gender bias in evaluation and promotion (Roth, 2016; West, 1993).

The STEM pipeline begins to "leak" fairly early on, yet while many attribute this leakage to differences in mathematic ability, the overall difference in mathematical ability between boys and girls is small (Hyde, Fennema, & Lamon, 1990). Rather than lacking ability in math and science, girls and women may be underrepresented in STEM fields due to a lack of interest in math and science. Indeed, Eccles and Jacobs (1986) found that social and attitudinal factors (including interest) had a greater influence on grades and enrollment in science/math classes in junior and senior high school than did variations in mathematical ability. Scholars have also demonstrated the effect of "biased self-assessments", or women's lower confidence in their mathematical/scientific abilities, which contributes to their likelihood of entering scientific (and possibly medical) fields (Catsambis, 1994; Correll, 2001). Similarly, students' "professional role confidence", or "confidence in their ability to successfully perform the professional role and confidence in their ability to enjoy and find fulfillment in that role," is significantly predictive of persistence in STEM fields, and women tend to have less professional role confidence (Cech, Rubineau, Silbey, & Seron, 2011, pg. 658).

Regardless of the reason, the gendered gap in STEM course taking has declined very little over the past 50 years or so (Bradley, 2000; Usdansky & Gordon, 2016). That said, these differences in patterns of math/science course taking are not reflected in medical school demographics—the number of women in medical school has increased significantly and they now account for nearly half of medical school graduates (Lautenberger et al., 2013).

On the other hand, though women are enrolled in STEM higher education programs at higher rates than ever before (Xie & Shauman, 2003), there is evidence that women may "leak out" of STEM graduate programs at higher rates than men (Blickenstaff, 2005; Herzig, 2004a). Women's perception of gendered barriers could

[1]For an excellent review of these myriad explanations, see Blickenstaff (2005).

[2]When possible, we include scholarship that specifically focuses on the challenges that women of color in STEM and medicine face. However, these studies are fairly rare (please see Ong (2005) for a wonderful exception).

contribute to these higher attrition rates in grad school; one study found that women self-selected away from academia in response to perceived systemic barriers related to parenthood (van Anders, 2004). Graduate students' feeling of isolation or disconnect between themselves and their advisors is also a considerable predictor of their persistence, particularly for women (Etzkowitz et al., 2000; Herzig, 2004b). Further, women students in traditionally masculine disciplines experience increased gender discrimination and harassment, which is correlated to attrition (Herzig, 2004b; Hirt & Muffo, 1998; Xie & Shauman, 1998). For those women that do receive a STEM degree, there is also no guarantee they will go on to a scientific career: although men and women are equally likely to receive bachelor's and master's degrees in STEM, women remain less likely than men to hold STEM-related jobs post-college (Usdansky & Gordon, 2016).

Similarly, though the number of women in medical school has increased over the past 40 years,[3] there are still major differences in the specialties that women choose (Lautenberger et al., 2013). One explanation for these differences is that women are less likely than men to receive encouragement toward so-called "specialist" specialties (e.g., surgery, anesthesiology, radiology, and pathology) and to have mentors in these specialties (Ku, 2011). This lack of encouragement and mentors is reflected in their subsequent specialty choice: men and women are equally likely to profess interest in high-status specialties, but their final specialty choice is more gendered (Gjerberg, 2002; Lautenberger et al., 2013; Riska, 2001). Specifically, women are more likely to choose primary care specialties (e.g., family medicine, pediatrics, and obstetrics/gynecology) than men, who more commonly choose high-status, specialist specialties. One reason that women may choose lower status specialties is that they are less likely than men to accept standard conceptualizations of the prestige hierarchy in specialties (Hinze, 1999). This, in turn, has important consequences for women's pay, influence, and status within medicine.

Within academic institutions and careers, STEM and medical "leakage" is particularly apparent. The proportion of female tenure track faculty members in STEM departments has not increased at the same rate as in non-STEM fields (Krefting, 2003; Valian, 1998), or with the ratio of women earning doctorates in those fields (Marschke, Laursen, Nielsen, & Rankin, 2007; Valian, 1998). Similarly, though the number of women in medicine has gradually increased, women are still less likely to pursue academic careers and are not well represented in leadership or in the high-prestige, high paying specialties (Ash, Carr, Goldstein, & Friedman, 2004; Carnes, Morrissey, & Geller, 2008; Lautenberger et al., 2013). These differences are partly due to demographic inertia, or the lag between demographic shifts in the incoming population not being immediately reflected in the overall demographics in the workplace (Hargens & Long, 2002; Marschke et al., 2007). However, gender bias in hiring and evaluation also plays a role, and as such, represents another occurrence of "leakage".

Unconscious gender bias causes men's (scientific) curricula vitae to be evaluated much more positively and to be more richly rewarded than comparable women (Steinpreis, Anders, & Ritzke, 1999). Women's work accomplishments are less valued than their men peers, especially within science, a phenomena known as the "Matilda Effect" (Rossiter, 1993), which in turn leads to women's lower promotion rate. Likewise, to be rated as similarly "scientifically competent" to their men peers, women postdoctoral candidates in science had to be roughly 2.5 times more productive (Wenneras & Wold, 1997). Yet, in both science and medicine, women are less likely to be listed as either first or senior author of their published work (Filardo et al., 2016; Jagsi et al., 2006; Sidhu et al., 2009; West, Jacquet, King, Correll, & Bergstrom, 2013). Their work also receives fewer citations, perhaps

[3]Interestingly, though the number of women medical school applicants and matriculants has increased significantly since the 1970s, in recent years there has been a small decline (Roskovensky, Grbic, & Matthew, 2012).

as a result of women's lower likelihood to self-cite (King et al., 2017). Men also win a disproportionate number of grants or awards for their scholarly work given their representation among nominees (Lincoln, Pincus, Koster, & Leboy, 2012). As a result, women may artificially be viewed as less productive than their men peers, due to fewer grants and publications.

Letters of recommendation, which are central to the hiring process for faculty, also vary markedly between those written for women and for men, and as such, constitute another opportunity for women's leakage from both science and medicine. In medicine, letters written for men faculty members are longer, contain fewer expressions of doubt, and contain more high status words (Trix & Psenka, 2003). Men are also more likely to be framed as researchers, while women are more likely to be framed as teachers, despite research being seen as more valuable and higher status than teaching (ibid). In a similar study conducted regarding faculty candidates in chemistry, Schmader, Whitehead and Wysocki (2007) found that though recommenders did not differ significantly in the positivity of their letters or emphasize teaching for women, they did note that letters written for men were more likely to include "standout" adjectives.

In all, the most commonly-used theory related to women's underrepresentation in STEM and medical fields, the "leaky pipeline", continues to be an apt metaphor. Though more and more women are entering both STEM graduate programs and medical school, they are still less likely to persist in STEM fields, to choose high-status medical specialties, or to be promoted to positions at the top of organizational or institutional hierarchies.

2 Tokenism

The absence of women peers and support systems also impacts women's experiences in STEM and medical fields. Kanter's theory of tokenism (1977) suggests that "as a group becomes proportionately smaller, members of that group will experience declines in performance, self-esteem, and satisfaction"; by extension, it is often theorized that individuals should benefit from greater same-gender representation within groups (Sax, 1996, p. 390). Indeed, scholars have argued that women's underrepresentation and tokenism within certain STEM and medical fields may lead to increased identity threat, isolation, and pressure to perform "care work" tasks within their fields. Given the even lower number of women of color in these positions, they are often expected to take up considerably larger burden of mentorship, service, and advocacy, as well as to act as role models for minority students (Blackwell, 1988).

The low proportion of women in STEM majors and fields also leads to a shortage of female peers and colleagues, which has varied effects for women scientists. The proportion of women in a major affects women's satisfaction in that major, though it does not affect their grades, self-concepts, or persistence (Rogers & Menaghan, 1991; Sax, 1994). The gender proportion of college majors has no effect on men's likelihood to persist, but fewer women drop out of female-dominated programs than from gender-balanced or male-dominated ones (Mastekaasa & Smeby, 2006).

One of the consequences of low representation in these spaces is that women face identity threat, or the concern that their own actions reflect (poorly) upon their social group and reinforce negative group stereotypes (Major & O'Brien, 2005). In the case of women in science (and perhaps, in medicine),

> '[Women] are likely to feel that they must do better than their male counterparts in order to be considered equal; that they must demonstrate their worthiness through superior competence before being accepted or taken seriously; and that their mistakes or inadequacies risk being construed as characteristic of women in general.' (Ware, Steckler, & Leserman, 1985, p. 79)

This identity threat, similar to the related concept of stereotype threat, results in many negative psychological and social consequences, including anxiety, arousal, and excessive caution (Major & O'Brien, 2005). Further, as a result of identity threat, women may self-segregate, or seek out peers who are less likely to judge their behaviors as indicative of their social group in general. In other words, identity threat may lead to gender segregation within STEM departments because women may be more likely to seek out other women to study and collaborate with (Hirshfield, 2010). This, in turn, reproduces negative stereotypes about women in science (because men peers have less positive examples to contradict their stereotypes) and may explain women's overrepresentation in lower-prestige subfields (ibid). For women of color in scientific spaces facing negative stereotypes related to women *and* to people of color, this type of threat may be even more extreme (Niemann, 1999; Wingfield, 2010).

As a result of their lower numbers within their departments and universities, women faculty members in science and engineering, especially women of color, also often experience "identity taxation", or extra burdens of formal and informal service responsibilities (Hirshfield & Joseph, 2012; Misra, Lundquist, Holmes, & Agiomavritis, 2011). Identity taxation occurs when faculty members shoulder any labor (physical, mental, emotional) due to their membership in a marginalized group within their department or university (Hirshfield & Joseph, 2012). Just as women academics in STEM tend to shoulder a higher load of teaching and service responsibility (Bellas & Toutkoushian, 1999; Hirshfield & Joseph, 2012; Misra et al., 2011; Nettles, Perna, Bradburn, & Zimbler, 2000), women in academic medicine carry a higher burden of teaching and patient care (Kaplan et al., 1996). This, in turn, can impact their research productivity and, as a result, affect their career growth and mobility (ibid). Indeed, though women are going to medical school at greater rates than ever and are more likely than men to become academics, they are less likely than their men peers to rise to comparable senior ranks (Nonnemaker, 2000). Further, when they do experience career advancement, it happens more slowly and is compensated more poorly (Ash et al., 2004).

Increasing the presence of women role models in STEM and medical fields may seem like an appropriate solution to the challenges facing women tokens, but the effect of role models on women students' persistence in scientific college majors is ambiguous. Some studies find little evidence for positive role model effects (Canes & Rosen, 1995; Hackett, Esposito, & O'Halloran, 1989), while others find a significant effect of faculty role-models on students' choice of math/science college majors, probability of attaining advanced degrees, and likelihood of staying in school (Rask & Bailey, 2002; Robst, Keil, & Russo, 1998; Rothstein, 1995). Regardless, increasing the number of female faculty in a department may not be enough to alleviate issues related to tokenism—social networks that isolate women remain in place even when the number of women in a science department increases because workplace structures do not necessarily shift (Etzkowitz et al., 1994). Further, even when there is a critical mass of women in a department,[4] female faculty are likely to be dispersed in male-dominated workgroups, reducing women's influence and maintaining male-dominated workplace structures (ibid). In fact, women tend to cluster in some scientific fields (such as biology, chemistry, and hybrids like biochemistry or astrophysics) more often than others (like physics or math) (Xie & Shauman, 1998). Similarly, within medicine, women medical students disproportionately specialize in obstetrics and gynecology and pediatrics; as a result, they may be less able to change overall conditions in medical workplaces and contexts (Riska, 2001). On the other hand, women benefit from working in this type of gender-segregated specialty, receiving more instrumental and informational support from women within those spaces than their men colleagues (Wallace, 2014).

[4]In this case, critical mass represents the number of women that is theoretically large enough to shift the departmental climate.

While Kanter argued that tokenism (or numeric scarcity) was a primary factor in creating obstacles for the women she studied, subsequent research has shown that token men in the workplace do not experience the same issues that token women do (Williams, 1991; Yoder, 1991). Indeed, some scholars argue that men tokens may be advantaged in the workplace (Williams, 1991; Zimmer, 1988), though men of color may not experience the same advantages (Harvey Wingfield, 2009).[5] All of these studies illustrate the ways that cultural conceptions of femininity and masculinity are built into the organization of work, or in other words, how organizations are gendered and how gender itself is a structure of inequality (Acker, 1990, 2006; Budig, 2002; Zimmer, 1988). As such, numeric proportion is only part of the story—the underrepresentation of women clearly has important consequences for the women in these fields, but increasing numbers alone will not solve this issue.

3 The Chilly Climate

Even in the absence of tokenism, a "chilly climate" for women in scientific and medical spaces creates yet another challenge to their success in STEM fields. Originally introduced as a way to explain why women were more likely to leave college than their men counterparts, the chilly climate framework focuses on "chilling" practices that professors use (both consciously and unconsciously) that disadvantage women in the classroom (Hall & Sandler, 1982). Scholars have extended the concept to examine sexist and isolating behaviors in the laboratory, in the clinic, in departmental, and in administrative levels, as well as inequities in workload, recognition, and pay (Carr, Szalacha, Barnett, Caswell, & Inui, 2000, 2003; Conefrey, 1997; Ginorio, 1995; Jagsi et al., 2006; Kaplan et al., 1996; Smith & Calasanti, 2005). There is also evidence that negative departmental climate is a significant predictor in female faculty members' overall job satisfaction, which may in turn affect their persistence in their careers (August & Waltman, 2004).

Women graduate students are more likely than their men peers to report experiences of sexual harassment, concerns about their personal safety, issues with legitimacy, and financial concerns (Johnsrud, 1995; Schneider, 1987; Wiest, 1999), and this is particularly true for women in STEM graduate programs (Fox, 2001). Women graduate students, particularly in the sciences, also have fewer same-gender mentors and role-models, and, perhaps as a result, receive less mentorship and experience more social and intellectual isolation than their men peers (Johnsrud, 1995; Kuck, Marzabadi, Buckner, & Nolan, 2007; Wiest, 1999). For women students of color, the low number of faculty of color, especially women faculty of color, often intensifies this sort of isolation and lack of role model support (Ong, 2005). Further, women mentors within scientific contexts may themselves not be in the ideal situation for providing guidance or advice; given the extra burden of work that they often experience (i.e., identity taxation), they are more likely to be burned out or to be experiencing challenges related to advancement themselves (Hirshfield & Joseph, 2012; Samble, 2008).

Similarly, women medical students disproportionately experience unfair treatment during their training, as do women clinicians post-training (Carr et al., 2000; Jagsi et al., 2006). Babaria, Abedin, Berg, and Nunez-Smith (2012) note that though the women medical students they studied managed to handle negative interactions with patients, they did not feel as prepared to deal with inappropriate behavior by their men supervisors. The authors also note how worrisome it is that women students so quickly grow resigned to this inequitable treatment (ibid). Likewise, Beagan (2001) found that medical students in the Canadian institution she studied experienced both blatant and implicit discrimination and marginalization. This included patients' consistent assumption that they were nurses rather than doctors, faculty members' use

[5]Notably, Budig (2002) found that men not only do not suffer (regarding pay) due to their token status, but that token or not, men are "uniformly advantaged" in terms of pay.

of gendered language, and even inappropriate touching by men faculty. In clinical contexts, women doctors are also treated with less respect and confidence than men doctors and given less help from the nurses (Gjerberg & Kjølsrød, 2001).

It is also well-acknowledged that many STEM disciplines and medical specialties tend to have intensely "masculine" cultures. Despite the highly collaborative nature of much scientific research, many STEM departments embrace extremely competitive, macho norms that can make women graduate students and faculty feel isolated or out of place (Ferreira, 2003; Traweek, 1992). Women in science frequently describe scientific culture as aggressively competitive and rife with "macho-ness," where colleagues try to prove themselves superior to others, are fiercely combative, and ignore other people's ideas (Schiebinger, 1999). For example, Sallee (2011) found that men in aerospace and mechanical engineering were socialized to be competitive, hierarchical, and to objectify women during the course of their graduate education and in the process are also taught that these masculine norms and values are associated with success in their discipline. Women graduate students within the sciences also view gender as highly salient within these spaces, and cite masculine cultures (as well as subsequent consequences of these cultures) as key to women's choices and experiences in STEM fields (Ecklund, Lincoln, & Tansey, 2012).

In medical contexts, specialties such as surgery are also described as having highly masculine cultures, valuing stereotypically masculine qualities such as arrogance, aggression, courage, and the ability to think quickly in the moment (Cassell, 1997; Hinze, 1999). Surgery, for example, is so male-dominated both in demographics and in characteristics, that there is an aversion to women and feminine traits. As a result, women are often excluded and even seen as untrustworthy by male colleagues (Cassell, 1997). However, when women surgeons emulate "masculine" behaviors, they are viewed negatively (ibid). As such, women entering such male-dominated fields must work harder to prove themselves and might be pushed out of the field as a result (Gjerberg, 2002).

Broadly, the chilly climate is yet another example of the gendered nature of organizations described by Acker (1990). Acker's theory focuses on how organizational structures are gendered and, therefore, directly contribute to marginalizing women. She also describes the gendered nature of organizations as seen through a "hypothetical or universal worker," which she argues is actually that of a man (ibid). Indeed, men are consistently viewed as the norm in academia (Hirshfield, 2014a), particularly in scientific spaces (Fox, 2006). This, in turn impacts how they are viewed and evaluated by their students and peers. Women scientists feel that they are less likely to be viewed as experts and receive less respect from faculty than their men peers (Fox, 2001; Johnsrud, 1995) and there is evidence that they are held to different standards than their men peers (Benschop & Brouns, 2003). Women graduate students in science also report that they feel that they must perform in ultra-masculine ways to be successful (Hirshfield, 2015; Rhoton, 2011; Sallee, 2011). Notably, the ideal worker expectations described by Acker also have racial undertones, implicitly privileging norms associated with *white* masculinity (Wingfield, 2010).

For faculty, similar to findings from surgery, men STEM faculty whose behaviors generally fit masculine social norms are viewed as ideal advisors and scholars, while women faculty whose behaviors represent either feminine *or* masculine norms are viewed negatively (Hirshfield, 2014b). Gender socialization also impacts interaction styles in ways that negatively impact women's success within scientific spaces. Women scientists have been found to demonstrate less confidence within laboratory meetings (Fox, 2001; Hirshfield, 2017; Smith-Doerr, Sacco, & Stoutenburgh, 2016) and, perhaps as a result, are less likely to be viewed as content experts within their field (Hirshfield, 2016). Similarly, women faculty, especially women faculty of color, face more challenges to their authority than do men faculty (Ford, 2011; Harlow, 2003).

4 Career/Family Balance

Finally, lifestyle reasons (i.e., issues related to the balance of career and family), may contribute to women's likelihood to enter into or leave graduate programs or medical residencies, as well. Overall, housework and primary care work is still primarily expected to fall on women, despite their increased presence in the workforce and more specifically, in STEM and medicine (Craig, 2007; Hochschild, 1989; Milkie, Raley, & Bianchi, 2007). Women are also more likely to take time off to care for sick children or to handle other essential household tasks as needed, which in turn takes a toll on their wages and opportunities for promotion (Budig & Hodges, 2010; England, Bearak, Budig, & Hodges, 2016; Kahn, García--Manglano, & Bianchi, 2014). Indeed, for women in prestigious careers like those in STEM and medicine, this time out of work can be very costly and can also impact how they are viewed in the workplace (England et al., 2016). For example, in their study exploring the "flexibility stigma", Cech and Blair-Loy (2014) find that STEM faculty view parents as less hardworking and that women are more likely to report experiencing this type of stigma. Furthermore, those that feel the stigma of parenthood and work/life balance are less likely to remain in their current field and predicts lower anticipated peak pay (Cech & Blair-Loy, 2014; Lips & Lawson, 2009).

Similarly, ideal worker norms (discussed above) not only contribute to the chilly climate for women, but also to expectations for faculty in STEM and in medicine regarding job devotion and hours spent at work (Acker, 1990; Hirshfield, 2015). In other words, within both STEM and medicine, expectations for employees often rely on conceptualizations of a hypothetical (male) worker "… whose life centers on his full-time, life-long job, while his wife or another woman takes care of his personal needs and his children" (Acker, 1990, p. 190). Indeed, women often choose not to pursue academic positions more often than men, in part because of their views about what their careers will entail (van Anders, 2004). Specifically, women (correctly) anticipate more systemic barriers to their success within academic institutions, such as issues related to mobility, academic lifestyle, and family plans and pressures. Women students' desire for flexibility and lower time commitments at work also helps to predict whether or not they will seek male-dominated jobs (such as those in fields like math and science) (Frome, Alfeld, Eccles, & Barber, 2006). Notably, concerns related to family are not restricted to women scientists: men science professors consistently describe the "all-consuming nature of academic science" as in conflict with fatherhood and egalitarian relationships (Damaske, Ecklund, Lincoln, & White, 2014).

Likewise, in an examination of a surgical residency program, Dodson and Webb (2005) found that women were twice as likely to leave their residency, with the majority citing reasons related to lifestyle. The desire to decrease hours at work was not restricted only to women physicians, however: many MDs working full-time, both men and women, would like to switch to part-time work (Heiligers & Hingstman, 2000). However, for women physicians, the likelihood of pursuing a career in a specialty decreased with each additional child they had (Gjerberg, 2003). Women physicians' career choices and aspirations are more likely than men to postpone marriage and/or family (Gjerberg, 2002; Uhlenberg & Cooney, 1990), and these aspirations are also more commonly limited or impacted by their partner's careers (Ku, 2011). Even in situations where both the wife and husband are physicians, the husband tends to work more hours and earn more money, pointing to a tendency to prioritize the husband's career (Uhlenberg & Cooney, 1990). On the other hand, women physicians who are married to other doctors fare better than others due to more egalitarian division of household labor and increased emotional support (Gjerberg, 2003).

5 Conclusion

As we have shown, women are still less likely than their men peers to pursue STEM and medical careers (i.e., to leak out of the pipeline), and, once in these fields, women still face a number of challenges that their men peers do not. Women physicians and women scientists are paid significantly less than men, even when controlling for rank, specialty/discipline, and productivity, thus demonstrating the widespread bias that still exists for women in the workforce (Kaplan et al., 1996). Likewise, women are more likely than men to experience sexual or gender harassment, to be isolated within their fields, to experience identity threat, to be asked to perform extra labor or identity taxation, to lack mentorship, and to feel family or lifestyle pressures. There is evidence that some of these "leakages" and barriers to success are lessening, yet there are still significant inequities for women in both medicine and the sciences that must be corrected.

In this chapter, we have analytically separated the theoretical and empirical work we reviewed into categories in order to systematically describe the rich scholarship that has been done in this area. However, we think it important to note that many of the explanations we describe above intersect. For example, the leaky pipeline is one of the key reasons that women experience tokenism (and the consequences of women's underrepresentation) within scientific and medical spaces. Likewise, this underrepresentation is one of the key contributors to the chilly climate for women.

Further, we have described literature related to the concepts of the leaky pipeline, tokenism, the chilly climate, and work/family balance for women in both STEM and medical workplaces. Yet much of this research remains quite siloed—scholars of gender in science rarely cite scholarship about gender in medicine, and vice versa. We suspect that this may be a consequence, in part, of the federal institutions that fund this type of research. Specifically, the National Science Foundation (NSF) has made women's experience in STEM fields a priority, but has left research on women's experience in medicine largely to be supported by the National Institutes of Health (NIH). As such, US scholars often choose either STEM or medicine as their focus. This chapter is our attempt to begin to bring these literatures and these scholars together. In the future, we hope that scholarship on women's experiences within the sciences and in medicine will merge to incorporate Science, Technology, Engineering, Math, *and* Medicine (STEMM).

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