The Well-Being of Women Physicians of Color:

Burnout, Career Satisfaction, and Mental Health and their Links with Work and Family Characteristics

Written and conducted by Physicians for a Healthy California (PHC).

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CHAPTER 1: EXECUTIVE SUMMARY

Background

Over the last decade, health care systems within the United States (US) have experiencedsignificant changes and several emerging challenges (Shanafelt & Noseworthy, 2017). These have included the growing utilization of electronic health records due to greater capital investments, which have resulted in increased clerical burdens for staff (Shanafelt, Goh, & Sinsky, 2017). A number of financial pressures have influenced health care systems as well, which include increasing price competition, narrowing of insurance networks, and more patientsrelying on Medicare and Medicaid (Shanafelt, Goh, & Sinsky, 2017). In addition, the public reporting of quality metrics (e.g., patient satisfaction and hospital ratings) has been another change to the landscape of health care systems. Inevitably, these shifts have numerous implications for the physician workforce, such as greater productivity expectations, efficiency expectations related to reducing expenses in the delivery of care, and executive leaders who are less focused on what is happening within their organizations with regard to physician well-being (Shanafelt & Noseworthy, 2017). Perhaps one of the most important consequences stemming from these changes is the growing concern of burnout among physicians (Kane, 2020).

Burnout represents a psychological syndrome that is commonly characterized by high levels of emotional exhaustion and depersonalization, and low levels of perceived personal accomplishment (Maslach & Jackson, 1981). Emotional exhaustion has been described as the decreased capacity for one to psychologically give themselves to others (Maslach, Jackson, & Leiter, 1996). In other words, emotional exhaustion may be depicted as the sense of having mental reserves depleted. Depersonalization encompasses having negative feelings or cynical attitudes such that one has become emotionally desensitized or when one views others in a dehumanizing way (Maslach, Jackson, & Leiter, 1996; Ryan, 1971). Decreased personal accomplishment involves feelings of ineffectiveness in one's own work (West, Dyrbye, & Shanafelt, 2018). There is wide agreement that burnout is typically the result of chronic stress, often experienced by those who work with other people in service delivery or in the helping professions (Perlman & Hartman, 1982). As such, over the last couple of decades, there has beena tremendous amount of interest in the level of burnout in medicine and its impact on the field.

Burnout is widely understood to be a pervasive problem among health care professionals (Rothenberger, 2017) with an estimated 40 to 50 percent of US physicians experiencing symptoms of burnout in a given year compared to approximately 30 percent of the US general working population (Shanafelt et al., 2019b). The implications of burnout among physicians have been well-documented (Dyrbye et al., 2017; Shanafelt, Goh, & Sinsky, 2017; West, Dyrbye, & Shanafelt, 2018). With regard to their efficiency and performance, physicians experiencing burnout are more likely to make unnecessary

referrals or order more tests (Bachman & Freeborn, 1999; Cooke, Doust, & Steele, 2013; Kushnir et al., 2013). Physician burnout is also associated with decreased patient satisfaction (Halbesleben & Rathert, 2008). Notonly can burnout potentially impact patient-doctor relationships, it may also place patient safety at further risk given that it has been associated with medical errors and malpractice lawsuits (Balch et al., 2011; Hall et al., 2016; Shanafelt et al., 2010; Williams et al., 2007).

Physicians who report burnout are also more likely to experience job dissatisfaction, namely in the form of career and specialty choice regret (Busis et al., 2017; Shanafelt et al., 2009a; Shanafelt et al., 2014a; Sinsky et al., 2017). Indeed, research suggests that individuals who would not choose to become a physician again may be more likely to retire early, before age 65 (Shanafelt et al., 2014b). Research by Han and colleagues (2019) estimated that physician burnout is associated with $4.6 billion in physician turnover and reduced clinical hour costs in the US each year, although the cost may be as high as $6.3 billion. It is worth noting that the costof physician turnover may be as high as $250,000 per physician or two to three times a physician's annual salary considering expenses due to recruitment, productivity loss, as well as lost revenue (Buchbinder et al., 2001; Han et al., 2019; Misra-Hebert, Kay, & Stoller, 2004).

Beyond the financial burden that organizations face with physician turnover, both inadequatestaffing and regional physician shortages may arise (Helfrich et al., 2017).

Burnout has also been associated with the mental health of physicians. For example, sleep problems have been linked to burnout in physicians (Vela-Bueno et al., 2008). Similar associations have been reported in medical students and residents in the US (Pagnin et al., 2014; Wolf & Rosenstock, 2017). Likewise, in studies conducted outside of the US, studies have found burnout to be linked to symptoms of anxiety among physicians (Pereira-Lima & Loureiro, 2015;Zhou et al., 2016). Of note, little is known about the connection between burnout and anxiety among physicians in the US. In contrast, a substantial body of literature has emerged on the correlation between burnout, depression and suicidal ideation and behaviors among physicians (Menon et al., 2020; Oreskovich et al., 2012; Shanafelt et al., 2011), a pattern that may manifest as early as medical school (Dyrbye et al., 2008). Overall, the potential consequences of burnout on physician well-being and mental health is propelling leaders in the medical field to act.

The Physicians for a Healthy California Women Physicians of Color Well-Being Study

In 2018, with support from The Physicians Foundation, a collaboration was initiated among the California Medical Association Foundation (now known as Physicians for a HealthyCalifornia [PHC]), the Network of Ethnic Physician Organizations (NEPO), University of California Health (UC Health), and the WellMD Center at Stanford University School of Medicine. A shared goal of these organizations is the advancement of the professional development and well-being of medical professionals through the provision

of clinical practice supports. Accordingly, the partnership sought to study the prevalence of burnout among womenphysicians of color and to identify potential predictors of burnout.

Over the last fifty years, an increasing number of women have entered the medical profession. In medical schools, the proportion of women increased from approximately 10 percent in 1970 to 40 percent in 1992. It was not until 2019 when the proportion of women in medical schools reached 50.5 percent, making it the first time ever that the majority of medical students were women (AAMC, 2019a). Despite comprising half of US medical school graduates,women are only one-third of the active physician workforce (AAMC, 2019b). Studies have shed light on the array of challenges that women face within the medical profession, which include gender bias and discrimination, imposter syndrome, lack of mentors, and the need for better work-life integration (Butkus et al., 2018). Moreover, research has shown that women physiciansare less likely to be satisfied with work-life balance compared to men (Shanafelt et al., 2014b; Shanafelt et al., 2019). Taken together, it has been shown that women physicians are more likelyto experience burnout and depression compared to men in the profession (Dyrbye et al., 2011; Dyrbye et al., 2018; Shanafelt et al., 2016). Specifically, whereas burnout has been reported in roughly 39 percent of male physicians, it may be found in as much as 50 percent of female physicians (Kane, 2020).

Past studies estimate that women physicians of color represent roughly 15 percent of the physician workforce (AAMC, 2019). And for women from racial/ethnic minority backgrounds,the previously mentioned disparities and inequities may be even starker (Butkus et al., 2018).

Indeed, the challenges confronting women physicians of color may begin in their medical training. For example, research has shown that medical students of color are more likely than their peers to report that their race/ethnicity adversely affected their medical school experience, namely through racial discrimination, prejudice, and feelings of isolation (Dyrbye et al., 2007). Prior work suggests that discrimination based on gender and race/ethnicity are the most prevalentforms experienced by medical trainees (Fnais et al., 2014). Even as licensed and practicing professionals, there have been reports in which women physicians of color have had their credibility questioned and their identities mistaken for support staff (Butkus et al., 2018; Paul- Emile et al., 2016). These issues appear to be widespread in the health professions with Black nurses commonly experiencing accusations of incompetence, lack of parity in job opportunities, and limited support from coworkers compared to their non-Black colleagues (Dombeck, 2003). Itis in this context that roughly 50 percent of physicians of color report experiencing burnout (Peckham, 2017), highlighting a need for further research.

Currently, the availability of research to inform the development of interventions that canbe tailored to women physicians of color has been limited. In 2016, Shanafelt and colleagues introduced a conceptual model that highlights the key drivers of burnout and engagement in physicians. This framework was subsequently expanded and culminated in an evidence-based framework that encompassed seven burnout/engagement driver dimensions (**Figure 1**; Shanafeltet al., 2017): (1) workload and job demands, (2)

efficiency and resources, (3) meaning in work, (4) culture and values, (5) control and flexibility, (6) social support and community at work, and (7) work-life integration. With regard to this framework and research on physician burnout, Dyrbye and colleagues (2017) have noted that few studies have conducted the multivariate analyses needed to shed light on the most salient predictors of burnout among physicians, particularly women physicians of color. As research on physician burnout continues to emerge,there have been calls to build on existing models and conceptual frameworks by holistically studying the links between physicians' work environment, personal lives, experiences of burnout, and their mental health (Dyrbye et al., 2017).

The *Physicians for a Healthy California: Women Physicians of Color Well-Being Study* aspired to address the concerns described above. We first drew upon Shanafelt et al.'s (2017) *Key Drivers of Burnout and Engagement in Physicians Model* to guide the overarching conceptual framework for this study (*Figure 2*). We then administered a survey to quantitatively investigate the predictors of burnout among women physicians of color. Our study included morethan 800 women physicians of color practicing in California. The survey asked about demographic characteristics and information regarding their work and family characteristics in line with the *Key Drivers of Burnout and Engagement in Physicians Model* (e.g., workload, control and flexibility at work, and social support and community at work). Survey participants were also asked about symptoms of burnout, as well as matters related to their career and mental health. The data were analyzed using advanced multivariate approaches. We also organized focus group discussions to achieve a deeper understanding of the work and life experiences of women physicians of color as they related to burnout, career satisfaction, and mental health. A total of 21 women physicians of color participated in four focus group sessions that were conducted in geographically dispersed regions of California. The findings from our quantitative survey and qualitative focus groups will be used to develop intervention programs and policy change recommendations for health care organizations, with a focus on reducing burnout, improving career satisfaction, bolstering mental health, and establishing equity for women physicians of color.

Key Findings and Recommendations

Our study found that work and family characteristics were associated with burnout, career, and mental health outcomes among women physicians of color. These associations also varied between women physicians of color and white women physicians. These findings provide the necessary evidence to advocate for policy changes that will enhance the well-being of physicians and bolster the health care workforce. Below, we outline and describe nine recommendations based on Shanafelt and Noseworthy's (2017) *Organizational Strategies to Promote Engagement and Reduce Burnout* framework, and contextualize these recommendationsaround our study's findings. Using the results of our study coupled with insights from the Advisory Committee members of the *Physicians for a Healthy California*

Women Physicians of Color Well-Being Study, we expand on Shanafelt and Noseworthy's (2017) work by elaborating on their recommendations as they pertained to women physicians of color.

Acknowledge and Assess the Problem. In our study, we found that many organizationalfactors may contribute to burnout among women physicians of color. Accordingly, health care organizations must recognize that physician burnout is not an individual problem. Rather, health care organizations need to continually examine their working environment, culture of medicine, and identify strategies to prevent physician burnout using institutional metrics. In conducting ourstudy, it became clear that health care organizations need to collect and monitor metrics related to the workplace and home experiences of women physicians of color, as well as conduct screenings for burnout and mental health, in addition to assessments of career satisfaction. To encourage ongoing progress, physician well-being should be included in routine institutional performance metrics. In addition to assessing burnout, career satisfaction, and mental health, there should be an evaluation of potential workplace and family drivers of these outcomes: (1) workload and job demands, (2) control and flexibility at work, (3) efficiency and resources, (4) work culture and values, (5) social support and community at work, (6) meaning in work, and (7)work-life integration. Metrics related to equity within the organization are also crucial, includingdiversity of leadership, salary gaps, and rates of promotion. Finally, it is imperative that these findings be made publicly available for there to be greater accountability.

Develop and implement targeted interventions. In our study, we found that women who practiced primary care or worked in private practice settings were more likely to express specialty choice regret. This suggests that the drivers of burnout may vary locally among individuals based on their specialty and work units, highlighting the need for targeted interventions. Work-unit interventions have commonly focused on improving efficiency and reducing the clerical burden for staff physicians. Our findings support these efforts, as women physicians of color who spent over half their day on electronic health records were more likely toexhibit sleep impairment. In our focus groups, participants noted that attending to the demands ofelectronic health records was a cause of stress, as these systems often were not intuitive and involved filtering through redundant information. To develop and implement targeted interventions, a *Listen-Act-Develop-Repeat* strategy (Swensen et al., 2016) is recommended. Thisallows organizational changes to be driven by the priorities of work-units and teams, which bolsters their sense of empowerment.

Harness the power of leadership. Leadership is important for organizational success and can influence the satisfaction of individual physicians (Shanafelt et al., 2015). In our focus groups, participants consistently noted the lack of racial/ethnic and gender diversity in leadership. This can leave women physicians of color feeling excluded, underrepresented, and without a voice. It was also reported that women physicians of color have been passed over for promotions despite having stronger qualifications than their white male colleagues. Our participants also

reported experiencing and witnessing bias related to race/ethnicity and gender. Taken together, it was clear from our study that leadership plays a crucial role in supporting the well-being of women physicians of color. It is particularly important to ensure that these individuals are equipped with the basic competencies to listen to, engage, and support minority physicians in the workplace and that they are held accountable for this responsibility. In addition to supporting their minority staff, leaders play an essential role in ensuring that physician staff are engaging in meaningful work, which we found to be a key predictor of burnout and career satisfaction among women physicians. Finally, health care organizations must make physician well-being a priority among leadership, which may include appointing Chief Well-being Officersto serve on their executive team. These individuals would be supported by resources and staff responsible for carrying out important tasks such as creating programs and processes to promote diversity and inclusion, gathering and analyzing data, and tracking metrics over time to ensure that intervention efforts are effective.

Cultivate community at work. In our focus groups, the participants noted that supportive relationships were tremendously helpful as they navigated their careers. This highlighted the need for providing formal and informal support at work. These relationships can be facilitated through establishing physicians' lounges as incubators for social interactions and a place for staff to build a sense of community and camaraderie (Shanafelt & Noseworthy, 2017). Another approach is to create protected time for physicians to meet in small groups in or outside of work, with support and funding provided by the health organization. This provides opportunities for physicians to celebrate achievements and milestones, as well as affords staff physicians the opportunity to support each other when experiencing challenges at work (e.g., lossof a patient). Research by the Mayo Clinic (West et al., 2015) has shown that not only do these programs increase meaning in work and reduce burnout in physicians, these programs are also scalable and cost-effective.

Align values and strengthen culture. In our study, experiences of discrimination and perceived workplace diversity/inclusion, as well as perceived value at work, emerged as key predictors of burnout, career, and mental health outcomes. These findings strongly suggest that the values and culture of the work environment matter, and that it is incumbent upon health care organizations to ensure that their principles, values, and culture align with their actions. To that end, health care institutions should survey their staff, particularly women physicians of color, to determine whether it is living up to its missions and values. Equity Committees should be established with adequate support staff to analyze organizational metrics and survey data and provide recommendations to leadership. Not only is it important for health care organizations to ensure that they are meeting their targets for equity, it is pivotal for them to continually reassess their mission and values to ensure that their programmatic efforts are up to date. Institutions needto reflect on how their values can stay relevant and review what actions have been taken to ensure they are consistent with their mission and vision (Shanafelt & Noseworthy, 2017). In taking these steps, it is also recommended that health care organizations be mindful about the "minority tax," in which

minorities may be disproportionately responsible for advancing diversity efforts while at the same time they face the task of having to navigate those organizational problems that adversely impact them, such as racism and isolation.

Promote flexibility and work-life integration. In our focus groups, we found that women physicians of color faced challenges and stress in balancing and integrating the demands of their careers and personal lives. Meanwhile, those with dependent family members were morelikely to report both high work exhaustion and high disengagement with colleagues. And not surprisingly, those who were not satisfied with work-life balance also had greater odds of high work exhaustion. These findings were concerning, as women physicians of color experiencing high work exhaustion were also more likely to report depressive symptoms. Overall, these findings pointed to the need for greater flexibility and work-life integration for physicians. To address these needs, health care organizations are encouraged to implement policies that enable physicians to attend to their work and personal lives. This may include providing physicians withthe option to adjust their work schedule so they can tailor their hours to meet personal and professional obligations. Specifically, health care organizations can promote flexibility in both when and how physicians work, such as allowing them to start earlier or later in the day or allowing them to work longer or shorter hours during certain times of the week.

Provide resources to promote resilience and self-care. Over the last decade, efforts on the part of health care organizations to improve physician wellness and well-being have relied onthe dissemination of resources to promote self-care that overly relied on individual strategies, such as mindfulness-based stress reduction. These approaches are limited, however, as they may be perceived as exploitive or deliver the message that burnout is an individual problem and a marker of one's deficiency in resiliency. Although improving the availability of wellness and well-being resources is key to addressing burnout, career satisfaction, and mental health, the institution must make more systematic changes to prevent burnout and instead promote job satisfaction and well-being. Underscoring these needs, our study found that high work exhaustion was associated with career choice regret and plans for early retirement among womenphysicians, as well as sleep impairment. Among women physicians of color, not only was burnout linked to career choice regret, it was also associated with high sleep impairment and high anxiety symptoms. Most alarmingly, among women physicians of color, burnout was associated with suicidal ideation in the past year. In our focus groups, the participants noted that they had minimal knowledge or engagement with workplace-provided resources, suggesting the need for health care organizations to better engage their staff and determine how to best provide the support needed to their physicians. Indeed, our focus group participants noted that physicianswould benefit from programs that addressed their specific needs, ranging from resources that promoted exercise and fitness, healthier sleep habits, diet, personal financial health, strengthening relationships, and engagement in hobbies.

Use rewards and incentives wisely. Historically, health care organizations have connected physicians' financial compensation to their

productivity (Shanafelt & Noseworthy, 2017). These incentives may have adverse consequences, such as poor patient care and increasedrisk for burnout. Instead, it is more optimal for health care organizations to pursue salary models.Rather than financial rewards, there may also be alternative rewards that would be more appealing to physicians, such as offering flexibility or protected time for physicians to pursue meaningful work (e.g., quality improvement projects, teaching, community outreach, research). Indeed, our study showed that low professional fulfillment was associated with burnout as well as career and specialty choice regret among women physicians. In addition, low professional fulfillment was associated with plans for early retirement among women physicians of color.

Facilitate and fund organizational science. It is important for institutions to develop and invest in evidence-based efforts to address and prevent burnout. This involves conducting organizational needs assessments and working toward program development, implementation, and evaluation. By going through these steps, health care organizations are positioned to think beyond employee assistance programs and committees on physician wellness. Health care organizations are also then actively contributing to the creation of new knowledge. These endeavors will expand the scientific literature and establish best practices that can be adopted by other institutions. Most importantly, these efforts will yield innovative policies that can help reduce burnout and promote engagement in the health care workforce.

Conclusion

The *Physicians for a Healthy California Women Physicians of Color Well-Being Study* found that workplace and family characteristics are associated with burnout, career, and mental health outcomes among women physicians. Moreover, some associations between workplace andfamily characteristics and burnout, career, and mental health outcomes may be specific to women physicians of color. In ascertaining these findings, this research expanded the scientific literature in several ways. First, its study sample is particularly unique given its focus on women and the in-depth investigation of women physicians of color. Second, it comprised a comprehensive assessment of work and family characteristics spanning multiple predictors within these domains. Likewise, it evaluated a broad range of outcomes within the burnout, career, and mental health domains. The focus groups findings also served as a rich source of information that can be used to plan and implement organizational policy changes and disseminate intervention programs to improve the well-being of women physicians of color.

Addressing burnout in physicians has been described as a “moral and ethical imperative.”There is a business case for it as well (Shanafelt, Goh, & Sinsky, 2017). And ultimately, addressing burnout is a shared responsibility (Shanafelt & Noseworthy, 2017). Despite evidence to the contrary, health care organizations have continued to view burnout as an individual problem. And for years, health care organizations have relied too heavily on individual-

oriented solutions (e.g., stress management workshops or resilience training) that have yet to yield the level of improvements necessary to protect the physician workforce. In contrast, what we have found in our study is that the workplace environment of health care organizations is inextricably linked to burnout, career, and mental health outcomes among women physicians of color. Therefore, what we need to begin to understand about burnout is that it is seldom the result of individual deficiencies. Instead, burnout must be understood as one of many potential negativeoutcomes experienced by physicians who are impacted by working in health care organizationswith systemic concerns and policies in serious need of change.

Overall, the *Physicians for a Healthy California Women Physicians of Color Well-BeingStudy* takes a crucial step toward shedding light on potential organizational changes that could improve burnout, career, and mental health outcomes among women physicians of color, particularly as they related to work and family settings. Our findings point to the need for there to be greater investment in developing programmatic and policy solutions that effectively drive systemic changes encompassing both physician well-being and equity. This will take regular monitoring, tracking, and accountability on the part of health care organization leaders to produce change. Only then can those issues stemming from workplace and family stress, as wellas racism and sexism in medicine, yield meaningful, long-lasting, positive changes in physician well-being that will save lives.

CHAPTER 2: BURNOUT AMONG PHYSICIANS

What is "burnout"?

Burnout represents a psychological syndrome that is commonly characterized by highlevels of emotional exhaustion and depersonalization, and low levels of personal accomplishment (Maslach & Jackson, 1981). Emotional exhaustion has been described as thedecreased capacity to psychologically give of oneself to others (Maslach, Jackson, & Leiter, 1996) and may be depicted as the sense of having one's mental reserves depleted.

Depersonalization encompasses having negative feelings or cynical attitudes such that one has become emotionally desensitized, or one views others in a dehumanizing way (Maslach, Jackson, & Leiter, 1996; Ryan, 1971). Decreased personal accomplishment involves feelings of ineffectiveness in one's own work (West, Dyrbye, & Shanafelt, 2018). Considering these features, burnout has been viewed by researchers as a complex multidimensional construct that can manifest in a variety of ways (Dyrbye, West, & Shanafelt, 2009). Nevertheless, there is wideagreement that burnout is typically the result of chronic stress, often experienced by those in the service delivery or helping professions (Perlman & Hartman, 1982). As such, over the last couple of decades, there has been a tremendous amount of interest in understanding how burnouthas impacted health care professionals.

Why does burnout matter?

Prevalence of Burnout among Physicians

Burnout is widely understood to be a pervasive problem among health care professionals(Rothenberger, 2017). It has been estimated that between 40 and 50 percent of physicians practicing in the United States experience symptoms of burnout in a given year compared to approximately 30 percent of the US general working population (Shanafelt et al., 2019b).

Disparities in the prevalence of burnout between physicians and the general population may persist even when accounting for factors such as work hours and age. Over the last decade, thelandscape of the US health care system has changed rapidly with the widespread adoption of electronic health records (EHR), which has increased administrative responsibilities for physicians and decreased the amount of time that they spend with patients (Arndt et al., 2017).Similarly, policy and regulatory changes such as the Affordable Care Act or the Medicare Access and CHIP Reauthorization Act of 2015 (MACRA) have also shifted the focus and time that physicians devote to administrative duties.

Consequences of Burnout

The implications of burnout among physicians have been well-documented (Dyrbye et al., 2017; Shanafelt, Goh, & Sinsky, 2017; West, Dyrbye, & Shanafelt, 2018). Physicians who report burnout are more likely to experience job dissatisfaction, namely in the form of **career and specialty choice regret** (Busis et al., 2017; Shanafelt et al., 2009a; Shanafelt et al., 2014a; Sinsky et al., 2017). Indeed, research suggests that individuals who would not choose to becomea physician again may also be more likely to **retire early** (before age 65) (Shanafelt et al., 2014b). Furthermore, it has been estimated that physicians who feel burned out are two times more likely to leave their current practice compared to those who do not feel burned out (Shanafelt et al., 2009a). The implications of burnout may extend to the efficiency and performance of physicians as well, including an increased likelihood of making referrals or ordering more tests (Bachman & Freeborn, 1999; Cooke, Doust, & Steele, 2013; Kushnir et al., 2013). Specific symptoms of burnout may also directly affect patient care, with research showingcorrelations between physician depersonalization and decreased satisfaction among their patients (Halbesleben & Rathert, 2008). Additionally, burnout has been associated with racial bias and other disparities, leading to disparate care and health outcomes for Black patients and racial/ethnic minority groups (Dyrbye et al., 2019). Not only is burnout impacting patient-doctor relationships, and potentially worsening health care disparities as a result, it also places patient safety at risk by being a significant predictor of medical errors and involvement in malpractice lawsuits (Balch et al., 2011; Hall et al., 2016; Shanafelt et al., 2010; Williams et al., 2007).

Research by Han and colleagues (2019) has estimated that physician burnout is associated with $4.6 billion in physician turnover costs, although the cost may be as high as $6.3billion. It is worth noting that the cost of physician turnover may be as high as $250,000 per physician or two to three times a physician's annual salary when considering the expenses associated with recruitment, productivity loss, as well as lost revenue (Buchbinder et al., 2001; Han et al., 2019; Misra-Hebert, Kay, & Stoller, 2004). These findings appear to be consistent with similar cost-analysis research in other countries (Dewa et al., 2014; Shanafelt, Goh, & Sinsky, 2017). Beyond the financial burden that organizations face with physician turnover, bothinadequate staffing and regional physician shortages may arise. These issues may lead to increased burnout among staff and other team members, further exacerbating its consequences for impacted organizations (Helfrich et al., 2017).

Beyond patient safety concerns, its impact on physician career satisfaction and performance, and the financial consequences of both of these issues, the links between burnout and their mental health outcomes among physicians has been alarming. For example, **sleep problems** have been linked to burnout in physicians (Vela-Bueno et al., 2008). Similar associations have been reported in medical students and residents in the US (Pagnin et al., 2014;Wolf & Rosenstock, 2017). Likewise, studies have found burnout to be associated with symptoms of **anxiety** among physicians, although much of this research was conducted outside of the US. (Pereira-Lima & Loureiro, 2015; Zhou et al., 2016). Little is known about the connection between burnout and anxiety among physicians in the US. In contrast, a substantial body of literature has emerged on the associations between

burnout, **depressive symptoms** as well as **suicidal ideation and behaviors** among physicians (Menon et al., 2020; Oreskovich et al., 2012; Shanafelt et al., 2011), a pattern that may manifest as early as medical school (Dyrbyeet al., 2008) and has galvanized efforts to immediately address these concerns (West et al., 2016).

What do we know about the drivers of burnout?

In light of the wide ranging personal, economic, and societal costs of burnout, there has been growing recognition of the need to identify and address the drivers that contribute to burnout among physicians (Wallace, Lemaire, & Ghali, 2009). This has been illustrated by calls to expand the "Triple Aim" in optimizing the US health system (Berwick, Nolan, & Whittington, 2008) and include a fourth aim that focuses on the experiences and well-being of health care professionals (Bodenheimer & Sinsky, 2014). Indeed, reports suggest that the failure to address physician well-being and burnout may undermine overall efforts to improve population health and patient care, as well as endeavors to maintain a cost-effective health care system (Reid et al.,2010). To that end, there have been considerable efforts to shed light on the potential drivers of burnout over the last couple of decades (Dyrbye et al., 2017). The work described in this report sought to identify individual, organizational, and system-level factors that contribute to burnout,career satisfaction, and well-being among physicians.

The "Key Drivers of Burnout and Engagement in Physicians" Model

In 2016, Shanafelt and colleagues introduced a conceptual model that highlights the key drivers of burnout and engagement in physicians. This framework was subsequently expanded (**Figure 1***;* Shanafelt et al., 2017), culminating in an evidence-based framework that encompasses seven burnout/engagement driver domains: (1) workload and job demands, (2) efficiency and resources, (3) meaning in work, (4) culture and values, (5) control and flexibility,
(6) social support and community at work, and (7) work-life integration. To date, most of the extant research has focused predominantly on workplace and family characteristics. Accordingly,the model most commonly highlights those types of factors that may be involved in physician burnout and engagement. Below, we briefly describe potential indicators for each of the seven burnout/engagement drivers that have been investigated in the scientific literature (Shanafelt et al., 2017).

Workload and job demands. Differences in workload and job demands are known to beassociated with burnout among physicians. Although the specific findings have varied, studies have generally shown that the likelihood of burnout differs by **specialty**, with burnout being highly prevalent among primary care physicians (Balch & Shanafelt, 2011; Dyrbye et al., 2018; Lee et al., 2013; Martini et al., 2004; Shanafelt et al., 2009a; Shanafelt et al., 2016a). More straightforward is the common understanding that high **patient load** (e.g., number of patients seen per day) is negatively correlated with burnout (LaFaver et al., 2018; Shirom, Nirel, & Vinokur, 2010). Meanwhile, the research suggests that burnout may differ among **practice settings** as

well, with burnout being less likely for individuals in academic practice (Dyrbye et al., 2013; Kane, 2019; Lee et al., 2013).

Control and flexibility at work. Factors governing when and how physicians work may play a role in the likelihood of experiencing burnout (Shanafelt & Noseworthy, 2017). For example, both **hours worked per week** (Dyrbye et al., 2013; Kane, 2019; Shanafelt et al., 2009b; Shanafelt et al., 2016a) as well as **on-call responsibility** (Dyrbye et al., 2013; Shanafelt et al., 2009a) have been found to be associated with higher levels of burnout among physicians. The association between hours worked per week and burnout has been notably consistent (Shanafelt et al., 2012). These facets of a physician's work characteristics may facilitate work-lifebalance and integration, which have been known to be linked to burnout (Shanafelt & Noseworthy, 2017). Comparatively less work has been done to examine how one's **leadership roles** may be associated with burnout (McPhillips et al., 2007; Morais et al., 2006; Saleh et al., 2007). Some research suggests that physicians with more substantial leadership roles may be less likely to report professional stress (Morais et al., 2006), although this association requires further exploration.

Efficiency and resources. With the rapidly evolving healthcare landscape over the last decade, shifts in regulations and policies have greatly altered the administrative demands of practicing physicians (Shanafelt et al., 2019b). As such, there has been great interest in assessinghow efficiency and resources may be associated with burnout in health care providers. **Training level** (Dyrbye et al., 2014b) may serve as a proxy for efficiency and has been shown to be significantly associated with burnout. For instance, overall burnout appears to be most prevalentduring residency and fellowship, with emotional exhaustion being less prevalent among early career physicians who are within their first ten years of practice (Dyrbye et al., 2014). Interestingly, research on **years in practice** has indicated that middle career physicians (11 to 20years in practice) report higher levels of burnout compared to both early career (up to 10 years inpractice) and later career physicians (21 years in practice and more; Dyrbye et al., 2013). Meanwhile, an important consideration is the role of one's **experience with electronic health records**, given their widespread adoption in recent years (Shanafelt et al., 2016a). Recent studieshave estimated that over half of physicians disagree with the notion that electronic health recordshave increased their efficiency (Shanafelt et al., 2016a). Likewise, over half of physicians who use electronic heath records in their work report burnout (Shanafelt et al., 2016a).

Work culture and values. The culture and values of the workplace may be associated with burnout among physicians. This domain focuses largely on matters related to equity, fairness, morality, altruism, and justice. And to date, there has been comparatively less research investigating how such contexts may be linked to burnout among physicians. Nevertheless, it is believed that the delivery of culturally responsive care may broadly benefit health care organizations, from improving patient satisfaction to patient-provider relationships and beyond (Anderson et al., 2003). Meanwhile, other studies have shown that **workplace commitment to diversity and inclusion** (Cydulka & Korte, 2008; Sliter et al., 2014) is a key factor. For example, the diversity climate (e.g., respectfulness) of healthcare

organizations may be linked toburnout (Sliter at al., 2014), which might also be mediated by **experiences of discrimination** and interpersonal conflict. Similarly, studies suggest that promoting diversity in clinical practicemay increase satisfaction and the retention of health care providers in some settings (Cydulka &Korte, 2008).

Social support and community at work. Cultivating a supportive environment and connectedness among staff is widely understood to be beneficial for the workplace (Milliman, Czaplewski, & Ferguson, 2003). Accordingly, studies have shown that a strong **sense of community at work** (Enders et al., 2015; West et al., 2014) is associated with lower levels of burnout. This research has been further supported by randomized control trials of programs in which staff are encouraged to meet and discuss the challenges they face at work (West et al., 2015). In contrast, negative interactions with colleagues and supervisors, such as having one's **competence questioned at work** (Friederichsen & Millberg, 2006; Waisel et al., 2009), can be both frustrating and stressful for physicians (Friederichsen & Millberg, 2006; Waisel et al., 2009), which may contribute to burnout. Conversely, **perceived support at work** (e.g., receivinghelpful feedback from supervisors) has been shown to be inversely associated with burnout (Shanafelt et al., 2015).

Meaning in work. In light of the many challenges that physicians continue to face in health systems, there has been increasing interest in understanding how meaning in work might relate to their experiences in delivering care (Bodenheimer & Sinsky, 2014; Sikka, Morath, & Leape, 2015; West, 2016). One's **perceived value at work** (e.g., recognition) has been shown tobe associated with lower levels of burnout (LaFaver et al., 2018; Shanafelt et al., 2009b).

Meanwhile, reports suggest that **professional fulfillment**, characterized by feelings of happiness,the perception that one’s work is worthwhile, or the extent to which one feels like one is contributing professionally, may be negatively correlated with burnout (Trockel et al., 2018; Zhang et al., 2019).

Work-life integration. Among the key drivers of burnout and engagement, work-lifebalance and integration has long been a crucial area of research. Work-life integration "represents a holistic strategy including effective and efficient coordination of efforts and energies among all stakeholders sharing interest and benefits from workers able to fulfill and transition between their personal, work, family, and community obligations" (Morris & Madsen,2007). Meanwhile, work-family balance has been defined as the "accomplishment of role-relatedexpectations that are negotiated and shared between an individual and [their] role-related partners in the work and family domains" (Grzywacz & Carlson, 2007). In this way, balance implies that full engagement in both work and family responsibilities is viable and fulfilling (Grzywacz & Carlson, 2007). For the purposes of this report, we conceptualize work-family balance as one potential component of the broader work-family integration domain. Researchers agree that balancing work and responsibilities outside of work are an important consideration concerning burnout and career satisfaction for individuals (Perry et al., 2011). The perception of one's own experiences may be the key, as studies have consistently shown that **satisfaction withwork-life balance** is negatively associated with burnout

among physicians (Glasheen et al., 2011; Karakash et al., 2019). With regard to **relationship status** in the context of work-life integration and burnout research, studies have reported that married physicians are less likely to experience burnout (Shanafelt et al., 2019a; Shanafelt et al., 2019b). On the other hand, studies have shown that certain relationship characteristics matter. With regard to **partner employmentstatus**, for example, studies have shown that as the number of hours worked increases among either physicians or their nonphysician partners, the likelihood of work-home conflicts is greater,which may lead to burnout (Dyrbye et al., 2014a). The situation may differ, however, based on whether a physician's **partner is in the health care industry**, as studies suggest that those physicians who have a partner who is also a physician may be less likely to experience burnout (Balch et al., 2011c; Shanafelt et al., 2009a). Beyond one's immediate partner, the presence of **dependent family members** is also an important consideration regarding work-life balance and integration. Specifically, having a child who is younger than 21 years old has been linked with burnout, although burnout may be less likely among those with older children (Shanafelt et al., 2009a). Looking beyond the family, **leadership responsibilities outside of work** also appear to matter and could be additional sources of stressors for health care professionals (Perry et al., 2011; Rao & Indla, 2010).

Figure 1. Key Drivers of Burnout and Engagement in Physicians Model (Shanafelt & Noseworthy,2017)

CHAPTER 3: PHYSICIANS FOR A HEALTHY CALIFORNIA WOMEN PHYSICIANS OF COLOR WELL-BEING STUDY

Burnout among Women and Racial/Ethnic Minorities

Over the last 50 years, an increasing number of women have entered the medical profession. In medical schools, the proportion of women increased from approximately 10 percent in 1970 to 40 percent in 1992, roughly 20 years later (Stewart, 2020). Another 20 years later, in 2015, the proportion of women in medical schools had increased to only 46.9 percent. Itwas not until 2019 when the proportion of women in medical schools reached 50.5 percent, making it the first time ever that the majority of medical students were women (AAMC, 2019a).Despite women comprising half of medical school graduates, women physicians are only one- third of the active physician workforce (AAMC, 2019b). Much work remains to be done to achieve equity for women in medicine. For example, in academic medicine, the number of women faculty are fewer than that of men (Kirsch, 2019). Moreover, among the 154 institutionsin the American Association of Medical Colleges, there are only 26 women deans. Only 18 percent of department chairs are women (Kirsch, 2019).

Studies have shed light on the array of challenges that women face within the medical profession. These include gender bias and discrimination, imposter syndrome, lack of mentors, and the need for better work-life integration (Butkus et al., 2018). According to a study by Jagsi and colleagues (2016), for example, a substantial proportion of women in medicine reported experiencing gender bias (66.3%) and sexual harassment (30.4%) in their work. Moreover, research has shown that women physicians are less likely to be satisfied with work-life balance compared to men (Shanafelt et al., 2014b; Shanafelt et al., 2019). A previous study also found that women physicians more frequently experienced work-home conflict and that child-rearing had potentially slowed their career advancement (Dyrbye et al., 2011). Taken together, it shouldnot come as a surprise that women physicians are more likely to experience burnout and depression compared to men in the profession (Dyrbye et al., 2011; Dyrbye et al., 2018; Shanafelt et al., 2016). Specifically, whereas burnout has been reported in roughly 39 percent of male physicians, it may be found in as many as 50 percent of female physicians (Kane, 2020). Furthermore, women physicians more often plan to retire before the age of 65 years compared tomen (Shanafelt et al., 2014b). These disparities represent serious concerns in health care, especially given the physician shortage in the years to come (AAMC, 2019b).

Past studies have estimated that women physicians of color represent roughly 10 percent of the physician workforce (AAMC, 2014). And for women from racial/ethnic minority backgrounds, the previously mentioned

disparities and inequities may be even starker (Butkus et al., 2018). Indeed, the challenges confronting women physicians of color may begin in their medical training. For example, research has shown that minority medical students are more likely than their peers to report that their race/ethnicity adversely affected their medical school experience, namely through racial discrimination, prejudice, and isolation (Dyrbye et al., 2007). Prior work suggests that discrimination based on gender and race/ethnicity are the most prevalentforms experienced by medical trainees (Fnais et al., 2014). Even as licensed and practicing professionals, there have been reports in which women physicians of color have had their credibility questioned and their identities mistaken for support staff (Butkus et al., 2018; Paul- Emile et al., 2016). These issues appear to be widespread in the health professions with Black nurses more frequently experiencing accusations of incompetence, lack of parity in job opportunities, and limited support from coworkers, compared to their non-Black colleagues (Dombeck, 2003). It is in this context that roughly 50 percent of physicians of color report experiencing burnout (Peckham, 2017), highlighting a need for further research into this issue.

Physicians for a Healthy California (PHC) Women Physicians of Color Well-Being StudyWhat is the Women Physicians of Color Well-Being Study?

In 2018, with support from The Physicians Foundation, a collaboration was initiated among the California Medical Association Foundation (now known as Physicians for a Healthy California [PHC]), the Network of Ethnic Physician Organizations (NEPO), University of California Health (UC Health), and the WellMD Center at Stanford University School of Medicine. A shared goal of these organizations has been the advancement of the professional development and well-being of medical professionals through the provision of clinical practice supports. Accordingly, the partnership sought to study the prevalence of burnout among women physicians of color and to identify potential predictors of burnout. This current study utilized both quantitative and qualitative approaches, which involved a widely disseminated survey and multiple focus group interviews across California that were developed by an experienced team ofresearchers whose expertise centered on physician burnout. These findings will be used to develop intervention programs and policy change recommendations for health care organizationsgeared toward reducing burnout, improving career satisfaction, bolstering mental health, and establishing equity for women physicians of color.

Endeavors to sustain the workforce of women physicians of color are crucial to the care of patients, especially those from marginalized populations. Numerous studies have linked racialand ethnic concordance between patients and their physicians to greater satisfaction of care (Cooper et al., 2003; LaVeist & Nuru-Jeter, 2002). Furthermore, research suggests that physicians of color may be more likely to pursue careers in primary care and to practice in underserved communities (Walker, Moreno, & Grumbach, 2012; Xu et al., 1997). Despite their integral role within the physician workforce, research suggests that women physicians of color may be disproportionately

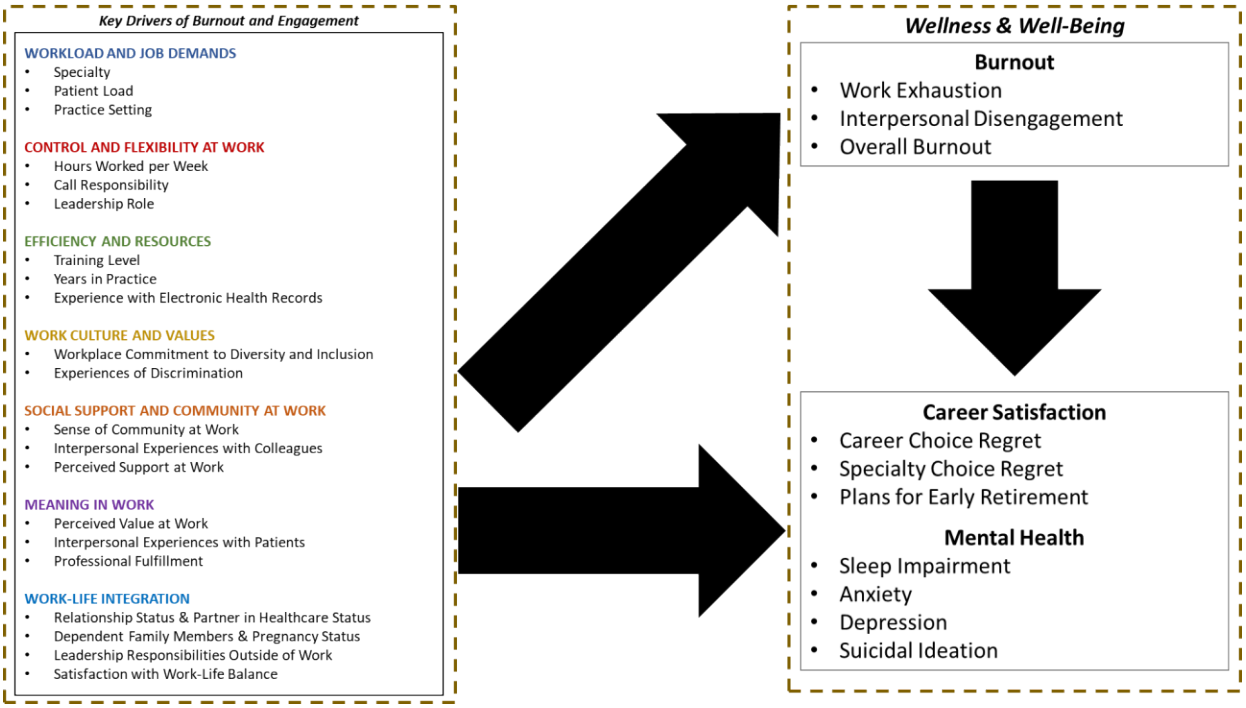
impacted by burnout, which may adversely affect their mental health as well as their risk for attrition (Butkus et al., 2018). This highlights the need for programs geared toward reducing burnout and improving the well-being of women physicians of color.

Overview of this Report

Currently, the availability of research to inform the development of interventions as wellas organizational change recommendations geared toward women physicians of color has been limited. Indeed, Dyrbye and colleagues (2017) have noted that few studies have conducted the multivariate analyses needed to shed light on the most salient predictors of burnout among physicians, particularly women physicians of color. Furthermore, as research on physician burnout continues to emerge, there have been calls to build on existing models and conceptual frameworks that holistically identify the associations between physicians' work environment, family lives, experiences of burnout, career satisfaction, and well-being (Dyrbye et al., 2017).

This study hopes to address these concerns. We first drew upon Shanafelt et al.'s (2017) *Key Drivers of Burnout and Engagement in Physicians Model* to develop the overarching conceptualframework for this study (*Figure 2*). We then administered a survey to quantitatively investigatethe predictors of burnout among women physicians of color and analyzed the data using advanced multivariate approaches. We also used focus group discussions to achieve a more in- depth understanding of the work and family life experiences of women physicians of color as they related to burnout, career satisfaction, and mental health. In the subsequent chapters of this report, we present the results of the *Physicians for a Healthy California Women Physicians of Color Well-Being Study*. It is our hope that these findings will provide insight into the key drivers of burnout and engagement among women physicians of color, and lead to the creation ofmuch needed programs and organizational policy changes that are empirically driven.

Figure 2. Conceptual Framework for the Women Physicians of Color Well-Being Study



CHAPTER 4: WOMEN PHYSICIANS OF COLOR WELL-BEING SURVEY

Introduction

Burnout has been characterized as a psychological syndrome with high levels of emotional exhaustion and depersonalization, and low levels of personal accomplishment (Maslach & Jackson, 1981). It has been estimated that between 40 and 50 percent of physicianspracticing in the United States (US) may experience symptoms of burnout each year, which is disproportionately greater than the general US working population (Shanafelt et al., 2019b).

Burnout represents a serious concern in the health professions, as it has been associated with negative career and mental health outcomes among physicians. Examples include career choiceregret (Sinsky et al., 2017) and depressive symptoms (Shanafelt et al., 2011). There is wide agreement that burnout typically results from chronic stress, which may emerge from drivers existing in the workplace (Shanafelt et al., 2017). And although recent studies have sought to shed light on how the prevalence of burnout may differ by race and ethnicity among physicians(Garcia et al., 2020), less is known about how the potential drivers of burnout may differ between these groups.

The research suggests that the drivers of burnout is complex (Shanafelt & Noseworthy, 2017). To our knowledge, there have been no studies to date that have examined how the predictors of burnout, career, and mental health outcomes may vary among women physicians. In this chapter, we present a study in which women physicians were surveyed on their experiences of burnout, career satisfaction, and mental health, as well as the potential drivers ofthese outcomes within work and family lives. We then sought to characterize how predictors ofburnout, career, and mental health outcomes may differ between white women physicians and women physicians of color. The findings of this study will have implications for the development of policy changes and programming that can be tailored to better support women physicians of color in the health care workforce.

Methods

Procedure

Women physician members of the California Medical Association (CMA) and the Network of Ethnic Physician Organizations (NEPO) who had valid email addresses (approximately 15,000 individuals) and had granted permission to be contacted were surveyed inSeptember 2018. Among these individuals, 928 individuals opened the survey and 829 completed the survey, representing an 88 percent completion rate. The survey took approximately 10 minutes to complete, and was voluntary and anonymous. Respondents

were not informed of the hypotheses regarding the study. The study was commissioned by the CMA and approved by the Institutional Review Board of the University of California at Riverside.

Measures

Participants completed a 63-item survey that asked about their demographic characteristics and ascertained information regarding their work and family lives (e.g., workloadand job demands, control and flexibility at work, work-life integration, etc.). The participants were also asked about symptoms of burnout as well as matters related to their career satisfaction and mental health. The items for the survey were derived from instruments used in prior research(Shanafelt et al., 2020).

Individual Characteristics. Participants were asked about their age group and were categorized as follows: 39 years or younger, 40 to 49 years, 50 to 59 years, and 60 years or older.They were also asked with which race/ethnicity they identified. Individuals were subsequently categorized as white women physicians if they identified their race/ethnicity as “White or Caucasian,” whereas women physicians of color included those who identified their race/ethnicity as “Black or African American,” “Hispanic or Latino,” “Asian or Asian American,” “American Indian or Alaska Native,” “Native Hawaiian or Other Pacific Islander,” and “Other.”

Workload and Job Demands. With regard to specialty in medicine, the survey asked participants what they practiced; those who initially identified “pediatrics” or “internal medicine” were subsequently asked about their sub-specialty. In line with previous studies (Shanafelt et al., 2013), we categorized individuals as primary care physicians if they indicated that they practiced “family medicine,” “general academic pediatrics,” and “internal medicine” without a subspecialty. To assess patient load, the respondents were asked how many patients they saw in the clinic or hospital in a typical day. We categorized individuals according to whether they saw 20 patients per day or less versus more than 20 patients per day, which was based on previous reports that physicians on average saw 20 patients per day (The Physicians Foundation, 2018). With respect to practice setting, participants were asked what type of setting they worked in as a physician; response options included “Academic,” “Public Sector,” “Private Practice,” “Veterans Administration (VA),” “Military,” and “Other.” We categorized individuals according to whether they practiced in academic, public sector/VA/military, private, or other practice settings.

Control and Flexibility at Work. The survey asked participants how many hours theyworked in a typical week. We categorized individuals according to whether they worked 50 hours per week or less, 51 to 60 hours per week, or more than 60 hours per week, which was based on previous reports that physicians on average worked roughly 51 hours per week (The Physicians Foundation, 2018). Respondents were also asked whether they were on call in a typical week, as well as whether they were currently in a leadership position (Yes/No).

Efficiency and Resources. Concerning training level and years in practice, participants were asked whether they were an intern, resident, or

fellow. They were also asked how many years they had been in practice (excluding residency/fellowship training). Individuals were subsequently categorized based on whether they were an intern/resident/fellow, as well as whether they had 1 to 10 years, 11 to 20 years, or more than 20 years of experience. These lattercategories corresponded to whether physicians were in the early, middle, or late stages of their career, respectively (Dyrbye et al., 2013). On time spent on electronic health records (EHR), participants reported the percentage of their day spent completing EHR tasks and categorized as50 percent of day or less versus more than 50 percent of day. With respect to attitudes about electronic health records, participants completed a four-item measure (Cronbach's alpha [α] = .73), with two items asking them to rate on a five-point Likert scale the extent to which they agreed or disagreed with statements about EHR (e.g., "the EHR has been a helpful tool"), and two items asking then to rate on a five-point scale the frequency of certain experiences they havehad with EHR (e.g., "the EHR helps me to coordinate care efficiently"). Individuals were categorized as having high negative attitudes about electronic health records if they on average agreed with negative statements about EHR, disagreed with positive statements, often had negative experiences with EHR, and rarely had positive experiences with EHR.

Work Culture and Values. With regard to perceived workplace diversity and inclusion, participants completed a three-item measure that asked them to rate on a five-point Likert scale the extent to which they agreed or disagreed about statements related to their work culture and values (e.g., "my workplace is culturally diverse" or "my workplace values diversity and inclusion"; α = .81). Individuals were categorized as having low perceived workplace diversity and inclusion if they disagreed with the statements on average. With reference to promotion of diversity and inclusion at work, participants completed a three-item measure that asked them to rate on a five-point Likert scale the extent to which they agreed or disagreed with statements on related actions taken by their workplace (e.g., "my workplace promotes diversity in its recruitment practices" or "my workplace promotes diversity in its promotion practices"; α = .92).Individuals were categorized as having low perceived promotion of workplace diversity and inclusion if they disagreed with the statements on average. Concerning experiences of discrimination at work, participants were asked how much they agreed with the statement, "I have experienced discrimination at my current place of work." Individuals were categorized as having experienced discrimination if they agreed or strongly agreed with the statement.

Social Support and Community at Work. For perceived sense of community at work, participants were asked to rate on a five-point scale how frequently they felt part of a communityat the workplace. Individuals were categorized as having a low perceived sense of community atwork if they "never" or "rarely" felt part of a community at their workplace. On interpersonal experiences with colleagues, participants were asked how often in the last year has their competence been questioned by their colleagues. Individuals were categorized based on whethertheir competence was questioned by their colleagues less than monthly versus monthly or

more often. With reference to perceived support at work, participants completed a five-item measure that asked them to rate on a five-point Likert scale the extent to which they agreed or disagreed with statements related to support provided to them by their work (e.g., “my workplace provides useful resources that support my physical health and well-being”; $\alpha = .70$). Individuals were categorized as having low perceived support at work if they disagreed on average with the statements about receiving support.

Meaning in Work. With regard to perceived value at work, participants completed a three-item measure that asked them to rate on a five-point Likert scale the extent to which they agreed or disagreed with statements related to feeling recognized and valued at their workplace (e.g., “my contributions at work are acknowledged”; $\alpha = .88$). Individuals were categorized as having low perceived value at work if they on average disagreed with statements about feeling valued. Regarding patient interactions, participants were asked how often in the last year was their competence questioned by their patients. Individuals were categorized based on whether their competence was questioned by their patients less than monthly versus monthly or more often. To assess professional fulfillment, participants completed the six-item Professional Fulfillment Index (Trockel et al., 2018), which asked them to rate on a five-point scale the extent to which they believed certain statements about their professional fulfillment were true over the last two weeks (e.g., “I feel worthwhile at work” or “my work is meaningful to me”; $\alpha = .92$).
Individuals were categorized as having low professional fulfillment if on average they rated thestatements to be “not at all true” or only “somewhat true.”

Work-Life Integration. Regarding their marital status, participants described their relationship status with the following options: married or in a domestic partnership, single or never married, widowed, separated, or divorced. Participants were also asked whether their significant other was a healthcare professional, and if so, to identify the healthcare profession of their significant other. Individuals were subsequently categorized based on whether their significant other was a physician or was not a physician. When describing dependent family member status, participants had the following options: “no dependent children” or “one or moredependent children”. They were also asked about their pregnancy status and if they provided assistance or care to one or more family members (e.g., parents). With regard to outside leadership, participants were asked whether they were currently in a leadership position outside of work (“yes” or “no”). With reference to satisfaction with work-life balance, participants wereasked to rate on a five-point Likert scale the extent to which they agreed or disagreed that their work schedule left them enough time for their personal and/or family life. Individuals were categorized as not being satisfied with work-life balance if they disagreed or strongly disagreed with the statement.

Burnout Indicators. Concerning the burnout indicators used in this study, measures were adapted from prior research (Shanafelt et al., 2020; Trockel et al., 2018). With regard to work exhaustion, participants completed a four-item measure that asked them to rate on a five- point scale the extent to which they believed that statements related to their exhaustion at work were

true (e.g., “during the past two weeks, I have felt physically exhausted at work”; α = .90). Individuals were characterized as having high work exhaustion if they reported that the statements were “very true” or “completely true” on average. On their disengagement with their patients, participants completed a three-item measure that asked them to rate on a five-point scale the extent to which they believed that statements related to their diminished interpersonal engagement with their patients were true (e.g., “during the past two weeks, my job has contributed to me feeling less interested in talking with my patients”; α = .93). Individuals were characterized as having high disengagement with their patients if they reported that the statements were “very true” or “completely true” on average. Participants also completed a three-item measure that asked them to rate on a five-point scale the extent to which they believed that statements related to their diminished interpersonal engagement with their colleagues were true (e.g., “during the last two weeks, my job has contributed to me feeling less connected with my colleagues; α = .87). Individuals were characterized as having high disengagement with their colleagues if they reported that the statements were “very true” or “completely true” on average. Overall burnout was assessed using a previously validated single-item measure of burnout (Rohland et al., 2004). Participants were asked to report their level of burnout based on their owndefinition. Individuals were characterized as experiencing overall burnout if they indicated that “I am definitely burning out and have one or more symptoms of burnout such as physical and emotional exhaustion” or “I feel completely burned out and often wonder if I can go on. I am at the point where I may need some changes or may need to seek some sort of help.”

Career Outcomes. With respect to career choice regret, participants were asked to rate on a five-point Likert scale the extent to which they agreed or disagreed that they would chooseto become a physician again. Individuals were characterized as having career choice regret if they disagreed or strongly disagreed with the statement. Concerning specialty choice regret, participants were asked to rate on a five-point Likert scale the extent to which they agreed or disagreed that they would choose to change their specialty. Individuals were characterized as having specialty choice regret if they agreed or strongly agreed with the statement. With regardto plans for early retirement, individuals were characterized as having plans for early retirementif they reported that they “expect to retire earlier than previously planned.”

Mental Health Outcomes. With regard to the mental health outcomes, participants completed a series of validated measures that were based on the National Institutes of Health

Patient-Reported Outcomes Measurement Information System (PROMIS; Cella et al., 2007) for sleep-related impairment (eight items; α = .91), anxiety (four items; α = .88), and depression (four items; α = .89). These measures asked participants to rate on a 5-point scale how frequentlythey experienced certain symptoms over the past seven days. Examples of the sleep impairment symptoms assessed in the PROMIS measure included having problems during the day due to poor sleep, a hard time concentrating due to poor sleep, or feeling irritable due to poor sleep. Examples of the depressive symptoms assessed in the PROMIS measure included feeling worthless, feeling helpless, feeling depressed, and feeling hopeless. Examples of the anxiety symptoms assessed in the PROMIS measure included feeling fearful, feeling uneasy, or having worries that were overwhelming. Individuals were characterized as having high levels of these mental health concerns if they experienced symptoms “often” or “always” on average. This cutoff corresponded with a “moderate” to “severe” rating on the PROMIS measures (Pilkonis etal., 2011). With regard to suicidal ideation, participants were asked whether they had thoughts about taking their own life over the past 12 months (“yes” or “no”).

Data Analysis

We analyzed the data using Stata version 16 (StataCorp, 2020). Univariate tabulations were used to obtain sample characteristics. We then used bivariate cross-tabulations and chi- square difference tests to explore whether the prevalence of the burnout, career, and mental health outcomes differed between women physicians based on their work and family characteristics. We also constructed a path model to examine the hypothesized associations. Thepath analysis was conducted in a structural equation modeling (SEM) framework, which allows for multiple associations to be tested simultaneously. We used the MLR estimator to obtain maximum likelihood estimates with standard errors that were robust to non-normality of observations. This uses full information maximum likelihood methods to handle data that are missing at random (Yuan & Bentler, 2000). To assess the fit of our models, we used the comparative fit index (CFI), Tucker-Lewis index (TLI), and root mean square error of approximation (RMSEA) values (Hu & Bentler, 1999). Models with “acceptable” fit had CFI and TLI values greater than .90, whereas models with “excellent” fit had CFI and TLI values greater than .95. Models with “reasonable” fit were those with RMSEA values less than .08, while those with “very good” fit had RMSEA values less than .05 (Hu & Bentler, 1999). We didnot report chi-square goodness-of-fit statistics for our models given their sensitivity to sample size (Hu & Bentler, 1999).

In our study, we performed two sets of analyses. In the first set of analyses, we conductedbivariate cross-tabulations and fit one path model using the full sample of women physicians. In the second set of analyses, we conducted bivariate cross-tabulations and fit path models separately for women physicians of color and white women physicians for the purposes of performing a multiple group analysis (Bollen, 1989). In our multiple group analysis, we first examined the fit of an unrestricted model in which structural

parameters were freely estimated across comparison groups (e.g., women physicians of color and white women physicians). We then examined the fit of a restricted model in which structural parameters were constrained to be equal across comparison groups. Finally, we compared the models by computing the difference between the chi-square and degrees of freedom between the restricted and unrestricted models.

Significant chi-square difference values indicate that constraining the model parameters to be equal between comparison groups (the restricted model) significantly worsened the fit (Muthen & Muthen, 2007); significant results therefore favored the unrestricted models and providedevidence of effect modification.

Results

Participants Individual Characteristics. The characteristics of our sample comprising 820 women physicians based in California are presented in **Table 1**. The sample was mostly White or Caucasian (44.1%) while a large proportion of respondents identified as Asian, Native Hawaiian,or Pacific Islander (35.1%). The percentage of participants identifying as Black or African American (8.2%) and Hispanic or Latino (5.4%) were in line with previous national estimates (AAMC, 2019b). Most respondents were between ages 40 and 59 (37.0%).

Work Characteristics. Regarding job demand and workload, over a third of participants (33.8%) were in primary care **(Table 1)**. Most respondents saw 20 patients per day or less (54.5%) while nearly 35 percent saw more than 20 patients per day. The participants typically practiced in private (38.2%) or academic (23.2%) settings. 41.3% reported working 40 to 50 hours per week. Roughly the same proportion of participants had weekly call (48.7%) as those who did not (47.7%). Over 40 percent of the respondents reported having a leadership position atwork. The majority of participants were in their first 20 years of practice. Although over a third (36.5%) of respondents spent more than half of their day on electronic health records, only 11 percent of individuals had high negative attitudes about electronic health records. Roughly one in10 participants reported low perceived workplace diversity and inclusion. Likewise, approximately 12 percent of respondents reported low perceived promotion of diversity and inclusion in the workplace. A substantially larger proportion of individuals (26.7%) had experienced discrimination at work. With respect to social support and community, 7.3 percent of participants reported a low perceived sense of community at work. Nearly a quarter (24.1%) of respondents experienced having their competence questioned by their colleagues at least monthly. Meanwhile, 12.8 percent of individuals reported low perceived support at work. For meaning in work, 15.7 percent of participants reported both low perceived value at work as well as low professional fulfillment. In addition, 15.9 percent of individuals experienced having their competence questioned by their patients at least monthly.

Among women physicians of color, 38 percent were in primary care. The same proportion saw more than 20 patients per day. They also typically worked in private (44.3%) andacademic (18.1%) settings, with many working

40 to 50 hours per week (45.4%). The same proportion had weekly call as those who did not (48.3%). Over 37 percent reported having a leadership position at work. The majority of women physicians of color were in their first 20 years of practice. The same proportion spent more than half of their day on electronic health records as those who spent half of their day or less (40.2%). Despite a significant proportion spending more than half of their day on electronic health records, only 9.6% had high negative attitudes about electronic health records. Slightly over one in 10 (10.9%) women physicians of color reported low perceived workplace diversity and inclusion. Meanwhile, more than 13 percent reported low perceived promotion of diversity and inclusion at work. Over a quarter of women physicians of color (26.6%) indicated that they have experienced discrimination at work.With respect to social support and community, 7.4 percent of women physicians of color reported a low perceived sense of community at work. Nearly a quarter (24.2%) experienced having their competence questioned by their colleagues at least monthly. Meanwhile, 15.5 percent of women physicians of color reported low perceived support at work. For meaning in work, 18.1 percent reported low perceived value at work while 19.2 percent reported low professional fulfillment. In addition, 15.3 percent of women physicians of color experiencedhaving their competence questioned by their patients at least monthly.

Family Characteristics. With regard to family characteristics and work-life integration, 78 percent of participants were married or in a domestic partnership, while 21.3 percent reportedhaving a partner who was a physician **(Table 1)**. Nearly two-thirds (62.4%) of the respondents had a dependent child, roughly a third (30.0%) were caring for a dependent family member, and
14.1 percent of the participants were pregnant. Approximately 29 percent of individuals had a leadership position outside of work. About 40 percent were not satisfied with work-life balance(40.6%).

Among women physicians of color, 79 percent were married or in a domestic partnership,while 24.7 percent reported having a partner who was a physician. Roughly two-thirds (66.4%) of women physicians of color had a dependent child, while over a third (35.6%) were caring for a dependent family member, and 13.8 percent were pregnant. Nearly 30 percent of women physicians of color had a leadership position outside of work. Over a third of women physicians of color were not satisfied with work-life balance (39.1%).

Burnout, Career, and Mental Health Outcomes. With regard to the burnout outcomes,high disengagement with patients (3.7%) and colleagues (2.4%) were relatively uncommon among the participants **(Table 1)**. In contrast, high work exhaustion was reported in 10.2 percentof the respondents, while overall burnout was reported in 37.2 percent. With respect to the careeroutcomes, 14 percent of the participants reported that they would not become a doctor again and 22.1 percent said they would change their specialty. A quarter of the respondents indicated that they had plans for early retirement. Regarding the mental health outcomes, 16.3 percent of the participants experienced high sleep impairment and 6.1 percent reported high anxiety symptoms.Meanwhile, 5.4 percent of individuals reported high

depressive symptoms and 6.6 percent experienced suicidal ideation over the past year.

Among women physicians of color, high disengagement with patients (3.3%) and colleagues (2.0%) were comparatively low, whereas high work exhaustion was reported in 10.5percent of the respondents, and overall burnout was reported in 37.8 percent. With reference to the career outcomes, over 14 percent of women physicians of color reported that they would notbecome a doctor again (14.8%) while nearly a quarter reported that they would change their specialty (24.5%). A little less than a quarter (23.6%) reported that they had plans for early retirement. For the mental health outcomes, 15.1 percent of women physicians of color experienced high sleep impairment, 6.3 percent reported high anxiety symptoms, 4.8 percent reported high depressive symptoms, and 4.8 percent experienced suicidal ideation over the past year.

Predictors of Burnout among Women Physicians

In our analyses, we examined associations of work and family characteristics with burnout, career, and mental health outcomes among women physicians by calculating bivariate cross-tabulations as well as fitting a structural equation path model. Our path model demonstrated an excellent (CFI/TLI = 1.00) and very good fit (RMSEA < .05) to the data. The results of the bivariate cross-tabulations and path model for the full sample of women physiciansare described below. In later sections, we will present these same results, but stratified by white women physicians and women physicians of color.

High Work Exhaustion. The prevalence of high work exhaustion, high disengagement,and overall burnout across work and family characteristics among women physicians are presented in **Table 2a**. With regard to efficiency and resources, high work exhaustion was significantly more common among women physicians who spent more than half their day on electronic health records versus those who did not (16.1% vs. 7.7%; *P* = .001), and those with high negative attitudes about electronic health records versus those without (17.8% vs. 9.3%; *P* = .012). With respect to work culture and values, the prevalence of high work exhaustion was at least twice that among women physicians who had experienced discrimination versus those who had not (19.2% vs. 8.5%; *P* < .001). Concerning social support and community at work, the prevalence of high work exhaustion also was at least twice that among women physicians with a low perceived sense of community at work versus those who did not (26.7% vs. 9.6%; *P* < .001),as well as those who had their competence questioned by their colleagues monthly or more oftenversus those whose competence was questioned less frequently (18.7% vs. 8.2%; *P* < .001). It was also more prevalence among those with low perceived support versus those without (16.2% vs. 9.4%; *P* = .031). Among the meaning in work predictors, high work exhaustion was roughly two times more common among women physicians with low perceived value versus those without (18.6% vs. 8.7%; *P* = .001), those whose patients questioned their competence at least monthly versus those whose patients questioned their competence less frequently (20.0% vs.

9.1%; *P* < .001), as well as those with low professional fulfillment versus those without (17.8%vs. 8.8%; *P* = .002). Lastly, high work exhaustion was significantly more likely among womenphysicians with a dependent family member versus those without (14.2% vs. 8.7%; *P* = .012) and those who were not satisfied with work-life balance versus those who did not indicate dissatisfaction (18.0% vs. 5.2%; *P* < .001).

The associations of work and family characteristics with high work exhaustion, high disengagement, and overall burnout among women physicians are shown in **Table 2b**. The odds of high work exhaustion were significantly greater among women physicians who spent more than half of their day on electronic health records versus those who did not (Odds Ratio [OR] = 1.06; 95% Confidence Interval [CI] = 1.01, 1.10), and those with high negative attitudes about electronic health records versus those who did not (OR = 1.07; 95% CI = 1.00, 1.14). With respect to work culture and values, the odds of high work exhaustion were greater among womenphysicians who have experienced discrimination versus those who had not (OR = 1.06; 95% CI = 1.01, 1.11). For meaning in work, women physicians with low perceived value at work had a 12 percent greater odds of high work exhaustion versus those who did not (OR = 1.12; 95% CI =1.01, 1.23). Moreover, those with low professional fulfillment had significantly greater odds of high work exhaustion versus those without (OR = 1.08; 95% CI = 1.00, 1.15). With regard to work-life integration, the odds of high work exhaustion were greater among women physicians who had dependent family members versus those who did not (OR = 1.06; 95% CI = 1.01, 1.11),as well as those who were not satisfied with work-life balance versus those who did not indicate dissatisfaction (OR = 1.10; 95% CI = 1.05, 1.15).

High Disengagement with Patients. With regard to work culture and values, 7.8 percentof women physicians who had experienced discrimination reported high disengagement with their patients compared to 2.4 percent among those who had not experienced discrimination (*P* < .001) **(Table 2a)**. Meanwhile, high disengagement with patients was seen in 10 percent of those with a low perceived sense of community at work. Furthermore, high disengagement withpatients was significantly more common among women physicians whose competence was questioned by their colleagues at least monthly versus those whose competence was questioned by colleagues less frequently (7.1% vs. 2.8%; *P* = .008). Similarly, high disengagement with patients was significantly more common among women physicians whose competence was questioned by their patients at least monthly versus those whose competence was questioned by their patients less frequently (10.0% vs. 2.7%; *P* < .001). Lastly, regarding work-life integration,high disengagement with patients was significantly more likely among women physicians who were not satisfied with work-life balance versus those who did not indicate dissatisfaction (6.9%vs. 1.5%; *P* < .001). Results from the path model **(Table 2b)** showed that the odds of high disengagement with patients were significantly greater among women physicians who had experienced discrimination (OR = 1.04; 95% CI = 1.01, 1.07), those whose patients questioned their competence at least monthly (OR = 1.04; 95% CI = 1.00, 1.08), and those who were not satisfied with work-life balance (OR = 1.04; 95% CI = 1.01, 1.07).

High Disengagement with Colleagues. As with high work exhaustion, high disengagement with colleagues was significantly greater among women physicians who spent more than half of their day on electronic health records versus those who did not (4.3% vs. 1.3%;*P* = .015), as well as those with high negative attitudes about electronic health records versus those without (5.6% vs. 2.1%; *P* = .042) **(Table 2a)**. With respect to work culture and values, theprevalence of high disengagement with colleagues was nearly six times that among women physicians who had experienced discrimination versus those who had not (6.4% vs. 1.1%; *P* < .001). Concerning social support and community at work, high disengagement with colleagueswas significantly more common among women physicians with a low perceived sense of community at work versus those without (8.3% vs. 2.1%; *P* = .004) and those whose colleagues questioned their competence at least monthly versus those whose competence was questioned less frequently (5.6% vs. 1.6%; *P* = .002). Similarly, high disengagement with colleagues was significantly more common among women physicians whose patients questioned their competence at least monthly versus those whose competence was questioned less frequently (8.5% vs. 1.4%; *P* < .001). With regard to work-life integration, high disengagement with colleagues was greater among women physicians who had a dependent family member versus those without (5.3% vs. 1.2%; *P* = .001) as well as those not satisfied with work-life balance versus those who did not indicate dissatisfaction (5.1% vs. 0.7%; *P* < .001). According to the path model **(Table 2b)**, the odds of high disengagement with colleagues were significantly greater among women physicians who had experienced discrimination (OR = 1.04; 95% CI = 1.01, 1.06), those whose patients questioned their competence at least monthly (OR = 1.04; 95%CI = 1.01, 1.07), and those with dependent family members (OR = 1.02; 95% CI = 1.00, 1.05).

Overall Burnout. With regard to workload and job demands, overall burnout was more prevalent among women physicians who saw more than 20 patients per day versus those who saw fewer (47.8% vs. 36.6%; *P* = .003) **(Table 2a)**. Concerning control and flexibility at work, overall burnout was more common among those with weekly call versus those without (47.1% vs. 34.0%; *P* < .001). Likewise, overall burnout was more prevalent among women physicians who spent more than half their day on electronic health records versus those who did not (48.5%vs. 36.8%; *P* = .002). With respect to work culture and values, overall burnout was more prevalent among women physicians with low perceived workplace diversity/inclusion versus those without (63.0% vs. 39.7%; *P* = .016), those with low perceived promotion of diversity/inclusion at work versus those without (60.9% vs. 39.2%; *P* = .004), and those who hadexperienced discrimination versus those who had not (52.8% vs. 35.7%; *P* < .001). Similarly, regarding social support and community at work, overall burnout was more common among women physicians with low perceived sense of community at work versus those without (62.7%

vs. 38.7%; *P* < .001), those whose colleagues questioned their competence at least monthly versus those whose colleagues questioned their competence less frequently (51.8% vs. 36.7%; *P* < .001), and those with low perceived support at work versus those without (75.7% vs. 38.5%; *P* < .001). With regard to meaning in work, overall burnout was significantly more prevalent among women physicians with low perceived value at work versus those without (67.2% vs. 38.2%; *P* < .001), those whose patients questioned their competence at least monthly versus those whose patients questioned their competence less frequently (50.4% vs. 38.6%; *P* = .015), and those with low professional fulfillment versus those without (75.4% vs. 37.5%; *P* < .001). Meanwhile, on work-life integration, overall burnout was less common among women physicians who were married or in a domestic partnership versus those who were not (37.7% vs.50.9%; *P* = .002) as well as those whose partner was a physician versus those whose partner wasnot a physician (32.1% vs. 42.9%; *P* = .013). In contrast, overall burnout was significantly moreprevalent among women physicians who were not satisfied with work-life balance versus those who did not indicate dissatisfaction (60.7% vs. 23.6%; *P* < .001). According to the path model **(Table 2b)**, the odds of overall burnout were significantly greater among women physicians whose patient load exceeded 20 per day versus those who saw 20 or less (OR = 1.08; 95% CI = 1.01, 1.16) and those with weekly call versus those without (OR = 1.13; 95% CI = 1.06, 1.20). Among women physicians who reported low professional fulfillment, their odds of overall burnout were 22 percent greater compared to those who did not report low professional fulfillment (OR = 1.22; 95% CI = 1.08, 1.37). Meanwhile, the odds of overall burnout were increased by 40 percent among those who were not satisfied with work-life balance versus thosewho did not indicate dissatisfaction (OR = 1.40; 95% CI = 1.31, 1.50).

Predictors of Career Satisfaction Outcomes among Women Physicians

Career Choice Regret. The prevalence of career choice regret, specialty choice regret, and plans for early retirement across work, family, and burnout characteristics among women physicians are presented in **Table 3a.** With regard to control and flexibility at work, the prevalence of career choice regret was significantly greater among women physicians who did not have a leadership position at work versus those who did (19.0% vs. 10.9%; *P* = .002). As seen in the burnout outcomes described in the previous section, career choice regret was also significantly more common in women physicians who spent more than half of their day on electronic health records versus those who did not (20.1% vs. 13.0%; *P* = .013). With respect to work culture and values, the prevalence of career choice regret was greater among women physicians who perceived that the promotion of diversity and inclusion at work was low versus those who did not (27.3% vs. 14.7%; *P* = .025). Similarly, career choice regret was significantly more common among women who had experienced discrimination versus those who had not (25.7% vs. 11.4%; *P* < .001). Concerning social support and community at work, career choice regret was significantly more likely among women physicians with a low perceived sense of community at work versus those without (28.1% vs. 14.4%; *P* = .006), those

whose competence was questioned by their colleagues at least monthly versus those whose competence was questioned less frequently (25.1% vs. 12.1%; *P* < .001), and those with low perceived support atwork versus those without (32.4% vs. 14.6%; *P* = .005). With respect to meaning in work, career choice regret was significantly more common among women physicians with low perceived value at work versus those without (37.9% vs. 13.6%; *P* < .001), those whose competence was questioned by their patients at least monthly versus those whose competence was questioned lessfrequently (30.6% vs. 12.5%; *P* < .001), as well as those with low professional fulfillment versus those without (54.1% vs. 12.0%; *P* < .001). With regard to work-life integration, career choice regret was significantly more prevalent in women physicians who were not satisfied with work-life balance versus those who did not indicate dissatisfaction (21.9% vs. 10.3%; *P* < .001).
Career choice regret was significantly more common in women physicians who were experiencing an indicator of burnout. Specifically, career choice regret was reported in 50percent of women with high work exhaustion versus 11.2 percent in those who did not (*P* < .001). Career choice regret was also significantly more common among women physicians who reported high disengagement with patients versus those who did not (58.6% vs. 13.7%; *P* < .001), as well as those who reported high disengagement with colleagues versus those who didnot (70.0% vs. 14.0%; *P* < .001). Lastly, career choice regret was significantly more prevalent among women physicians who reported overall burnout versus those who did not (26.7% vs.
7.9%; *P* < .001).

The associations of work, family, and burnout characteristics with career choice regret, specialty choice regret, and plans for early retirement among women physicians are shown in **Table 3b**. With regard to work culture and values, the odds of career choice regret were significantly greater among women who had experienced discrimination versus those who had not (OR = 1.08; 95% CI = 1.02, 1.14). Concerning social support and community at work, women physicians with low perceived value at work had significantly greater odds of career choice regret versus those without (OR = 1.12; 95% CI = 1.00, 1.25). With respect to meaning inwork, the odds of career choice regret were significantly greater among women physicians whose competence was questioned by their patients at least monthly versus those whose competence was questioned less frequently (OR = 1.10; 95% CI = 1.03, 1.18). Meanwhile, women physicians with low professional fulfillment had a 32 percent increased odds of career choice regret versus those without (OR = 1.32; 95% CI = 1.21, 1.44). With regard to the burnoutindicators, the odds of career choice regret were greater among women physicians with high work exhaustion versus those without (OR = 1.19; 95% CI = 1.08, 1.30) as well as those who reported overall burnout versus those who did not (OR = 1.06; 95% CI = 1.00, 1.12).

Specialty Choice Regret. With regard to workload and job demands, over a third of women physicians in primary care (35.2%) reported specialty choice regret, which was significantly (*P* < .001) greater compared to those not in primary care (18.4%) **(Table 3a)**. Concerning efficiency and resources, the prevalence of specialty choice regret was greater among those who

spent more than half of their day on electronic health records versus those whodid not (28.4% vs. 21.2%; *P* = .029) as well as those with high negative attitudes about electronichealth records versus those without (25.5% vs. 15.6%; *P* = .039). With respect to work culture and values, specialty choice regret was significantly more prevalent among women physicians who had experienced discrimination at work compared to those who had not (31.4% vs. 21.5%; *P* = .005). Concerning social support and community at work, specialty choice regret was significantly more prevalent among women physicians who had a low perceived sense of community at work versus those who did not (38.6% vs. 23.1%; *P* = .009) and those with low perceived social support at work versus those without (47.1% vs. 23.2%; *P* = .002). For meaningin work, specialty choice regret was significantly more common among those with low perceivedvalue at work versus those without (41.4% vs. 22.9%) as well as those with low professional fulfillment versus those without (49.2% vs. 22.1%; *P* < .001). As with career choice regret, the prevalence of specialty choice regret among women physicians was significantly greater among those with indications of burnout, such as those with high work exhaustion versus those without (41.5% vs 22.2%; *P* < .001), those with high disengagement with patients versus those without (55.2% vs. 23.1%; *P* < .001), those with high disengagement with their colleagues versus those without (60.0% vs. 23.3%; *P* < .001), and those who reported overall burnout versus those who did not (31.7% vs. 19.4%; *P* < .001). According to the path model **(Table 3b)**, the odds of specialty choice regret were significantly greater among women physicians who had experienced discrimination versus those who had not (OR = 1.08; 95% CI = 1.01, 1.16) and those with low professional fulfillment versus those without (OR = 1.20; 98% CI = 1.07, 1.35).

Plans for Early Retirement. With regard to control and flexibility at work, plans for early retirement were significantly more common among women physicians with weekly call versus those without (32.2% vs. 23.6%; *P* = .010) **(Table 3a)**. Meanwhile, with respect to workculture and values, plans for early retirement were significantly more prevalent among women physicians who had experienced discrimination at work versus those who had not (36.4% vs. 24.6%; *P* = .001). Similarly, plans for early retirement were significantly more prevalent amongwomen physicians whose colleagues questioned their competence at least monthly versus those whose colleagues questioned their competence less frequently (33.9% vs. 25.9%; *P* = .035). Theprevalence of plans for early retirement differed significantly among women physicians across all meaning in work indicators. Namely, plans for early retirement were more common among women physicians with low perceived value at work versus those without (42.1% vs. 26.7%; *P* = .013), those whose patients questioned their competence at least monthly versus those whose patients questioned their competence less frequently (41.2% vs. 25.4%; *P* < .001), and those withlow professional fulfillment versus those without (48.3% vs. 26.2%; *P* < .001). Meanwhile, plansfor early retirement were significantly more common among those who were not satisfied with work-life balance versus those who did indicate dissatisfaction (35.1% vs. 22.2%; *P* < .001). As with meaning in work, the prevalence of plans for early retirement differed significantly among women physicians across all burnout indicators. Specifically, plans for early retirement were more common among

women physicians with high work exhaustion versus those without (57.5% vs. 24.3%; *P* < .001), those with high disengagement with patients versus those without (57.1% vs. 26.8%; *P* < .001), those with high disengagement with colleagues versus those without (57.9% vs. 27.1%; *P* = .003), and those who reported overall burnout versus those who did not (41.8% vs. 18.6%; *P* < .001). According to the path model **(Table 3b)**, the odds of having plans for early retirement were significantly greater among women physicians whose patients questioned their competence at least monthly versus those whose competence was questioned less frequently (OR = 1.11; 95% CI = 1.01, 1.21), those with low professional fulfillment versus those without (OR = 1.14; 95% CI = 1.01, 1.29), those with high work exhaustion versus those without (OR = 1.23; 95% CI = 1.08, 1.39), and those who reported overall burnout versus those without (OR = 1.16; 95% CI = 1.08, 1.25).

Predictors of Mental Health Outcomes among Women Physicians

High Sleep Deprivation. The prevalence of high sleep impairment, high anxiety symptoms, high depressive symptoms, and suicidal ideation over the past 12 months across work, family, and burnout characteristics among women physicians are presented in **Table 4a**. With regard to efficiency and resources, high sleep impairment was significantly more commonamong women physicians who spent more than half of their day on electronic health records versus those who did not (23.7% vs. 14.0%; *P* = .001). With respect to work culture and values,over a quarter (27.9%) of women physicians who had experienced discrimination at work experienced high sleep impairment, which was significantly greater (*P* < .001) than the proportion of those who had not experienced discrimination (13.3%). Concerning social support and community at work, high sleep impairment was significantly more prevalent among womenphysicians with a low perceived sense of community at work versus those without (26.7% vs. 16.6%; *P* = .049). For meaning in work, the proportion of women physicians experiencing high sleep impairment was significantly greater among those whose patients questioned their competence monthly or more often versus those whose patients questioned their competence lessfrequently (32.3% vs. 14.4%; *P* < .001). With regard to work-life integration, high sleep impairment was significantly more common among women physicians who were not satisfied with work-life balance versus those who did not indicate dissatisfaction (24.6% vs. 12.6%; *P* < .001). High sleep impairment was significantly more prevalent among women physicians with high work exhaustion versus those without (47.6% vs. 12.8%; *P* < .001), those with high disengagement with patients versus those without (43.3% vs. 15.3%; *P* < .001), those with high disengagement with colleagues versus those without (40.0% vs. 15.8%; *P* = .004), and those whoreported overall burnout versus those who did not (29.5% vs. 9.8%; *P* < .001).

The associations of work, family, and burnout characteristics with high sleep impairment,high anxiety symptoms, high depressive symptoms, and suicidal ideation over the past 12 months among women physicians are shown in **Table 4b**. With regard to social support and community at work, the odds of high sleep impairment were significantly greater among women physicians whose colleagues questioned their competence monthly or more

frequently comparedto those whose colleagues questioned their competence less frequently (OR = 1.07; 95% CI = 1.01, 1.13). For meaning in work, the odds of high sleep impairment were significantly greater among women physicians whose patients questioned their competence monthly or more frequently compared to those whose patients questioned their competence less frequently (OR = 1.08; 95% CI = 1.01, 1.16). Regarding the indicators of burnout, the odds of high sleep impairment were significantly greater among women physicians with high work exhaustion versus those without (OR = 1.35; 95% CI = 1.23, 1.49). Moreover, the odds of high sleep impairment were greater among women physicians who reported overall burnout compared to those who did not (OR = 1.10; 95% CI = 1.04, 1.17).

High Anxiety Symptoms. With regard to work culture and values, high anxiety symptoms were over two times more common among women physicians who had experienced discrimination versus those who had not (11.4% vs. 4.5%; *P* < .001) **(Table 4a)**. With respect to social support and community at work, high anxiety symptoms were significantly more prevalentamong women physicians with a low perceived sense of community at work versus those without (16.7% vs. 5.6%; *P* = .049). For meaning in work, high anxiety symptoms were significantly more common among those whose patients questioned their competence at work monthly or more frequently versus those whose patients questioned their competence less frequently (10.8% vs. 5.6%; *P* < .001). Concerning work-life integration, the proportion of women physicians not satisfied with work-life balance reporting anxiety symptoms were significantly greater compared to those who did not indicate dissatisfaction (11.7% vs. 2.7%; *P* < .001). Regarding the burnout indicators, the prevalence of anxiety symptoms was significantlygreater among women physicians with high work exhaustion versus those without (25.0% vs. 3.9%; *P* < .001), with high disengagement with patients versus those without (26.7% vs. 5.3%; *P* < .001), with high disengagement with colleagues versus those without (40.0% vs. 5.3%; *P* < .001), as well as those who reported overall burnout versus those who did not (14.1% vs. 1.6%;*P* < .001). According to the path model **(Table 4b)**, the odds of high anxiety symptoms were significantly greater among women physicians who were not satisfied with work-life balance versus those who did not indicate dissatisfaction (OR = 1.04; 95% CI = 1.00, 1.07), those with high work exhaustion versus those without (OR = 1.14; 95% CI = 1.07, 1.21), those with high disengagement with colleagues versus those without (OR = 1.27; 95% CI = 1.10, 1.46), and those with high overall burnout versus those without (OR = 1.07; 95% CI = 1.03, 1.11).

High Depressive Symptoms. Concerning control and flexibility at work, high depressivesymptoms were significantly more prevalent among women physicians who had weekly call responsibilities compared to those without (7.3% vs. 3.8%; *P* = .035) **(Table 4a)**. Regarding efficiency and resources, high depressive symptoms were two times more common among women physicians who spent more than half of their day on electronic health records versus those who did not (8.4% vs. 4.2%; *P* = .025). With respect to work culture and values, high depressive symptoms were significantly more likely among women physicians who had experienced discrimination versus those who did not (9.6% vs. 4.2%; *P* = .004). For social support and community

at work, high depressive symptoms were significantly more likely among women physicians with a low perceived sense of community at work compared to those without (18.3% vs. 4.7%; *P* < .001) as well as those whose colleagues questioned their competence at work monthly or more often versus those whose colleagues questioned their competence less frequently (11.6% vs. 3.7%; *P* < .001). With regard to meaning in work, the prevalence of high depressive symptoms was significantly greater among women physicians with low perceived value at work versus those without (9.3% vs. 4.6%; *P* = .002) and those whose patients questioned their competence monthly or more often versus those whose patients questioned their competence less frequently (11.5% vs. 4.5%; *P* = .002). With regard to work- life integration, the proportion of women who were not satisfied with work-life balance reportinghigh depressive symptoms was nearly 10 times that of those who did not report dissatisfaction (10.8% vs. 1.7%; *P* < .001). Regarding the indicators of burnout, the prevalence of high depressive symptoms was significantly greater among women physicians with high work exhaustion versus those without (26.2% vs. 3.0%; *P* < .001), those with high disengagement withpatients versus those without (23.3% vs. 4.7%; *P* < .001), those with high disengagement with colleagues versus those without (40.0% vs. 4.5%; *P* < .001), and those who reported overall burnout versus those who did not (12.8% vs. 1.1%; *P* < .001). According to the path model (**Table 4b)**, indicators of burnout comprised the key predictors of having high depressive symptoms among women physicians. Namely, the odds of high depressive symptoms were significantly greater among women physicians with high work exhaustion versus those without (OR = 1.18; 95% CI = 1.11, 1.25), those with high disengagement with colleagues versus those without (OR = 1.31; 95% CI = 1.15, 1.50), and those who reported overall burnout versus those who did not (OR = 1.04; 95% CI = 1.00, 1.08).

Suicidal Ideation (Past 12 Months). With regard to social support and community at work, suicidal ideation was significantly more prevalent among women physicians with a low perceived sense of community at work versus those without (14.0% vs. 6.8%; *P* = .044) as wellas those with low perceived support at work versus those without (17.6% vs. 6.8%; *P* = .018) **(Table 4a)**. For meaning in work, suicidal ideation was significantly more common among women physicians with low perceived value at work versus those without (15.8% vs. 6.6%; *P* = .011). With regard to the indicators of burnout, the prevalence of suicidal ideation was significantly greater among women physicians with high work exhaustion versus those without (14.6% vs. 6.4%; *P* = .007), those with high disengagement with patients versus those without (24.1% vs. 6.7%; *P* < .001), those with high disengagement with colleagues versus those without(25.0% vs. 6.9%; *P* = .002), and those who reported overall burnout versus those who did not (11.5% vs. 4.6%; *P* < .001). According to the path model **(Table 4b)**, the odds of suicidal ideation in the past year were significantly higher among women physicians who reported burnout versus those who did not (OR = 1.05; 95% CI = 1.00, 1.10).

Predictors of Burnout among Women Physicians of Color

In our analyses, we fit a multiple group model that allowed parameters to be estimated distinctly for white women physicians as well as women physicians of color. We then fit a nestedmodel in which all parameters were constrained to be equal between these groups. Results from the likelihood ratio test (Chi-square = 1449.28, 945 degrees of freedom; $P < .001$) suggested thatthe multiple group model with distinct parameters for white women physicians and women physicians of color fit better than the model with all parameters constrained.

High Work Exhaustion. The prevalence of high work exhaustion, high disengagement, and overall burnout across work and family characteristics among white women physicians and women physicians of color are presented in **Table 5a.** With regard to work culture and values, high work exhaustion among women physicians of color was significantly more prevalent amongthose who experienced discrimination at work versus those who did not (18.9% vs. 8.2%; $P = .002$). Regarding social support and community at work, high work exhaustion was significantly more prevalent among women physicians of color who had a low perceived sense of community at work versus those who did not (29.4% vs. 9.7%; $P < .001$) and those whose competence was questioned by their colleagues monthly or more often versus those whose competence was questioned less frequently by their colleagues (18.9% vs. 8.5%; $P = .003$). For meaning in work, high work exhaustion was significantly more prevalent among women physicians of color who had low perceived value at work versus those who did not (20.5% vs. 8.3%), those whose patients questioned their competence monthly or more often versus those whose patients questioned their competence less frequently (20.0% vs. 9.5%; $P = .011$), and those with low professional fulfillment versus those without (17.0% vs. 8.9%; $P = .025$). For work-life integration, high work exhaustion among women physicians of color was significantlymore prevalent among those who were not satisfied with work-life balance versus those who didnot indicate dissatisfaction (19.6% vs. 5.3%; $P < .001$).

The associations of work and family characteristics with high work exhaustion among women physicians of color and white women physicians is shown in **Table 5b.** The odds of highwork exhaustion were significantly greater among women physicians of color with low perceived value at work versus those without (OR = 1.21; 95% CI = 1.06, 1.39). This associationwas not found in white women physicians. Furthermore, the odds of high work exhaustion were significantly greater among women physicians of color who had dependent family members versus those who did not (OR = 1.07; 95% CI = 1.01, 1.13) and those who were not satisfied with work-life balance versus those who did not indicate dissatisfaction (OR = 1.10; 95% CI = 1.04, 1.17).

Disengagement with Patients. With regard to work culture and values, 8.2 percent of women physicians of color who had experienced discrimination at work reported high disengagement with their patients compared to 1.6 percent of those who had not experienced discrimination ($P = .001$) **(Table 5a).** Moreover, with respect to work-life integration, high disengagement with patients was seen in 6.7 percent of women physicians

of color who were notsatisfied with work-life balance versus 0.9 percent of those who did not indicate dissatisfaction (*P* = 0.030). Results from the path model **(Table 5c)** showed that the odds of high disengagement with patients were significantly greater among women physicians of color who had experienced discrimination (OR = 1.06; 95% CI = 1.02, 1.10), those with low perceived value at work (OR = 1.09; 95% CI = 1.00, 1.18), and those who were not satisfied with work-lifebalance (OR = 1.05; 95% CI = 1.02, 1.09). These associations were not found in white women physicians.

Disengagement with Colleagues. With regard to workload and job demands, the prevalence of high disengagement with colleagues was significantly greater among women physicians of color who practiced primary care versus those who did not practice primary care (4.0% vs. 0.7%; *P* = .015) **(Table 5a)**. With respect to work culture and values, high disengagement with colleagues was significantly more common among women physicians of color who have experienced discrimination versus those who had not (5.7% vs. 0.7%; *P* = .001). Concerning social support and community at work, high disengagement with colleagues was significantly more common among women physicians of color whose colleagues questioned their competence at least monthly versus those whose competence was questioned less frequently(4.5% vs. 1.3%; *P* = .041). For meaning in work, high disengagement with colleagues was significantly more prevalent among women physicians of color whose patients questioned their competence at least monthly versus those whose competence was questioned less frequently (5.7% vs. 1.4%; *P* = .022). For work-life integration, high disengagement with colleagues was significantly more common among woman physicians of color who had a dependent family member versus those who did not (4.9% vs. 0.3%; *P* = .001) and those who were not satisfied with work-life balance versus those who did not indicate dissatisfaction (4.5% vs. 0.4%; *P* = .006). According to the path model **(Table 5d)**, the odds of high disengagement with colleagues were significantly greater among women physicians of color who had experienced discrimination (OR = 1.05; 95% CI = 1.01, 1.08) and those who had dependent family members(OR = 1.04; 95% CI = 1.02, 1.07).

Overall Burnout. With regard to workload and job demands, overall burnout was more prevalent among women physicians of color who saw more than 20 patients per day versus thosewho saw fewer (50.6% vs. 36.7%; *P* = .006) **(Table 5a).** Concerning control and flexibility at work, overall burnout was more common among those who did not have a leadership position at work versus those who did (45.8% vs. 35.6%; *P* = .040). And regarding efficiency and resources,overall burnout was significantly more prevalent among women physicians of color who spent over half of their day on electronic health records versus those who spent less time (51.1% vs. 36.4%; *P* = .005). With respect to work culture and values, overall burnout was more prevalent among women physicians of color who had experienced discrimination at work versus those whohad not (49.6% vs. 38.9%; *P* = .047). Similarly, on social support and community at work, overall burnout was more common among women physicians of color with a low perceived sense of community at work versus those without (63.6% vs. 40.0%; *P* = .008), those whose colleagues questioned their competence monthly versus those whose

colleagues questioned their competence less frequently (50.9% vs. 38.7%; *P* = .027), and those with low perceived support atwork versus those without (69.2% vs. 40.1%; *P* = .004). For meaning in work, overall burnout was significantly more prevalent among women physicians of color with low perceived value at work versus those without (68.4% vs. 39.2%; *P* = .001), as well as those with low professional fulfillment versus those without (74.4% vs. 38.1%; *P* < .001). With reference to work-life integration, overall burnout was more common in women physicians of color who were single, widowed, divorced, or separated versus those who were in a domestic partnership (56.5% vs. 38.1%; *P* = .002) as well as those who did not have a partner who was a physician versus those who did (45.0% vs. 32.4%; *P* = .024). Lastly, overall burnout was more prevalent among women physicians of color who were not satisfied with work-life balance versus those who did notindicate dissatisfaction (61.5% vs. 26.5%; *P* < .001).

According to the path model **(Table 5e)**, the odds of overall burnout were significantly greater among women physicians of color who had weekly call versus those who did not (OR = 1.12; 95% CI = 1.03, 1.22), those who were single, widowed, divorced, or separated versus thosewho were married or in a domestic partnership (OR = 1.20; 95% CI = 1.06, 1.35), and those whowere not satisfied with work-life balance versus those who did not dissatisfaction (OR = 1.39; 95% CI = 1.27, 1.53). Furthermore, women physicians of color who reported low professional fulfillment had significantly greater odds of overall burnout versus those who did not report low professional fulfillment (OR = 1.18; 95% CI = 1.03, 1.36). Similarly, the odds of overall burnoutamong women physicians of color were significantly lower for those who had a leadership position at work versus those who did not (OR = 0.90; 95% CI = 0.83, 0.99). This association was not seen in white women physicians.

Predictors of Career Satisfaction Outcomes among Women Physicians of Color

Career Choice Regret. The prevalence of career choice regret, specialty choice regret, and plans for early retirement across work, family, and burnout characteristics among women physicians of color are presented in **Table 6a.** With regard to control and flexibility at work, the prevalence of career choice regret was significantly greater among women physicians of color who did not have a leadership position at work versus those who did (20.0% vs. 11.4%; *P* = .023). In general, the prevalence of career choice regret differed significantly among women physicians of color according to the number of hours they worked (*P* = .049). For instance, 21.2 percent of women physicians of color who worked more than 60 hours per week expressed career choice regret compared to 13.0 percent for those who worked 40 to 50 hours per week or 12.3 percent for those who worked 51 to 60 hours per week. With respect to efficiency and resources, the prevalence of career choice regret also differed significantly among women physicians of color according to the number of years they were in practice (*P* = .042). Career choice regret was observed in 33.3 percent of interns, residents, and fellows, whereas career choice regret was observed in 19.4 percent of those who were in practice between 1 to 10 years. In contrast, career choice regret was reported by 14.9 percent of women physicians of color who had been in

practice for 11 to 20 years and is down to 10 percent among women physicians of color who had been in practice for more than 20 years. With respect to work culture and values, the prevalence of career choice regret was significantly greater among women physicians of color who perceived that the promotion of diversity and inclusion at work was low versus those who did not (30.0% vs. 15.6%; *P* = .042), as well as those who had experienced discrimination atwork versus those who had not (29.9% vs. 11.3%; *P* < .001). Concerning social support and community at work, career choice regret was significantly more common among women physicians of color with a low perceived sense of community at work versus those without (30.3% vs. 15.5%; *P* = .028), those whose competence was questioned by their colleagues at least monthly versus those whose competence was questioned less frequently (23.4% vs. 14.3%; *P* = .030), and those with low perceived support at work versus those without (33.3% vs, 15.6%; *P* = .024). With respect to meaning in work, the proportion of women physicians of color who reported career choice regret was significantly greater among those with low perceived value at work versus those without (38.9% vs. 14.5%; *P* < .001), those whose competence was questioned by their patients at least monthly versus those whose competence was questioned lessfrequently (29.7% vs. 14.2%; *P* = .002), as well as those with low professional fulfillment versus those without (55.8% vs. 12.1%; *P* < .001). With reference to work-life integration, the prevalence of career choice regret was significantly greater among women physicians of color who were single, widowed, divorced, or separated versus those who were married or in a domestic partnership (24.1% vs. 14.8%; *P* = .042) as well as those with a dependent child versus those without (23.1% vs. 13.7%; *P* = .018). In addition, career choice regret was significantly more common among those who were not satisfied with their work-life balance versus those whodid not indicate dissatisfaction (23.5% vs. 11.5%; *P* = .001). The prevalence of career choice regret was significantly greater in women physicians of color across all burnout indicators (*P* < .001 for all). Specifically, over half of women physicians of color with high work exhaustion reported career choice regret compared to one-tenth among those without. Career choice regret was observed in 64.3 percent of women physicians of color who demonstrated high disengagement with patients versus 15 percent of those who did not. Career choice regret was reported by 66.7 percent of women physicians of color who demonstrated high disengagement with colleagues versus 15.5 percent of those who did not. Finally, the prevalence of career choiceregret was over three times that among women physicians of color who reported overall burnout compared to those who did not report overall burnout (29.4% vs. 7.6%).

The associations of work, family, and burnout characteristics with career choice regret among women physicians of color are shown in **Table 6b**. With regard to work culture and values, the odds of career choice regret were significantly greater among women physicians of color who had experienced discrimination at work versus those who had not (OR = 1.13; 95% CI = 1.05, 1.22). Meanwhile, women physicians of color with low professional fulfillment had a 32percent increased odds of career choice regret versus those without (OR = 1.32; 95% CI = 1.19, 1.47). With reference to the burnout indicators, the odds of career choice regret were significantly greater among

women physicians of color with high work exhaustion versus those without (OR = 1.17; 95% CI = 1.04, 1.32) and those with high overall burnout versus those without (OR = 1.08; 95% CI = 1.01, 1.17).

Specialty Choice Regret. With regard to workload and job demands, specialty choice regret was significantly more prevalent in women physicians of color in primary care versus those who were not in primary care (38.4% vs. 20.5%; *P* < .001). The prevalence of specialty choice regret significantly differed across practice settings among women physicians of color (*P* = .027). Nearly a third of women physicians of color working in private practice (31.3%) had reported specialty choice regret as opposed to 20.3 percent of those in the public sector or 17.1 percent of those in academic settings. With respect to efficiency and resources, specialty choice regret was more common among women physicians of color who spent over half of their day on electronic health records versus those who spent less of their day on electronic health records (33.2% vs. 21.2%; *P* = .010). Concerning work culture and values, the prevalence of specialty choice regret was significantly greater among women physicians of color who had experienced discrimination compared to those who had not (37.6% vs. 23.4%; *P* = .004). For meaning in work, specialty choice regret was significantly more common among women physicians of colorwith low professional fulfillment versus those without (48.8% vs. 24.9%; *P* = .001). With reference to work-life integration, the prevalence of specialty choice regret was significantly greater among women physicians of color with a dependent family member compared to those without (33.8% vs. 23.8%; *P* = .031). As with career choice regret, specialty choice regret was significantly more common among women physicians of color with indications of burnout, such as those with high work exhaustion versus those without (42.6% vs. 25.5%; *P* = .014), those withhigh disengagement with their colleagues versus those without (64.3% vs. 26.1%; *P* = 002), those with high disengagement with their patients versus those without (66.7% vs. 26.6%; *P* = .008), and those who reported overall burnout versus those who did not (35.3% vs. 21.8%; *P* = .003). According to the path model **(Table 6c)**, the odds of specialty choice regret were significantly greater among women physicians of color who were in primary care versus those not in primary care (OR = 1.12; 95% CI = 1.02, 1.22), those in private practice versus those in anacademic work setting (OR = 1.16; 95% CI = 1.02, 1.32), those who had experienced discrimination at work versus those who had not (OR = 1.14; 95% CI = 1.04, 1.26), and those with low professional fulfillment versus those without (OR = 1.18; 95% CI = 1.03, 1.36).

Plans for Early Retirement. The proportion of women physicians of color with plans for early retirement differed significantly by age group (*P* = .016). Specifically, plans for early retirement were most common among those 39 years or younger (35.5%), followed by individuals 50 to 59 years (28.6%), those 40 to 49 years (24.7%), and those 60 years or older (6.9%). With regard to work culture and values, women physicians of color who had experienced discrimination were more likely to have plans for early retirement versus those who had not (35.9% vs. 23.0%; *P* = .008). For meaning in work, plans for early retirement were significantly more common in women physicians of color who reported low professional fulfillment versus those who did not (48.8% vs. 24.2%; *P* = .001). Significant differences in the prevalence of plansfor

early retirement were found across multiple burnout indicators among women physicians of color. Namely, plans for early retirement were significantly more common among those with high work exhaustion versus those without (50.0% vs. 23.7%; *P* < .001), those with high disengagement with patients versus those without (53.8% vs. 25.8%; *P* = .025), and those who reported overall burnout versus those who did not (36.5% vs. 19.8%; *P* < .001). According to thepath model **(Table 6d)**, the odds of having plans for early retirement were significantly greater among women physicians of color with low professional fulfillment versus those without (OR = 1.20; 95% CI = 1.04, 1.39). This association was not found in white women physicians. In addition, the odds of having plans for early retirement were significantly greater women physicians of color with high work exhaustion compared to those without (OR = 1.18; 95% CI = 1.00, 1.39).

Predictors of Mental Health Outcomes among Women Physicians of Color

High Sleep Impairment. The prevalence of high sleep impairment, high anxiety symptoms, high depressive symptoms, and suicidal ideation over the past 12 months across work, family, and burnout characteristics among women physicians of color are presented in**Table 7a**. With regard to efficiency and resources, the prevalence of high sleep impairment differed across women physicians of color according to their years in practice (*P* = .013). Specifically, high sleep impairment was reported by 34.6 percent of women physicians of color who were interns, residents, and fellows, whereas it was reported by 17 percent of those who hadbeen practicing 1 to 10 years, 14.2 percent of those who had been practicing 11 to 20 years, and 8.6 percent of those who had been practicing more than 20 years. Meanwhile, high sleep impairment was significantly more common among women physicians of color who spent more than half of their day on electronic health records versus those who spent less than half their dayon electronic health records (22.8% vs. 10.3%; *P* = .001). With respect to work culture and values, over a quarter (26.2%) of women physicians of color who had experienced discrimination at work had high sleep impairment, which was significantly greater (*P* < .001) than the proportion of those who had not experienced discrimination (12.1%). Concerning socialsupport and community at work, high sleep impairment was significantly more prevalent among women physicians of color whose colleagues questioned their competence monthly or more versus those whose competence was questioned by their colleagues less frequently (27.9% vs. 12.0%; *P* < .001). For meaning in work, the proportion of women physicians of color reporting high sleep impairment was significantly greater among those whose patients questioned their competence monthly or more often versus those whose patients questioned their competence lessfrequently (15.9% vs. 11.4%; *P* = .006). With reference to work-life integration, high sleep impairment was significantly more common among women physicians of color who were not satisfied with work-life balance versus those who did not report dissatisfaction (22.9% vs.

11.5%; *P* = .005). For the burnout indicators, high sleep impairment was more prevalent amongwomen physicians of color with high work exhaustion versus those who were not (45.8% vs. 11.5%; *P* < .001) and those with overall burnout versus those without (28.9% vs. 7.9%; *P* < .001).

The associations of work, family, and burnout characteristics with high sleep impairmentare shown in **Table 7b.** With regard to efficiency and resources, the odds of high sleep impairment among women physicians of color were significantly greater in those who spent overhalf of their day on electronic health records versus those who spent less time on electronic health records (OR = 1.08; 95% CI = 1.01, 1.15). This association was not found among white women physicians. With respect to work culture and values, the odds of high sleep impairment among women physicians of color were significantly greater among those who had experienced discrimination at work versus those who had not (OR = 1.09; 95% CI = 1.01, 1.17). Concerning the burnout indicators, the odds of high sleep impairment were significantly greater among women physicians of color with high work exhaustion versus those without (OR = 1.43; 95% CI = 1.27, 1.61) as well as those who reported overall burnout versus those who did not (OR = 1.12;95% CI = 1.04, 1.21).

High Anxiety Symptoms. With regard to efficiency and resources, the prevalence of high anxiety symptoms among women physicians of color differed significantly according to their years in practice (*P* = .024) **(Table 7b)**. Specifically, high anxiety symptoms were reported by 19.2 percent of women physicians of color who were interns, residents, and fellows, whereas it was reported by 7.8 percent of those who had been practicing 1 to 10 years, 4.2 percent of those who had been practicing 11 to 20 years, and 4.9 percent of those who had been practicing more than 20 years. With respect to work culture and values, high anxiety symptoms were significantly more common among women physicians of color who had experienced discrimination at work versus those who had not (11.5% vs. 4.9%; *P* = .015). Concerning social support and community at work, high anxiety symptoms were significantly more prevalent among women physicians of color with a low perceived sense of community at work versus those without (17.6% vs. 6.9%; *P* .009), as well as those whose competence was questioned by their colleagues monthly or more versus those whose competence were questioned less often (12.6% vs. 4.7%; *P* = .005). With reference to work-life integration, high anxiety symptoms weresignificantly more common among women physicians of color who were not satisfied with work-life balance versus those who did not indicate dissatisfaction (12.8% vs. 2.7%; *P* < .001). Across all burnout indicators, the prevalence of high anxiety symptoms was significantly greateramong women physicians of color with high work exhaustion versus those without (25.0% vs. 4.1%; *P* < .001), those with high disengagement with patients versus those without (20.0% vs. 5.9%; *P* < .001), those with high disengagement with colleagues versus those without (22.2% vs.6.0%; *P* < .001), and those who reported overall burnout versus those who did not (15.0% vs. 1.3%; *P* < .001). According to the path model **(Table 7c)**, the odds of high anxiety symptoms

were significantly greater among women physicians of color with low perceived workplace diversity and inclusion versus those without (OR = 1.15; 95% CI = 1.01, 1.32), those with high work exhaustion versus those without (OR = 1.17; 95% CI = 1.08, 1.28), and those who reportedoverall burnout versus those who did not (OR = 1.07; 95% CI = 1.02, 1.13). Significant associations between high work exhaustion and overall burnout and high anxiety symptoms as seen among women physicians of color were not found among white women physicians.

High Depressive Symptoms. With regard to work culture and values, high depressive symptoms were significantly more common among women physicians of color with a low perceived sense of community at work versus those without (14.7% vs. 4.3%; *P* = .009), those whose colleagues questioned their competence at work monthly or more versus those whose colleagues questioned their competence less frequently (11.7% vs. 2.8%; *P* < .001), and those with low perceived support at work versus those without (9.9% vs. 3.9%; *P* = .030). With respectto meaning in work, high depressive symptoms were significantly more common among women physicians of color with low perceived value at work versus those without (9.6% vs. 3.7%; *P* = .023) as well as those whose competence was questioned by their patients monthly or moreversus those whose patients questioned their competence less frequently (10.0% vs. 4.2%; *P* = .045). Concerning work-life integration, high depressive symptoms were more common amongwomen physicians of color who were not satisfied with work-life balance versus those who did not indicate dissatisfaction (11.2% vs. 0.9%; *P* < .001). With reference to the burnout indicators, high depressive symptoms were significantly more prevalent among women physicians of color with high work exhaustion versus those without (22.9% vs. 2.7%; *P* < .001), those with high disengagement with colleagues versus those without (22.2% vs. 4.5%; *P* = .014), and those who reported overall burnout versus those who did not (11.6% vs. 0.8%; *P* < .001). According to the path model **(Table 7d)**, the odds of high depressive symptoms were significantly greater among women physicians of color who were not satisfied with work-life balance versus those who did not indicate dissatisfaction (OR = 1.05; 95% CI = 1.01, 1.10), as well as those with high work exhaustion versus those without (OR = 1.19; 95% CI = 1.11, 1.28).

Suicidal Ideation (Past 12 Months). With regard to social support and community at work, suicidal ideation over the past year was significantly more prevalent among women physicians of color with low perceived support at work versus those without (14.3% vs. 4.6%; *P* = .016). With respect to work-life integration, suicidal ideation over the past year was significantly more common among women physicians of color whose partner was not a physician versus those whose partner was a physician (7.0% vs. 1.0%; *P* = .021). Furthermore, suicidal ideation in the past year was significantly more prevalent among women physicians of color who reported overall burnout versus those who did not report overall burnout (9.0% vs. 3.0%; *P* = .009). According to the path model **(Table 7e)**, the odds of suicidal ideation over the past year was significantly greater among women physicians of color who reported overall burnout versus those who did not report burnout (OR = 1.06; 95% CI = 1.00, 1.12).

Discussion

In this study, we found that workplace and family characteristics were associated with burnout, career, and mental health outcomes among women physicians. We also found that someof these associations may be more specific to women physicians of color. In ascertaining these findings, our research expands the scientific literature in several ways. First, its focus on women and the in-depth investigation of women physicians of color make the sample particularly unique. Second, we conducted a comprehensive assessment of work and family characteristics spanning multiple predictors within these domains. Likewise, we evaluated a broad range of outcomes within the burnout, career, and mental health domains. In the sections below, we highlight key findings from our study and describe them in the context of the extant literature.

Burnout, Career Satisfaction, and Mental Health among Women Physicians

Burnout. In our study, 10.2 percent of women physicians reported high work exhaustionin the past two weeks, which is roughly the same as women physicians of color among whom
10.5 percent reported high work exhaustion. Our estimate for high work exhaustion may be lower compared to other studies. For example, Shanafelt and colleagues (2019b) reported that
38.7 percent of their sample of women physicians had high emotional exhaustion. This may be due to the different measures used between studies. Specifically, Shanafelt et al.'s (2019b) estimates were based on a nine-item measure of *emotional exhaustion* from the Maslach BurnoutInventory (MBI; Maslach, 1981), which covers a broad array of exhaustion indicators, such as feeling fatigued before work, feeling emotionally drained from work, and feeling that working with people is a strain. In contrast, our measure of work exhaustion (Trockel et al., 2018) addressed feeling physically and emotionally exhausted at work, lacking enthusiasm at work, anda sense of dread when thinking about work. In this manner, our measure of exhaustion specifically addressed how individuals felt based on their work more specifically, whereas the MBI captures elements of work and working with individual patients. In addition, our measure also used a time frame of two weeks, which provided us with a close approximation of what respondents are currently experiencing. In contrast, the response items in the MBI asks individuals to indicate how often (e.g., "a few times a month" or "once a week") they experienced symptoms of emotional exhaustion, and individuals are categorized based on their recall of the frequency of their experiences.

Our study found that 3.7 percent of women physicians experienced high disengagement with their patients within the last two weeks, while 2.4 percent experienced high disengagement with their colleagues. Similarly, 3.3 percent of women physicians of color experienced high disengagement with their patients, while two percent experienced high disengagement with their colleagues. As with high work exhaustion, other studies have reported higher

levels of similar measures, such as depersonalization. For instance, Shanafelt et al. (2019b) found that 18 percentof their respondents had experienced depersonalization in their work. The prevalence of disengagement may vary according to the measure used. For example, our measures of disengagement derived from Trockel and colleagues (2018) were based on a two-week timeframe. Our measures also specifically focused on respondents' empathy, connectedness, andinterest in their patients and colleagues. Meanwhile, the MBI (Maslach, 1981) focuses broadly on whether providers understand their patients, their ability to deal with problems, and how they feel about what they have been able to do for their patients.

With regard to overall burnout, this was reported by 37.2 percent of the women physicians in our sample, which was roughly equal to the 37.8 percent of women physicians of color in our sample reporting overall burnout. Whereas our estimates for exhaustion and disengagement were lower in our sample, our findings for overall burnout were comparable to other studies. In a recent study by Garcia and colleagues (2020), which investigated burnout, depressive symptoms, career satisfaction, and work-life integration across different race and ethnicity groups of physicians, they found that the prevalence of occupational burnout was 37.4 percent among their Hispanic/Latinx participants, 38.5 percent among their Non-Hispanic Blackparticipants, and 41.7 percent among their Non-Hispanic Asian participants. It is clear from our reporting and the extant literature that the prevalence of burnout is staggering and represents a public health issue. In light of the wide-ranging implications of burnout, the need for action is clear, especially as studies have found that burnout among physicians is more prevalent than thatof the general working population in the US (Shanafelt et al., 2019a; 2019b). In addition, it is worth noting that our use of a single measure to assess overall burnout may be less sensitive andtherefore produced more conservative estimates of the prevalence of burnout among women physicians (Dyrbye, West, & Shanafelt, 2009).

Career Outcomes. In our study, 14 percent of women physicians reported career choice regret, which was roughly the same as the 14.8 percent of women physicians of color who reported career choice regret. This finding was comparable to previously published works. A 2018 study by Dyrbye and colleagues found that 14.1 percent of resident physicians experiencedcareer choice regret. This suggests that career choice regret among physicians may emerge whilethey are still in training and continue into their careers. In another study (Dyrbye et al., 2013), higher estimates of career choice regret were found, ranging from 23.9 percent to 37.6 percent of participants. It is possible that the prevalence of career choice regret was greater in their study given that it did not include physicians in training, which suggests the possibility that the likelihood of career choice regret may increase as physicians advance in their careers. This has important implications for the health care workforce, as career choice regret may result in high physician turnover and physician shortages in society (Shanafelt, Sinsky, & Goh, 2017).

Our study found that 22.1 percent of women physicians experienced specialty choice regret while 24.5 percent of women physicians of color experienced specialty choice regret. The prevalence of specialty choice regret

was within the expected range compared to findings from prior studies. In a 2013 study by Dyrbye and colleagues, for example, specialty choice regret was found in 26.6 to 33.7 percent of the physicians in their sample. In that study, they found that specialty choice regret was more common particularly among middle career physicians who had been practicing between ten to twenty years, whereas specialty choice regret may be less prevalent in early career physicians. For example, it has been shown that 7.1 percent of resident physicians practicing in the US report specialty choice regret (Dyrbye et al., 2018). Indeed, our sample had a larger proportion of physicians who are earlier in their career, with roughly 40 percent of our sample within their first 10 years of practice.

Plans for early retirement were reported in 25 percent of the women physicians in our sample, which was slightly higher than the 23.6 percent of women physicians of color reporting plans for early retirement. To date, few studies have investigated how common plans for early retirement may be among practicing physicians. Most studies have focused on ascertaining whether physicians were planning to leave their practice imminently or whether they sought to look for a different job or leave medicine (Dewa et al., 2014; Dyrbye et al., 2013). Other studies have investigated physician plans to reduce their clinical hours. In 2013, Dyrbye et al. found that 11 percent of all surveyed physicians were planning to leave their practice and retire. Meanwhile,one percent of the early and middle career physicians they surveyed were planning to leave their practice and retire. In another study, Dewa et al. (2014) found that 12.7 percent of all family practice physicians were dissatisfied with their careers and planned to retire early. Specifically, Dewa and colleagues (2014) reported that career dissatisfaction and early retirement plans were found among 5.3 percent of family practice physicians below age 45, 8.4 percent of those between ages 45 and 54 years, and 24.4 percent of those ages 55 to 64 years. Careful attention should be given to the early retirement plans of physicians, as this has broad implications for health care organizations. At academic institutions, for example, productivity can be compromised with the loss of middle career physicians who are often involved in writing grants,implementing research studies and publishing scholarly work.

Mental Health Outcomes. To date, there have been few studies that have investigated the prevalence of anxiety symptoms among physicians, especially women physicians of color. Inour study, 6.1 percent of women physicians experienced high anxiety symptoms within the past week, which was roughly the same as the 6.3 percent of women physicians of color experiencinghigh anxiety symptoms. Prior studies suggest that the prevalence of anxiety in health care professionals may range from 7.7 to 65.5 percent (Hope & Henderson, 2014), which may vary based on the measures used. Our study also found that 16.3 percent of women physicians experienced high sleep impairment within the past week, while 15.1 percent of women physicians of color reported high sleep impairment. Given that our estimates for sleep impairment, anxiety, and depression were based on the past week, this provides us a better understanding of what practicing physicians may currently be experiencing. Inadequate sleep is aknown issue among physicians that begins as early as medical school (Lapinski et al., 2016),

andcontinues into residency (Gupta et al., 2013; Panagopoulou et al., 2006) and practice (Eddy, 2005). It is important to identify sleep problems and intervene early. Not only may inadequate sleep adversely affect the cognitive functioning of physicians (Saadat et al., 2016), it may also evolve into negative mental health outcomes (Papp et al., 2004).

With regard to high depressive symptoms in the past week, this was reported in 5.4 percent of women physicians in our sample, which was roughly the same as 4.8 percent of women physicians of color who reported high depressive symptoms. These estimates were lowerthan those reported in previous studies. For example, Mata et al. (2015) estimated the prevalence of depression to be approximately 30 percent among resident physicians. Garcia et al. (2020) found that between 40 and 45 percent of physicians of color screened positive for depression symptoms. Their study was based on a two-item screening instrument asking about symptoms inthe past month, whereas our measure was based on the past week, which may explain the higher prevalence of depression in their study (Thombs et al., 2018). Concerning suicidal ideation over the past year, this was found among 6.6 percent of the women physicians in our sample. Among the women physicians of color, 4.8 percent reported suicidal ideation over the past year. In a study of surgeons, Shanafelt et al. (2011) found that 6.3 percent had reported suicidal ideation over the past year. The prevalence of suicidal behaviors may be elevated in the physician population compared to the general population. Accordingly, it is important to identify the risk factors that may be addressed so targeted interventions may be developed. More research must be done on this.

Work and Family Predictors of Burnout among Women Physicians

Common Predictors of Burnout among Women Physicians of Color and White WomenPhysicians

Our study showed that both women physicians of color and white women physicians withweekly on-call responsibilities were more likely to report overall burnout. Specifically, the odds of overall burnout were roughly 10 percent greater among women physicians with weekly call responsibilities compared to those who did not have weekly call. This is comparable to previous studies. For example, using a sample of about 8,000 surgeons from the American College of Surgeons, Shanafelt et al. (2009a) found that for each additional night on-call per week, physicians' odds of burnout increased by five percent. Dyrbye and colleagues (2013) reported similar results in their study in which the odds of burnout were three percent greater for each additional night. It was also noted that call responsibilities tended to be highest among mid- career physicians (Dyrbye et al., 2013). Meanwhile, Cydulka and Korte (2008) found in their sample of emergency physicians that the number of shifts and length of shifts were associated with burnout among physicians. These studies together continue to highlight the need for healthcare organizations to pay attention to the call responsibilities of their physicians, as this may contribute to burnout and turnover.

Low professional fulfillment was associated with overall burnout among both women physicians of color and white women physicians, which is consistent with prior studies. Cydulkaand Korte (2008) found that lack of

personal reward in work was associated with burnout amongemergency physicians. In contrast, Shanafelt et al. (2009b) reported that physicians who spent atleast 20 percent of their time doing work that was meaningful to them were half as likely to experience burnout. Interestingly, their findings also suggested that the type of meaningful activity was not significant. Rather, the amount of time allowed for meaningful activity was key.These results suggest that health care organizations need to be clear and transparent during the hiring process about whether they will be able to accommodate the work that is most meaningfulto their staff physicians. Furthermore, supervisors should consider having annual reviews with their staff physicians to explore their career goals and determine the type of work that is meaningful to them and make attempts to protect time for this in order to decrease burnout and retain faculty. Indeed, what brings joy in work to physicians may shift over time as they gain exposure to different experiences and environments. Therefore, frequent dialogue between physicians and their supervisors may be critical to preventing turnover.

Among both women physicians of color and white women physicians, having dependent family members was associated with both high work exhaustion and high disengagement with colleagues. Studies long have indicated that women in medicine are differentially affected by thedemands of family life compared to men in the profession. In 1998, Carr and colleagues found that among academic medical school faculty with children, women encountered more obstacles during their careers and less institutional support, including research funding and administrative support. Among the challenges that women faced, they were also less able to expand their working hours. Exacerbating these concerns, women have been found to be more likely to experience uneven responsibilities at home (Houkes et al., 2011). This has been supported by research conducted in married physicians with children, which showed that married women spent 8.5 more hours per week on parenting and other domestic responsibilities compared to married men (Jolly et al., 2014). Furthermore, according to a recent study by Frank and colleagues (2019an estimated 30.5 percent of women physicians with children were not workingfull-time within six years of training compared to 4.6 percent of men with children. In the context these findings, health care organizations must be mindful about limiting work activities such as meetings to typical business hours. In addition, these results highlight an important role for programs that provide non-professional support to staff physicians.

Similar to what was discussed above, women physicians of color and white women physicians who were not satisfied with work-life balance were also more likely to report high high work exhaustion and overall burnout. To date, few studies have looked at the association between satisfaction with work-life balance or integration and burnout simultaneously among health care providers. Rather, more studies have examined work-life balance/integration and burnout as separate outcomes (Dyrbye et al., 2019; Shanafelt et al., 2019a, 2019b). Among thefew studies examining how work-life balance satisfaction may be related to burnout, Cydulka and Korte (2008) reported that emergency physicians who felt that they did not have enough

time for their personal life were approximately twice as likely to experience burnout compared tothose who felt that they had enough time for their personal life. In our study, women physicians who were not satisfied with work-life balance had a 10 percent increased odds for high work exhaustion and 40 percent increased odds for burnout. As such, health care organizations need toensure that women physicians on staff are equipped with the support to achieve work-life balance and integration.

Predictors of Burnout Specific to Women Physicians of Color

Women physicians of color who have experienced discrimination at work were significantly more likely to report high disengagement with both their patients and colleagues. Few, if any, empirical studies have examined the link between discrimination and burnout outcomes such as disengagement among women physicians, particularly physicians of color. In aprior study by Cydulka and Korte (2008), emergency physicians were asked to list key problems in their daily work. Among the items listed, gender and race/ethnicity discrimination were frequently listed. In positing the mechanism by which discrimination among women physicians of color may result in disengagement, we consider past research by Kahn (1990), who hypothesized that meaningfulness, availability, and psychological safety may represent three keypredictors of engagement. Meaningfulness involves the value of a work goal in relation to an individual's own ideals or standards. Availability comprises the physical, emotional, and cognitive resources that individuals may access. Psychological safety involves whether one feels empowered to show themselves without fear or negative consequences to one's self-image, status, or career. It is possible, then, that experiences of discrimination may be undermining the psychological safety of women physicians of color, which results in their disengagement at the workplace. Indeed, one previous study found that experiences of gender discrimination by women working in India were negatively associated with emotional engagement at work (Sia, Sahoo, & Duari, 2015).

Among women physicians of color, low perceived value at work was associated with high work exhaustion and high disengagement with patients. Studies have shown that employeeswho feel valued for their contributions at work are more likely to exhibit positive employee attitudes and behaviors (Dulac et al., 2008; Rich, Lepine, & Crawford, 2010). Research on the link between perceived value at work and burnout has been limited. In a 2016 survey of neurologists, it was shown that burnout was more common in women than men. When asked to describe concerns at work, the women participants frequently noted that pay inequity was a systemic issue that warranted attention (LaFaver et al., 2018). Our study showed that women physicians of color who identified as single, widowed, divorced, or separated were more likely toreport overall burnout. These findings were consistent with past studies that have shown that married physicians are significantly less likely to report burnout (Shanafelt et al., 2019a; 2019b). The explanation for these results remains to be explored. One possibility is that married or partnered physicians have been found to be more satisfied with work-life

balance (Dyrbye et al., 2013). Indeed, our study showed that work-life balance was associated with high work exhaustion and overall burnout, which may be a potential mediator to be examined in future research regarding relationship status and burnout among physicians.

Work and Family Predictors of Career Outcomes among Women Physicians

Common Predictors of Career Outcomes among Women Physicians of Color and White WomenPhysicians

Among both women physicians of color and white women physicians, working as a primary care physician and working in a private practice setting were associated with specialty choice regret, which has already been widely reported in prior studies. In one previous study by Dyrbye and colleagues (2013) involving a sample of over 7,000 physicians, it was shown that career satisfaction was lowest among primary care physicians (e.g., internal medicine, family medicine, general pediatrics) during both their early and middle career stages. This finding was consistent with the results of our study. Meanwhile, with regard to practice setting, Dyrbye et al. (2013) reported that individuals working in private practice were more likely to report symptomsof burnout, yet also more likely to be satisfied with their careers (Dyrbye et al., 2013). In contrast, we found that practice settings were not significantly associated with burnout, only specialty choice regret. This finding highlights the need for further research to explore what might explain these differences. It is worth noting that Dyrbye and colleagues (2013) studied career satisfaction outcomes for both male and female physicians, whereas our study only had female participants. It is possible that women physicians working in private practice settings mayencounter unique policies and obstacles that are compromising their satisfaction with their specialty. Another factor worth considering might be one's experiences earlier in training—such as during residency or medical school. For example, a more recent study by Dyrbye and colleagues (2018) showed that medical students who received higher levels of emotional supportwere less likely to report specialty choice regret as residents. These influences may potentially persist through the careers of physicians.

As with burnout, low professional fulfillment was found to be associated with career choice regret and specialty choice regret among women physicians of color and white women physicians. This finding is consistent with the extant literature, which has widely shown that professional fulfillment has broad implications for burnout and career satisfaction (Shanafelt et al., 2009b; Trockel et al., 2018). It further demonstrates that for women physicians, it remains important to ensure that their work includes aspects that are meaningful to them as a strategy to optimize their career satisfaction. In our study, we also found that high work exhaustion was significantly associated with career choice regret and plans for early retirement among women physicians. Specifically, women physicians with high work exhaustion had a roughly 20 percent greater odds of these negative career outcomes. Similar findings have been reported previously (Dyrbye et al., 2018; Shanafelt et al., 2009b). As discussed previously,

satisfaction with work- life balance was associated with high work exhaustion among women physicians. And given thathigh work exhaustion was also significantly associated with career choice regret and plans for early retirement, the importance of bolstering work-life balance and integration for women physicians is even greater.

Predictors of Burnout Specific to Women Physicians of Color

In addition to the disengagement outcomes reported earlier in our study, we found thatwomen physicians of color who experienced discrimination at work were also more likely to report career choice regret and specialty choice regret. Previously, Dyrbye et al. (2018) foundthat Hispanic or Latino physicians were more likely to report specialty choice regret, hypothesizing that workplace discrimination may play a role. Our finding that experiencing discrimination at work was associated with career and specialty choice regret among women physicians of color provides evidence in support of their hypothesis. What remains to be determined, however, are the factors or mechanisms that connect experiences of discrimination at work to adverse career outcomes. Values incongruence following experiences of discrimination may be a key contributor to career and specialty choice regret (Leiter et al., 2009). Specifically, it has been suggested that an incongruence between the workplace and physicians' expectations of their work environment's values may be associated with exhaustion and cynicism(Leiter et al., 2009). It is possible that experiencing discrimination compromises the perceived congruence between the values of women physicians of color vis-à-vis their workplace, which increases their likelihood for career and specialty choice regret.

Not surprisingly, overall burnout was associated with career choice regret among womenphysicians of color. Specifically, women physicians of color who reported overall burnout had an eight percent increased odds of career choice regret. Meanwhile, among women physicians ofcolor, low professional fulfillment was associated with having plans for early retirement. The issue of low professional fulfillment and burnout among women physicians of color is of considerable importance to the health care workforce. Nearly 20 percent of women physicians ofcolor reported low professional fulfillment, while approximately 40 percent reported experiencing overall burnout. These issues are important because women physicians of color play a crucial role in delivering quality care to underserved communities (Walker, Moreno, & Grumbach, 2012). As such, these individuals are a critical resource for the most vulnerable populations in society. These findings highlight the importance of how healthcare organizations must pay greater attention to the job descriptions of their women physician of color workforce, particularly with regard to productivity demands and clerical burdens that may undermine their professional fulfillment.

Work and Family Predictors of Mental Health Outcomes among Women Physicians *Common Predictors of Mental Health Outcomes among Women Physicians of Color and WhiteWomen Physicians*

Our study showed that low perceived workplace diversity and inclusion were associated with high anxiety symptoms among women physicians of color and white women physicians. Todate, there have been few studies that have examined the role that the lack of workplace diversityand inclusion may play in the mental health outcomes of women physicians. The repercussions of a lack of diversity and inclusion in the workplace can manifest in insidious ways, including the lack of role models, lack of mentors, and lack of perceived legitimacy for underrepresented groups. Indeed, in settings where there is low workplace diversity and inclusion, it has been suggested that women, especially those from underrepresented backgrounds, may be hindered by having "little visibility and few advocates" (Wong et al., 2001). The lack of diversity in the workplace may result in women physicians struggling to find shared experiences with their colleagues, which may in turn be a driver for anxiety.

Whereas experiencing discrimination was uniquely associated with burnout and career outcomes among women physicians of color, experiencing discrimination was associated with mental health outcomes—namely high sleep impairment—among both women physicians of color and white women physicians. Overall, our research clearly demonstrated that experiencingdiscrimination was associated with a wide breadth of outcomes for women physicians. It is imperative for health care organizations to identify and address these issues. One strategy, for example, would be to administer Climate Surveys on a regular basis that are expanded to cover issues such as sexual harassment, gender bias, and race/ethnicity discrimination (Shanafelt,Sinsky, & Goh, 2017). Policies must also be directed to address discrimination.

In addition to career outcomes, we found that high work exhaustion was linked to high sleep impairment and high depressive symptoms among women physicians in our study. This supports findings from past studies that describe additional clinical pressures on women physicians. For example, women physicians have been found to spend a greater length of time with patients to address their complex psychosocial concerns (McMurray et al., 2000). Health care organizations should work to ensure that the demands placed on women physicians do not increase their risk for work exhaustion. In our study, we found that women physicians with dependent family members and those who were not satisfied with work-life balance were more likely to report high work exhaustion. As such, these represent key targets for future interventionprogramming on an institutional level.

Predictors of Mental Health Outcomes Specific to Women Physicians of Color

With regard to the mental health outcomes examined in our study, we found that women physicians of color who spent more than half their day on electronic health records were more likely to report high sleep impairment. Likewise, according to Medscape's *National Physician Burnout & Suicide Report 2020* (Kane, 2020), matters that contribute most to burnout include too many bureaucratic tasks (e.g., charting and paperwork) and the increasing computerization ofpractices. Melnick et al. (2020) found in a sample of 870 physicians practicing in the US that those perceiving electronic

health records as “usable” were less likely to report dissatisfaction with work-life integration. This suggests that improving the usability of electronic health records,either through its design or implementation, may be beneficial to physician well-being. One possibility is to improve the availability of EHR “super-users,” who can help support physicians with their documentation and other tasks over EHR (Kushinka, 2011).

Whereas not being satisfied with work-life balance was associated with burnout among both women physicians of color and white women physicians, it was also linked to mental healthoutcomes—such as high depressive symptoms—only among women physicians of color. In addition, high work exhaustion was associated with high anxiety symptoms among women physicians of color only. In order to understand the consequences of work-life balance and work exhaustion concerns among women physicians of color, it is important to note that these individuals are more likely to serve patients from vulnerable minority populations, including those from lower income households (e.g., uninsured and Medicaid patients) as well as those with limited English proficiency (Marrast et al., 2014; Silver et al., 2019). These differences are noteworthy because they may place a financial strain on women physicians of color, as Medicaidreimbursements, for example, are known to be lower compared to private insurance companies (Cunningham & O’Malley, 2008). In addition, this patient population may have decreased accessto regular health care. By the time they are seen by their physicians, these patients’ medical issues may be more advanced and complex. The challenge of treating these patients may be complicated by the psychosocial challenges that they face. Overall, patients from low-income and underserved communities may consume more time by the physician. Given the greater clinical burden and financial strain that is more common among patients from underserved backgrounds, it is not surprising that concerns with work-life balance and high work exhaustion followed by depression and anxiety may emerge.

Our study showed that overall burnout was associated with a range of mental health outcomes among women physicians of color, including high sleep impairment, high anxiety symptoms, and suicidal ideation over the past year. As with the career outcomes, the associationsbetween overall burnout and the mental health outcomes was unique to women physicians of color. In addition, overall burnout was the only predictor that was associated with suicidal ideation. These findings reveal that burnout remains a major challenge for physicians of color, particularly in light of how it can impact their well-being. It is imperative that changes are made health care organizations at an institutional level and that their culture genuinely aligns with theirmission and goals regarding diversity, inclusion and well-being. For example, according to Medscape’s *National Physician Burnout & Suicide Report 2020* (Kane, 2020), a third of the physicians surveyed indicated that a lack of respect from administrators, employers, colleagues, or staff contributed to burnout, in addition to issues such as having too many bureaucratic tasks and spending too many hours at work. Taken together, addressing these basic concerns may reduce the prevalence of burnout among women physicians of color.

Limitations

Given the cross-sectional nature of this study, the temporal associations of work and family characteristics with burnout, career satisfaction, and mental health among women physicians of color could not be established. Moreover, we were unable to assess changes in these work, family, burnout, career, and mental health measures over time. Some measures of work and family characteristics may be subject to recall bias. In addition, some measures— particularly with regard to the career satisfaction and mental health outcomes—may be subject tosocial desirability bias. This study represents an initial assessment of the potential drivers of burnout, career satisfaction, and mental health among women physicians of color. It does not account for the potential interactions between these drivers. Although we examined a wide array of potential drivers of burnout, additional factors should be considered in future research.

Specifically, this study focused largely on home and work characteristics as potential drivers, butadditional institutional drivers may be considered (e.g., productivity expectations, team leadership and structures, medical reimbursements, and regulations). Finally, we recognize that this study is limited by our ability to only make comparisons between white women physicians and women physicians of color due to small cell sizes. Future studies should distinguish among the multiple race/ethnicity groups and obtain more specific information on the drivers of burnoutin order to develop more tailored interventions.

Conclusion

Burnout represents a serious issue for health care organizations especially in light of its links to negative career and mental health outcomes among physicians. Indeed, the cost of turnover can range from $100,000 to $600,000 to replace a physician in a given clinical department (Schloss et al., 2009). Women physicians are a particularly integral component of thehealth care workforce. It has been shown that women in medicine are more likely to incorporate preventative services, health education, and emphasize psychosocial services in the care of their patients (McMurray et al., 2000). In addition, women physicians of color are especially crucial tothe health care workforce because they bring different perspectives that directly benefit underserved communities (Calder, 1997). And while they have begun to occupy more significantpositions in medicine after years of marginalization, much more work remains to be done to support their well-being.

There is a need to confront the organizational factors linked to burnout among women physicians of color. Health care organizations need to acknowledge and regularly assess matters related to burnout among their physicians. Moreover, it will also be important to develop and implement targeted interventions geared toward women working within different specialties andwork settings. Given the range of implications of work exhaustion that commonly affect womenphysicians of color, these individuals need to be given the resources that enhance their resilienceand self-care. And still, the burden of fostering physician well-being should not be regarded as an individual responsibility, and it certainly cannot fall solely

on this marginalized group. Organizations are responsible for ensuring that their culture aligns with their values and that theirpolicies strive towards achieving equity between their staff physicians. This is especially true given that our study showed that experiences of discrimination have been linked to adverse burnout, career satisfaction, and mental health outcomes among women physicians of color.

Health care organizations need to harness the power of their leadership to address burnout among women physicians of color (Shanafelt & Noseworthy, 2017). Given that experiences of discrimination have been associated with a broad range of adverse outcomes among women physicians in this study, it is clear that the onus is on organizational leaders to track metrics and address matters related to equity within their health care organizations. This includes tracking indicators related to pay, promotion rates, leadership opportunities, as well as the dissemination of administrative supports. Routinely providing micro-aggression and implicit bias training, as well as reviewing these curricula to ensure that they are up-to-date and relevant, is also crucial. Interventions geared toward addressing ongoing concerns also need to be monitored for their efficacy, and a greater culture of accountability and transparency needs to be fostered to ensure that substantive changes are accomplished. These can be done through basic steps, such as allowing employees to provide anonymous feedback to supervisors and leadershipabout the work climate. Enforcing existing policies that address equity represents another key strategy. In some instances, this work may require the investment of additional staffing resourcesdedicated to diversity, equity, and inclusion efforts. As demonstrated by this study, however, theallocation of such resources would be crucial to sustaining women physicians of color in the health care workforce.

It is imperative to provide women physicians of color with viable career paths, mentorship, and support, with conscious effort put toward giving them equal access to doing scholarly work and achieving promotions and leadership opportunities. As leaders, women physicians of color are best equipped to recognize the disparities that adversely affect other women physicians of color, and the importance of that cannot be understated. It circumvents the cross-cultural barriers that come with implementing policies needed to address physician well- being (Wong et al., 2001). As a long-term investment, having women physicians of color occupysenior leadership positions sets an example for future generations of health care providers by giving them a heightened awareness of issues that confront this marginalized group. This also increases the sensitivity of their colleagues toward those unique issues that affect women physicians of color that may otherwise go unnoticed, such as experiences of discrimination in the workplace. Ultimately, our study showed that organizational factors potentially linked to burnout, career satisfaction, and mental health, are far-reaching. Accordingly, the strategies employed to address these concerns must be equally comprehensive and substantial.

Table 1. Sample Characteristics

	Women Physicians (Full Sample)	Women Physicians of Color Only	White Women Physicians Only
	N (%)	n (%)	n (%)
Total Participants:	820 (100.0)	458 (100.0)	362 (100.0)
Race/Ethnicity			
White or Caucasian	362 (44.1)	--	362 (100.0)
Asian, Native Hawaiian, or Pacific Islander	288 (35.1)	288 (62.9)	--
Hispanic or Latino	67 (8.2)	67 (14.6)	--
Black or African American	44 (5.4)	44 (9.6)	--
Other race/ethnicity	59 (7.2)	59 (12.9)	--
Age Group			
39 years or younger	216 (26.3)	118 (25.8)	98 (27.1)
40 to 49 years	303 (37.0)	193 (42.1)	110 (30.4)
50 to 59 years	189 (23.0)	101 (22.1)	88 (24.3)
60 years or older	94 (11.5)	36 (7.9)	58 (16.0)
Missing	18 (2.2)	10 (2.2)	8 (2.2)
Medical Specialty			
Primary care	277 (33.8)	174 (38.0)	103 (28.5)
Not primary care	525 (64.0)	276 (60.3)	249 (68.8)
Missing	18 (2.2)	8 (1.7)	10 (2.8)
Patient Load			
20 patients per day or less	447 (54.5)	238 (52.0)	209 (57.7)
More than 20 patients per day	293 (35.7)	174 (38.0)	119 (32.9)
Missing	80 (9.8)	46 (10.0)	34 (9.4)
Practice Setting			
Academic	190 (23.2)	83 (18.1)	107 (29.6)
Public Sector/VA/Military	135 (16.5)	66 (14.4)	69 (19.1)
Private	313 (38.2)	203 (44.3)	110 (30.4)
Other	159 (19.4)	95 (20.7)	64 (17.7)
Missing	23 (2.8)	11 (2.4)	12 (3.3)
Hours Worked			
Part Time	182 (22.2)	105 (22.9)	77 (21.3)
40 to 50 hours per week	339 (41.3)	208 (45.4)	131 (36.2)
51 to 60 hours per week	150 (18.3)	71 (15.5)	79 (21.8)
More than 60 hours per week	119 (14.5)	58 (12.7)	61 (16.9)
Missing	30 (3.7)	16 (3.5)	14 (3.9)
Weekly Call			
Yes	399 (48.7)	221 (48.3)	178 (49.2)
No	391 (47.7)	221 (48.3)	170 (47.0)
Missing	30 (3.7)	16 (3.4)	14 (3.8)
Leadership Position at Work			
Yes	340 (41.5)	171 (37.3)	169 (46.7)
No	455 (55.5)	274 (59.8)	181 (50.0)
Missing	25 (3.0)	13 (2.8)	12 (3.3)
Years in Practice			
Intern/Resident/Fellow	56 (6.8)	26 (5.7)	30 (8.3)
1 to 10 years	270 (32.9)	153 (33.4)	117 (32.3)
11 to 20 years	275 (33.5)	190 (41.5)	85 (23.5)
More than 20 years	201 (24.5)	81 (17.7)	120 (33.1)
Missing	18 (2.2)	8 (1.7)	10 (2.8)
Time Spent on Electronic Health Records			
50% of day or less	378 (46.1)	184 (40.2)	194 (53.6)
More than 50% of day	299 (36.5)	184 (40.2)	115 (31.8)
Missing	143 (17.4)	90 (19.6)	53 (14.6)

(continued on next page)

High Negative Attitudes about Electronic Health Records			
Yes	90 (11.0)	44 (9.6)	46 (12.7)
No	730 (89.0)	414 (90.4)	316 (87.3)
Low Perceived Workplace Diversity/Inclusion			
Yes	78 (9.5)	50 (10.9)	28 (7.7)
No	742 (90.5)	408 (89.1)	334 (92.3)
Low Perceived Promotion of Diversity/Inclusion at Work			
Yes	98 (12.0)	62 (13.5)	36 (9.9)
No	722 (88.0)	396 (86.5)	326 (90.1)
Experienced Discrimination at Work			
Yes	219 (26.7)	122 (26.6)	97 (26.8)
No	550 (67.1)	305 (66.6)	245 (67.7)
Missing	51 (6.2)	31 (6.8)	20 (5.5)
Low Perceived Sense of Community at Work			
Yes	60 (7.3)	34 (7.4)	26 (7.2)
No	709 (86.5)	393 (85.8)	316 (87.3)
Missing	51 (6.2)	31 (6.8)	20 (5.5)
Colleagues Questioned Competence at Work			
Less than monthly	571 (69.6)	316 (69.0)	255 (70.5)
Monthly or more	198 (24.1)	111 (24.2)	87 (24.0)
Missing	51 (6.2)	31 (6.8)	20 (5.5)
Low Perceived Support at Work			
Yes	105 (12.8)	71 (15.5)	34 (9.4)
No	715 (87.2)	387 (84.5)	328 (90.6)
Low Perceived Value at Work			
Yes	129 (15.7)	83 (18.1)	46 (12.7)
No	691 (84.3)	375 (81.9)	316 (87.3)
Patients Questioned Competence			
Less than monthly	639 (77.9)	357 (77.9)	282 (77.9)
Monthly or more	130 (15.9)	70 (15.3)	60 (16.6)
Missing	51 (6.2)	31 (6.8)	20 (5.5)
Low Professional Fulfillment			
Yes	129 (15.7)	88 (19.2)	41 (11.3)
No	691 (84.3)	370 (80.8)	321 (88.7)
Marital Status			
Married or Domestic Partnership	640 (78.0)	362 (79.0)	278 (76.8)
Single, Widowed, Divorced, or Separated	179 (21.8)	96 (21.0)	83 (22.9)
Missing	1 (0.1)		1 (0.3)
Partner Employment Status			
Not a physician	644 (78.5)	345 (75.3)	299 (82.6)
Physician	175 (21.3)	113 (24.7)	62 (17.1)
Missing	1 (0.1)		1 (0.3)
Dependent Child			
Yes	512 (62.4)	304 (66.4)	208 (57.5)
No	295 (36.0)	147 (32.1)	148 (40.9)
Missing	13 (1.6)	7 (1.5)	6 (1.6)
Dependent Family Member			
Yes	246 (30.0)	163 (35.6)	83 (22.9)
No	561 (68.4)	288 (62.9)	273 (75.4)
Missing	13 (1.6)	7 (1.5)	6 (1.7)
Pregnancy Status			
Yes	116 (14.1)	63 (13.8)	53 (14.6)
No	684 (83.4)	384 (83.8)	300 (82.9)
Missing	20 (2.4)	11 (2.4)	9 (2.5)
Leadership Position Outside of Work			
Yes	240 (29.3)	137 (29.9)	103 (28.5)
No	555 (67.7)	308 (67.2)	247 (68.2)
Missing	25 (3.0)	13 (2.8)	12 (3.3)

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Not Satisfied with Work-Life Balance			
Yes	333 (40.6)	179 (39.1)	154 (42.6)
No	406 (49.5)	226 (49.3)	180 (49.7)
Missing	81 (9.9)	53 (11.6)	28 (7.7)
High Work Exhaustion			
Yes	84 (10.2)	48 (10.5)	36 (9.9)
No	736 (89.8)	410 (89.5)	326 (90.1)
High Disengagement with Patients			
Yes	30 (3.7)	15 (3.3)	15 (4.1)
No	790 (96.3)	443 (96.7)	347 (95.9)
High Disengagement with Colleagues			
Yes	20 (2.4)	9 (2.0)	11 (3.0)
No	800 (97.6)	449 (98.0)	351 (97.0)
Overall Burnout			
Yes	305 (37.2)	173 (37.8)	132 (36.5)
No	447 (54.5)	240 (52.4)	207 (57.2)
Missing	68 (8.3)	45 (9.8)	23 (6.3)
Career Choice Regret			
Yes	115 (14.0)	68 (14.8)	47 (13.0)
No	629 (76.7)	340 (74.2)	289 (79.8)
Missing	76 (9.3)	50 (10.9)	26 (7.2)
Specialty Choice Regret			
Yes	181 (22.1)	112 (24.5)	69 (19.1)
No	563 (68.7)	296 (64.6)	267 (73.8)
Missing	76 (9.3)	50 (10.9)	26 (7.1)
Plans for Early Retirement			
Yes	205 (25.0)	108 (23.6)	97 (26.8)
No	529 (64.5)	296 (64.6)	233 (64.4)
Missing	86 (10.5)	54 (11.8)	32 (8.8)
High Sleep Impairment			
Yes	134 (16.3)	69 (15.1)	65 (18.0)
No	686 (83.7)	389 (84.9)	297 (82.0)
High Anxiety Symptoms			
Yes	50 (6.1)	29 (6.3)	21 (5.8)
No	770 (93.9)	429 (93.7)	341 (94.2)
High Depressive Symptoms			
Yes	44 (5.4)	22 (4.8)	22 (6.1)
No	776 (94.6)	436 (95.2)	340 (93.9)
Suicidal Ideation (Past 12 Months)			
Yes	54 (6.6)	22 (4.8)	32 (8.8)
No	681 (83.0)	380 (83.0)	301 (83.1)
Missing	85 (10.4)	56 (12.2)	29 (8.1)

Table 2a. Prevalence of Work Exhaustion, Disengagement, and Burnout across Work and Family Characteristics among Women Physicians

	High Work Exhaustion		High Disengagement With Patients		High Disengagement With Colleagues		Overall Burnout	
	n / No. in Grp (%)	*P*	n / No. in Grp (%)	*P*	n / No. in Grp (%)	*P*	n / No. in Grp (%)	*P*
Race/Ethnicity								
White or Caucasian	36 / 362 (9.9)	.385	15 / 362 (4.1)	.478	11 / 362 (3.0)	.849	132 / 339 (38.9)	.109
Asian, Native Hawaiian, or Pacific Islander	24 / 288 (8.3)		8 / 288 (2.8)		5 / 288 (1.7)		100 / 262 (38.2)	
Hispanic or Latino	9 / 67 (13.4)		1 / 67 (1.5)		2 / 67 (3.0)		34 / 61 (55.7)	
Black or African American	7 / 44 (15.9)		2 / 44 (4.5)		1 / 44 (2.3)		18 / 38 (47.4)	
Other race/ethnicity	8 / 59 (13.6)		4 / 59 (6.8)		1 / 59 (1.7)		21 / 52 (40.4)	
Age Group								
39 years or younger	25 / 216 (11.6)	.325	12 / 216 (5.6)	.204	7 / 216 (3.2)	.645	84 / 201 (41.8)	**.009**
40 to 49 years	29 / 303 (9.6)		11 / 303 (3.6)		6 / 303 (2.0)		120 / 277 (43.3)	
50 to 59 years	22 / 189 (11.6)		5 / 189 (2.6)		5 / 189 (2.6)		76 / 178 (42.7)	
60 years or older	5 / 94 (5.3)		1 / 94 (1.1)		1 / 94 (1.1)		19 / 82 (23.2)	
Medical Specialty								
Primary care	32 / 277 (11.6)	.469	15 / 277 (5.4)	.069	12 / 277 (4.3)	**.015**	117 / 264 (44.3)	.122
Not primary care	52 / 525 (9.9)		15 / 525 (2.9)		8 / 525 (1.5)		188 / 488 (38.5)	
Patient Load								
20 patients per day or less	45 / 447 (10.1)	.421	17 / 447 (3.8)	.841	12 / 447 (2.7)	.970	158 / 432 (36.6)	**.003**
More than 20 patients per day	35 / 293 (11.9)		12 / 293 (4.1)		8 / 293 (2.7)		132 / 276 (47.8)	
Practice Setting								
Academic	23 / 190 (12.1)	.275	7 / 190 (3.7)	.951	5 / 190 (2.6)	.526	77 / 186 (41.4)	**.049**
Public Sector/VA/Military	18 / 135 (13.3)		6 / 135 (4.4)		4 / 135 (3.0)		57 / 126 (45.2)	
Private	25 / 313 (8.0)		12 / 313 (3.8)		5 / 313 (1.6)		101 / 291 (34.7)	
Other	18 / 159 (11.3)		5 / 159 (3.1)		6 / 159 (3.8)		70 / 149 (47.0)	
Hours Worked								
Part Time	16 / 182 (8.8)	.211	6 / 182 (3.3)	.869	4 / 182 (2.2)	.083	70 / 174 (40.2)	.431
40 to 50 hours per week	35 / 339 (10.3)		13 / 339 (3.8)		7 / 339 (2.1)		122 / 323 (37.8)	
51 to 60 hours per week	14 / 150 (9.3)		5 / 150 (3.3)		2 / 150 (1.3)		62 / 144 (43.1)	
More than 60 hours per week	19 / 119 (16.0)		6 / 119 (5.0)		7 / 119 (5.9)		51 / 111 (45.9)	
Weekly Call								
Yes	49 / 399 (12.3)	.129	18 / 399 (4.5)	.289	12 / 399 (3.0)	.390	178 / 378 (47.1)	**<.001**
No	35 / 391 (9.0)		12 / 391 (3.1)		8 / 391 (2.0)		127 / 374 (34.0)	
Leadership Position at Work								
Yes	28 / 340 (8.2)	.065	8 / 340 (2.4)	.069	6 / 340 (1.8)	.242	123 / 325 (37.8)	.186
No	56 / 455 (12.3)		22 / 455 (4.8)		14 / 455 (3.1)		182 / 427 (42.6)	
Years in Practice								
Intern/Resident/Fellow	7 / 56 (12.5)	.311	2 / 56 (3.6)	.263	2 / 56 (3.6)	.842	22 / 50 (44.0)	.308
1 to 10 years	31 / 270 (11.5)		13 / 270 (4.8)		8 / 270 (3.0)		106 / 254 (41.7)	
11 to 20 years	32 / 275 (11.6)		12 / 275 (4.4)		6 / 275 (2.2)		112 / 261 (42.9)	
More than 20 years	14 / 201 (7.0)		3 / 201 (1.5)		4 / 201 (2.0)		65 / 187 (34.8)	

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Time Spent on Electronic Health Records								
50% of day or less	29 / 378 (7.7)	**.001**	12 / 378 (3.2)	.158	5 / 378 (1.3)	**.015**	139 / 378 (36.8)	**.002**
More than 50% of day	48 / 299 (16.1)		16 / 299 (5.4)		13 / 299 (4.3)		145 / 299 (48.5)	
High Negative Attitudes about Electronic Health Records								
Yes	16 / 90 (17.8)	**.012**	3 / 90 (3.3)	.862	5 / 90 (5.6)	**.042**	40 / 90 (44.4)	.424
No	68 / 730 (9.3)		27 / 730 (3.7)		15 / 730 (2.1)		265 / 662 (40.0)	
Low Perceived Workplace Diversity/Inclusion								
Yes	5 / 78 (6.4)	.240	1 / 78 (1.3)	.240	2 / 78 (2.6)	.940	17 / 27 (63.0)	**.016**
No	79 / 742 (10.6)		29 / 742 (3.9)		18 / 742 (2.4)		288 / 725 (39.7)	
Low Perceived Promotion of Diversity/Inclusion at Work								
Yes	8 / 98 (8.2)	.469	1 / 98 (1.0)	.138	1 / 98 (1.0)	.332	28 / 46 (60.9)	**.004**
No	76 / 722 (10.5)		29 / 722 (4.0)		19 / 722 (2.6)		277 / 706 (39.2)	
Experienced Discrimination at Work								
Yes	42 / 219 (19.2)	**<.001**	17 / 219 (7.8)	**<.001**	14 / 219 (6.4)	**<.001**	112 / 212 (52.8)	**<.001**
No	47 / 550 (8.5)		13 / 550 (2.4)		6 / 550 (1.1)		193 / 540 (35.7)	
Low Perceived Sense of Community at Work								
Yes	16 / 60 (26.7)	**<.001**	6 / 60 (10.0)	**.011**	5 / 60 (8.3)	**.004**	37 / 59 (62.7)	**<.001**
No	68 / 709 (9.6)		24 / 709 (3.4)		15 / 709 (2.1)		268 / 693 (38.7)	
Colleagues Questioned Competence at Work								
Less than monthly	47 / 571 (8.2)	**<.001**	16 / 571 (2.8)	**.008**	9 / 571 (1.6)	**.002**	205 / 559 (36.7)	**<.001**
Monthly or more	37 / 198 (18.7)		14 / 198 (7.1)		11 / 198 (5.6)		100 / 193 (51.8)	
Low Perceived Support at Work								
Yes	17 / 105 (16.2)	**.031**	4 / 105 (3.8)	.930	4 / 105 (3.8)	.330	28 / 37 (75.7)	**<.001**
No	67 / 715 (9.4)		26 / 715 (3.6)		16 / 715 (2.2)		277 / 719 (38.5)	
Low Perceived Value at Work								
Yes	24 / 129 (18.6)	**.001**	8 / 129 (6.2)	.094	6 / 129 (4.7)	.076	41 / 61 (67.2)	**<.001**
No	60 / 691 (8.7)		22 / 691 (3.2)		14 / 691 (2.0)		264 / 691 (38.2)	
Patients Questioned Competence								
Less than monthly	58 / 639 (9.1)	**<.001**	17 / 639 (2.7)	**<.001**	9 / 639 (1.4)	**<.001**	243 / 629 (38.6)	**.015**
Monthly or more	26 / 130 (20.0)		13 / 130 (10.0)		11 / 130 (8.5)		62 / 123 (50.4)	
Low Professional Fulfillment								
Yes	23 / 129 (17.8)	**.002**	8 / 129 (6.2)	.094	6 / 129 (4.7)	.076	46 / 61 (75.4)	**<.001**
No	61 / 691 (8.8)		22 / 691 (3.2)		14 / 691 (2.0)		259 / 691 (37.5)	
Marital Status								
Married or Domestic Partnership	59 / 640 (9.2)	.064	22 / 640 (3.4)	.516	15 / 640 (2.3)	.730	222 / 589 (37.7)	**.002**
Single, Widowed, Divorced, or Separated	25 / 179 (14.0)		8 / 179 (4.5)		5 / 179 (2.8)		83 / 163 (50.9)	
Partner Employment Status								
Not a physician	72 / 644 (11.2)	.095	25 / 644 (3.9)	.522	17 / 644 (2.6)	.482	253 / 590 (42.9)	**.013**

Physician	12 / 175 (6.9)		5 / 175 (2.9)		3 / 175 (1.7)		52 / 162 (32.1)	
Dependent Child								
Yes	45 / 512 (8.8)	**.047**	17 / 512 (3.3)	.432	11 / 512 (2.1)	.427	192 / 481 (39.9)	.633
No	39 / 295 (13.2)		13 / 295 (4.4)		9 / 295 (3.1)		113 / 271 (41.7)	

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Dependent Family Member								
Yes	35 / 246 (14.2)	**.019**	13 / 246 (5.3)	.119	13 / 246 (5.3)	**.001**	102 / 231 (44.2)	.181
No	49 / 561 (8.7)		17 / 561 (3.0)		7 / 561 (1.2)		203 / 521 (39.0)	
Pregnancy Status								
Yes	7 / 116 (6.0)	.090	4 / 116 (3.4)	.853	2 / 116 (1.7)	.563	44 / 109 (40.4)	.920
No	77 / 684 (11.3)		26 / 684 (3.8)		18 / 684 (2.6)		260 / 636 (40.9)	
Leadership Position Outside of Work								
Yes	28 / 240 (11.7)	.507	9 / 240 (3.8)	.982	10 / 240 (4.2)	.051	82 / 229 (35.8)	.079
No	56 / 555 (10.1)		21 / 555 (3.8)		10 / 555 (1.8)		223 / 523 (42.6)	
Not Satisfied with Work-Life Balance								
Yes	60 / 333 (18.0)	**<.001**	23 / 333 (6.9)	**<.001**	17 / 333 (5.1)	**<.001**	202 / 333 (60.7)	**<.001**
No	21 / 406 (5.2)		6 / 406 (1.5)		3 / 406 (0.7)		96 / 406 (23.6)	

Note. No. in Grp = Number in Group. *P* values < .05 have been bolded.

Table 2b. Associations between Work and Family Characteristics and Work Exhaustion, Disengagement, and Burnout among Women Physicians

Outcomes:	High Work Exhaustion		High Disengagement with Patients		High Disengagement with Colleagues		Overall Burnout	
Predictors of Work Exhaustion, Disengagement, and Burnout	Odds Ratio (95% CI)	*P*	Odds Ratio (95% CI)	*P*	Odds Ratio (95% CI)	*P*	Odds Ratio (95% CI)	*P*
Asian (Reference: White)	0.97 (0.92, 1.01)	.162	0.97 (0.94, 1.00)	.056	0.98 (0.96, 1.00)	.111	0.98 (0.91, 1.05)	.533
Hispanic or Latino (Reference: White)	1.02 (0.94, 1.10)	.666	0.96 (0.91, 1.00)	.067	0.98 (0.94, 1.02)	.297	1.11 (0.98, 1.25)	.100
Black or African American (Reference: White)	1.02 (0.93, 1.12)	.713	0.99 (0.93, 1.05)	.696	0.97 (0.93, 1.02)	.249	1.04 (0.90, 1.21)	.590
Other race/ethnicity (Reference: White)	1.01 (0.93, 1.09)	.844	1.02 (0.97, 1.07)	.445	0.98 (0.94, 1.02)	.260	0.96 (0.85, 1.09)	.532
Age ≤ 39 years (Reference: Age > 39 years)	1.03 (0.96, 1.11)	.444	1.04 (0.99, 1.09)	.092	1.02 (0.98, 1.06)	.266	0.99 (0.88, 1.11)	.896
Primary care physician (Reference: Not primary care physician)	1.01 (0.96, 1.05)	.700	1.03 (1.00, 1.05)	.081	1.03 (1.00, 1.05)	**.018**	1.03 (0.96, 1.11)	.369
Patient load > 20 per day (Reference: ≤ 20 per day)	0.99 (0.95, 1.03)	.590	0.99 (0.96, 1.02)	.414	0.99 (0.97, 1.01)	.302	1.08 (1.01, 1.16)	**.022**
Public and Military/VA work setting (Reference: Academic work setting)	1.00 (0.93, 1.06)	.883	1.01 (0.96, 1.05)	.809	1.00 (0.97, 1.04)	.821	1.03 (0.93, 1.14)	.591
Private practice work setting (Reference: Academic work setting)	0.95 (0.90, 1.01)	.113	1.01 (0.97, 1.05)	.738	1.00 (0.96, 1.03)	.772	0.91 (0.83, 1.00)	**.049**
Other work setting (Reference: Academic work setting)	0.98 (0.91, 1.05)	.520	0.99 (0.95, 1.04)	.750	1.02 (0.98, 1.06)	.265	1.03 (0.93, 1.15)	.567
Work 51-60 hours per week (Reference: ≤ 50 hours per week)	0.97 (0.92, 1.03)	.336	0.99 (0.96, 1.03)	.596	0.99 (0.96, 1.02)	.472	0.97 (0.89, 1.06)	.540
Work ≥ 60 hours per week (Reference: ≤ 50 hours per week)	0.99 (0.93, 1.06)	.742	0.99 (0.95, 1.03)	.667	1.02 (0.99, 1.06)	.249	0.92 (0.83, 1.03)	.138
Weekly call (Reference: No weekly call)	1.03 (0.99, 1.07)	.162	1.02 (0.99, 1.04)	.267	1.01 (0.99, 1.03)	.270	1.13 (1.06, 1.20)	**<.001**
Leadership position at work (Reference: No leadership position)	0.95 (0.91, 1.00)	**.032**	0.97 (0.95, 1.00)	.061	0.98 (0.96, 1.01)	.151	0.95 (0.88, 1.01)	.106
In training (Resident or Fellow) (Reference: In practice > 20 years)	0.96 (0.86, 1.08)	.532	0.96 (0.89, 1.03)	.228	0.98 (0.93, 1.04)	.593	0.94 (0.79, 1.13)	.513
In practice 1-10 years	1.05	.186	1.01	.676	1.01	.737	1.05	.445

(Reference: In practice > 20 years)	(0.98, 1.13)		(0.96, 1.06)		(0.97, 1.05)		(0.93, 1.17)	
In practice 11-20 years	1.07	**.012**	1.04	**.042**	1.01	.627	1.09	.059
(Reference: In practice > 20 years)	(1.02, 1.14)		(1.00, 1.08)		(0.98, 1.04)		(1.00, 1.19)	
Used EHR > 50% of day	1.06	**.019**	1.01	.437	1.02	.070	1.06	.097
(Reference: Used EHR ≤ 50%)	(1.01, 1.10)		(0.98, 1.04)		(1.00, 1.04)		(0.99, 1.13)	

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High negative attitudes toward EHR (Reference: Low negative EHR attitudes)	1.07 (1.00, 1.14)	**.036**	0.99 (0.95, 1.03)	.545	1.03 (1.00, 1.06)	.092	1.01 (0.92, 1.12)	.821
Low perceived workplace diversity/inclusion (Reference: High perceived diversity/inclusion)	0.86 (0.75, 0.98)	**.023**	1.00 (0.91, 1.08)	.908	1.04 (0.97, 1.12)	.227	0.95 (0.75, 1.18)	.623
Low perceived promotion of diversity/inclusion at work (Reference: High perceived promotion)	0.94 (0.84, 1.05)	.282	0.93 (0.86, 1.00)	**.038**	0.91 (0.86, 0.96)	**.002**	1.05 (0.88, 1.25)	.622
Experienced discrimination at Work (Reference: Did not experience discrimination)	1.06 (1.01, 1.11)	**.025**	1.04 (1.01, 1.07)	**.010**	1.04 (1.01, 1.06)	**.004**	1.07 (1.00, 1.16)	.060
Low perceived sense of community at work (Reference: High perceived sense of community)	1.06 (0.98, 1.15)	.152	1.04 (0.99, 1.10)	.103	1.03 (0.99, 1.08)	.115	1.05 (0.93, 1.20)	.419
Colleagues questioned competence monthly (Reference: Colleagues questioned competence < monthly)	1.03 (0.98, 1.09)	.237	1.01 (0.98, 1.04)	.540	1.01 (0.98, 1.03)	.573	1.02 (0.94, 1.11)	.596
Low perceived support at work (Reference: High perceived support)	0.97 (0.86, 1.09)	.637	0.93 (0.87, 1.01)	.080	0.98 (0.92, 1.04)	.451	0.96 (0.79, 1.17)	.719
Low perceived value at work (Reference: High perceived value)	1.12 (1.01, 1.23)	**.030**	1.06 (1.00, 1.13)	.066	1.03 (0.97, 1.08)	.327	1.06 (0.91, 1.23)	.440
Patients questioned competence monthly (Reference: Patients questioned competence < monthly)	1.03 (0.97, 1.09)	.279	1.04 (1.00, 1.08)	**.031**	1.04 (1.01, 1.07)	**.009**	0.99 (0.90, 1.08)	.829
Low professional fulfillment (Reference: High professional fulfillment)	1.08 (1.00, 1.15)	**.043**	1.04 (0.99, 1.08)	.124	1.02 (0.99, 1.06)	.251	1.22 (1.08, 1.37)	**.001**
Single, widowed, divorced or separated relationship status (Reference: Married or domestic partnership)	1.00 (0.95, 1.06)	.965	1.00 (0.96, 1.03)	.800	0.99 (0.97, 1.02)	.616	1.12 (1.03, 1.22)	**.010**
Does not have partner who is physician (Reference: Has physician partner)	1.04 (0.99, 1.09)	.126	1.01 (0.97, 1.04)	.687	1.01 (0.98, 1.03)	.559	1.05 (0.97, 1.14)	.223
Has dependent children (Reference: No dependent children)	0.96 (0.91, 1.01)	.124	0.99 (0.95, 1.02)	.377	1.00 (0.97, 1.02)	.833	1.02 (0.94, 1.10)	.667
Has dependent family members (Reference: No dependent family members)	1.06 (1.01, 1.11)	**.011**	1.03 (1.00, 1.06)	.051	1.04 (1.02, 1.07)	**<.001**	1.02 (0.95, 1.10)	.518
Currently pregnant (Reference: Not pregnant)	0.96 (0.90, 1.02)	.218	0.99 (0.95, 1.03)	.697	0.99 (0.96, 1.03)	.655	1.07 (0.97, 1.19)	.187
Leadership position outside of work (Reference: No leadership position outside)	1.02 (0.97, 1.06)	.449	1.00 (0.97, 1.03)	.983	1.02 (1.00, 1.05)	**.038**	0.96 (0.90, 1.03)	.296
Not satisfied with work-life balance (Reference: Not dissatisfied with work-life balance)	1.10 (1.05, 1.15)	**<.001**	1.04 (1.01, 1.07)	**.004**	1.02 (1.00, 1.04)	.062	1.40 (1.31, 1.50)	**<.001**

Note. CI = Confidence interval. P values < .05 have been bolded.

Table 3a. Prevalence of Career Choice Regret, Specialty Choice Regret, and Plans for Early Retirement across Work, Family, and BurnoutCharacteristics among Women Physicians

	Career Choice Regret		Specialty Choice Regret		Plans for Early Retirement	
	n / No. in Grp (%)	*P*	n / No. in Grp (%)	*P*	n / No. in Grp (%)	*P*
Race/Ethnicity						
White or Caucasian	47 / 336 (14.0)	.112	69 / 336 (20.5)	.195	97 / 330 (29.4)	.281
Asian, Native Hawaiian, or Pacific Islander	41 / 259 (15.8)		73 / 259 (28.2)		67 / 257 (26.1)	
Hispanic or Latino	11 / 60 (18.3)		18 / 60 (30.0)		15 / 60 (25.0)	
Black or African American	11 / 38 (28.9)		10 / 38 (26.3)		7 / 37 (18.9)	
Other race/ethnicity	5 / 51 (9.8)		11 / 51 (21.6)		19 / 50 (38.0)	
Age Group						
39 years or younger	39 / 199 (19.6)	**.037**	42 / 199 (21.1)	.452	67 / 195 (34.4)	**<.001**
40 to 49 years	42 / 274 (15.3)		74 / 274 (27.0)		71 / 270 (26.3)	
50 to 59 years	24 / 176 (13.6)		46 / 176 (26.1)		58 / 176 (33.0)	
60 years or older	5 / 81 (6.2)		18 / 81 (22.2)		6 / 80 (7.5)	
Medical Specialty						
Primary care	48 / 261 (18.4)	.104	92 / 261 (35.2)	**<.001**	67 / 257 (26.1)	.410
Not primary care	67 / 483 (13.9)		89 / 483 (18.4)		138 / 477 (28.9)	
Patient Load						
20 patients per day or less	61 / 431 (14.2)	.123	108 / 431 (25.1)	.769	115 / 423 (27.2)	.842
More than 20 patients per day	50 / 270 (18.5)		65 / 270 (24.1)		75 / 269 (27.9)	
Practice Setting						
Academic	32 / 184 (17.4)	.358	30 / 184 (16.3)	**.011**	53 / 179 (29.6)	.336
Public Sector/VA/Military	20 / 126 (15.9)		28 / 126 (22.2)		33 / 125 (26.4)	
Private	36 / 286 (12.6)		78 / 286 (27.3)		71 / 284 (25.0)	
Other	27 / 148 (18.2)		45 / 148 (30.4)		48 / 146 (32.9)	
Hours Worked						
Part Time	33 / 172 (19.2)	.076	54 / 172 (31.4)	.057	51 / 171 (29.8)	.495
40 to 50 hours per week	41 / 321 (12.8)		70 / 321 (21.8)		81 / 316 (25.6)	
51 to 60 hours per week	18 / 141 (12.8)		36 / 141 (25.5)		38 / 140 (27.1)	
More than 60 hours per week	23 / 110 (20.9)		21 / 110 (19.1)		35 / 107 (32.7)	
Weekly Call						
Yes	61 / 374 (16.3)	.517	74 / 374 (19.8)	**.004**	119 / 370 (32.2)	**.010**
No	54 / 370 (14.6)		107 / 370 (28.9)		86 / 364 (23.6)	
Leadership Position at Work						
Yes	35 / 322 (10.9)	**.002**	78 / 322 (24.2)	.954	96 / 316 (30.4)	.198
No	80 / 422 (19.0)		103 / 422 (24.4)		109 / 418 (26.1)	
Years in Practice						
Intern/Resident/Fellow	16 / 49 (32.7)	**.004**	8 / 49 (16.3)	.253	14 / 48 (29.2)	.589
1 to 10 years	38 / 253 (15.0)		57 / 253 (22.5)		74 / 248 (29.8)	
11 to 20 years	40 / 257 (15.6)		72 / 257 (28.0)		73 / 255 (28.6)	
More than 20 years	21 / 185 (11.4)		44 / 185 (23.8)		44 / 183 (24.0)	

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Time Spent on Electronic Health Records						
50% of day or less	49 / 378 (13.0)	**.013**	80 / 378 (21.2)	**.029**	97 / 371 (26.1)	.070
More than 50% of day	60 / 299 (20.1)		85 / 299 (28.4)		97 / 298 (32.6)	
High Negative Attitudes about Electronic Health Records						
Yes	19 / 90 (21.1)	.114	14 / 90 (15.6)	**.039**	28 / 87 (32.2)	.346
No	96 / 654 (14.7)		167 / 654 (25.5)		177 / 647 (27.4)	
Low Perceived Workplace Diversity/Inclusion						
Yes	7 / 26 (26.9)	.100	7 / 26 (26.9)	.754	11 / 26 (42.3)	.096
No	108 / 718 (15.0)		174 / 718 (24.2)		194 / 708 (27.4)	
Low Perceived Promotion of Diversity/Inclusion at Work						
Yes	12 / 44 (27.3)	**.025**	13 / 44 (29.5)	.406	17 / 44 (38.6)	.103
No	103 / 700 (14.7)		168 / 700 (24.0)		188 / 690 (27.2)	
Experienced Discrimination at Work						
Yes	54 / 210 (25.7)	**<.001**	66 / 210 (31.4)	**.005**	76 / 209 (36.4)	**.001**
No	61 / 534 (11.4)		115 / 534 (21.5)		129 / 525 (24.6)	
Low Perceived Sense of Community at Work						
Yes	16 / 57 (28.1)	**.006**	22 / 57 (38.6)	**.009**	21 / 54 (38.9)	.062
No	99 / 687 (14.4)		159 / 687 (23.1)		184 / 680 (27.1)	
Colleagues Questioned Competence at Work						
Less than monthly	67 / 553 (12.1)	**<.001**	128 / 553 (23.1)	.201	141 / 545 (25.9)	**.035**
Monthly or more	48 / 191 (25.1)		53 / 191 (27.7)		64 / 189 (33.9)	
Low Perceived Support at Work						
Yes	11 / 34 (32.4)	**.005**	16 / 34 (47.1)	**.002**	12 / 33 (36.4)	.269
No	104 / 710 (14.6)		165 / 710 (23.2)		193 / 701 (27.5)	
Low Perceived Value at Work						
Yes	22 / 58 (37.9)	**<.001**	24 / 58 (41.4)	**.002**	24 / 57 (42.1)	**.013**
No	93 / 686 (13.6)		157 / 686 (22.9)		181 / 677 (26.7)	
Patients Questioned Competence						
Less than monthly	78 / 623 (12.5)	**<.001**	149 / 623 (23.9)	.553	156 / 615 (25.4)	**<.001**
Monthly or more	37 / 121 (30.6)		32 / 121 (26.4)		49 / 119 (41.2)	
Low Professional Fulfillment						
Yes	33 / 61 (54.1)	**<.001**	30 / 61 (49.2)	**<.001**	28 / 58 (48.3)	**<.001**
No	82 / 683 (12.0)		151 / 683 (22.1)		177 / 676 (26.2)	
Marital Status						
Married or Domestic Partnership	82 / 583 (14.1)	**.046**	136 / 583 (23.3)	.226	159 / 578 (27.5)	.625
Single, Widowed, Divorced, or Separated	33 / 161 (20.5)		45 / 161 (28.0)		46 / 156 (29.5)	
Partner Employment Status						
Not a physician	92 / 584 (15.8)	.669	147 / 584 (25.2)	.306	161 / 575 (28.0)	.935
Physician	23 / 160 (14.4)		34 / 160 (21.3)		44 / 159 (27.7)	
Dependent Child						
Yes	58 / 476 (12.2)	**.001**	123 / 476 (25.8)	.200	133 / 473 (28.1)	.878
No	57 / 268 (21.3)		58 / 268 (21.6)		72 / 261 (27.6)	

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Dependent Family Member						
Yes	33 / 229 (14.4)	.599	67 / 229 (29.3)	**.037**	59 / 226 (26.1)	.463
No	82 / 515 (15.9)		114 / 515 (22.1)		146 / 508 (28.7)	
Pregnancy Status						
Yes	11 / 108 (10.2)	.108	22 / 108 (20.4)	.289	29 / 107 (27.1)	.819
No	102 / 629 (16.2)		158 / 629 (25.1)		175 / 621 (28.2)	
Leadership Position Outside of Work						
Yes	34 / 228 (14.9)	.785	58 / 228 (25.4)	.639	65 / 228 (28.5)	.814
No	81 / 516 (15.7)		123 / 516 (23.8)		140 / 506 (27.7)	
Not Satisfied with Work-Life Balance						
Yes	73 / 333 (21.9)	**<.001**	92 / 333 (27.6)	.050	115 / 328 (35.1)	**<.001**
No	42 / 406 (10.3)		87 / 406 (21.4)		89 / 401 (22.2)	
High Work Exhaustion						
Yes	41 / 82 (50.0)	**<.001**	34 / 82 (41.5)	**<.001**	46 / 80 (57.5)	**<.001**
No	74 / 662 (11.2)		147 / 662 (22.2)		159 / 654 (24.3)	
High Disengagement with Patients						
Yes	17 / 29 (58.6)	**<.001**	16 / 29 (55.2)	**<.001**	16 / 28 (57.1)	**<.001**
No	98 / 715 (13.7)		165 / 715 (23.1)		189 / 706 (26.8)	
High Disengagement with Colleagues						
Yes	14 / 20 (70.0)	**<.001**	12 / 20 (60.0)	**<.001**	11 / 19 (57.9)	**.003**
No	101 / 724 (14.0)		169 / 724 (23.3)		194 / 715 (27.1)	
Overall Burnout						
Yes	80 / 300 (26.7)	**<.001**	95 / 300 (31.7)	**<.001**	123 / 294 (41.8)	**<.001**
No	35 / 444 (7.9)		86 / 444 (19.4)		82 / 440 (18.6)	

Note. No. in Grp = Number in Group. *P* values < .05 have been bolded.

Table 3b. Associations between Work, Family, and Burnout Characteristics and Career Outcomes among Women Physicians

	Career Choice Regret		Specialty Choice Regret		Plans for Early Retirement	
	Odds Ratio (95% CI)	*P*	Odds Ratio (95% CI)	*P*	Odds Ratio (95% CI)	*P*
Asian (Reference: White)	1.01 (0.96, 1.07)	.610	1.04 (0.97, 1.12)	.249	0.96 (0.89, 1.04)	.309
Hispanic or Latino (Reference: White)	1.02 (0.93, 1.12)	.668	1.03 (0.92, 1.16)	.619	0.93 (0.83, 1.05)	.256
Black or African American (Reference: White)	1.07 (0.96, 1.20)	.195	1.00 (0.87, 1.15)	.961	0.87 (0.75, 1.01)	**.062**
Other race/ethnicity (Reference: White)	0.93 (0.85, 1.02)	.137	0.99 (0.88, 1.12)	.868	1.07 (0.94, 1.21)	.332
Age ≤ 39 years (Reference: Age > 39 years)	1.05 (0.96, 1.14)	.272	1.01 (0.91, 1.13)	.822	1.19 (1.06, 1.33)	**.004**
Primary care physician (Reference: Not primary care physician)	1.01 (0.96, 1.07)	.620	1.12 (1.05, 1.20)	**.001**	0.96 (0.90, 1.03)	.281
Patient load > 20 per day (Reference: ≤ 20 per day)	1.02 0.97, 1.07)	.444	0.94 (0.88, 1.00)	.064	0.99 (0.92, 1.05)	.686
Public and Military/VA work setting (Reference: Academic work setting)	0.96 (0.89, 1.04)	.323	1.06 (0.96, 1.16)	.281	0.99 (0.90, 1.10)	.907
Private practice work setting (Reference: Academic work setting)	0.97 (0.91, 1.04)	.441	1.13 (1.03, 1.24)	**.007**	1.03 (0.94, 1.13)	.500
Other work setting (Reference: Academic work setting)	1.00 (0.92, 1.08)	.953	1.13 (1.02, 1.26)	**.015**	1.08 (0.97, 1.21)	.141
Work 51-60 hours per week (Reference: ≤ 50 hours per week)	0.97 (0.91, 1.04)	.415	1.08 (1.00, 1.17)	.057	0.96 (0.88, 1.04)	.341
Work ≥ 60 hours per week (Reference: ≤ 50 hours per week)	0.94 (0.87, 1.02)	.136	1.02 (0.93, 1.13)	.667	0.99 (0.89, 1.10)	.861
Weekly call (Reference: No weekly call)	1.00 (0.95, 1.05)	.878	0.91 (0.86, 0.97)	**.003**	1.04 (0.98, 1.11)	.220
Leadership position at work (Reference: No leadership position)	0.97 (0.92, 1.02)	.260	1.04 (0.97, 1.11)	.290	1.08 (1.01, 1.16)	**.026**
In training (Resident or Fellow) (Reference: In practice > 20 years)	1.11 (0.97, 1.27)	.122	0.98 (0.83, 1.17)	.856	0.88 (0.74, 1.06)	.173
In practice 1-10 years (Reference: In practice > 20 years)	0.97 (0.89, 1.05)	.457	0.99 (0.89, 1.10)	.867	0.91 (0.82, 1.02)	.121

In practice 11-20 years (Reference: In practice > 20 years)	1.03 (0.96, 1.10)	.417	1.00 (0.92, 1.09)	.984	0.99 (0.91, 1.08)	.856
Used EHR > 50% of day (Reference: Used EHR ≤ 50%)	1.01 (0.96, 1.06)	.622	1.03 (0.96, 1.09)	.448	1.02 (0.95, 1.09)	.613

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High negative attitudes toward EHR (Reference: Low/moderate negative EHR attitudes)	1.04 (0.96, 1.11)	.359	0.91 (0.83, 1.00)	**.042**	1.02 (0.92, 1.13)	.673
Low perceived workplace diversity/inclusion (Reference: Moderate/high perceived diversity/inclusion)	0.96 (0.81, 1.14)	.650	0.95 (0.77, 1.18)	.652	1.09 (0.87, 1.37)	.467
Low perceived promotion of diversity/inclusion at work (Reference: Moderate/high perceived promotion)	1.07 (0.94, 1.22)	.319	0.99 (0.84, 1.18)	.933	1.01 (0.85, 1.21)	.881
Experienced discrimination at Work (Reference: Did not experience discrimination)	1.08 (1.02, 1.14)	**.009**	1.08 (1.01, 1.16)	**.027**	1.05 (0.97, 1.13)	.250
Low perceived sense of community at work (Reference: Moderate/high perceived sense of community)	0.96 (0.87, 1.06)	.404	1.11 (0.98, 1.25)	.107	1.03 (0.90, 1.17)	.694
Colleagues questioned competence monthly (Reference: Colleagues questioned competence < monthly)	1.01 (0.95, 1.07)	.696	0.99 (0.92, 1.07)	.801	1.00 (0.92, 1.08)	.993
Low perceived support at work (Reference: Moderate/high perceived support)	0.88 (0.76, 1.02)	.100	1.06 (0.88, 1.28)	.546	0.85 (0.69, 1.04)	.108
Low perceived value at work (Reference: Moderate/high perceived value)	1.12 (1.00, 1.25)	**.044**	1.04 (0.90, 1.20)	.597	1.05 (0.91, 1.22)	.498
Patients questioned competence monthly (Reference: Patients questioned competence < monthly)	1.10 (1.03, 1.18)	**.005**	0.97 (0.89, 1.06)	.530	1.11 (1.01, 1.21)	**.025**
Low professional fulfillment (Reference: Moderate/high professional fulfillment)	1.32 (1.21, 1.44)	**<.001**	1.20 (1.07, 1.35)	**.001**	1.14 (1.01, 1.29)	**.037**
Single, widowed, divorced or separated relationship status (Reference: Married or domestic partnership)	0.99 (0.93, 1.06)	.810	1.07 (0.99, 1.16)	.095	1.00 (0.92, 1.09)	.984
Does not have partner who is physician (Reference: Has physician partner)	0.99 (0.93, 1.05)	.702	1.00 (0.93, 1.08)	.981	0.98 (0.91, 1.06)	.609
Has dependent children (Reference: No dependent children)	0.94 (0.89, 1.00)	.056	1.05 (0.98, 1.13)	.187	1.05 (0.97, 1.14)	.217
Has dependent family members (Reference: No dependent family members)	0.96 (0.91, 1.01)	.103	1.04 (0.97, 1.11)	.262	0.97 (0.90, 1.04)	.401
Currently pregnant (Reference: Not pregnant)	0.96 (0.89, 1.03)	.268	0.99 (0.90, 1.09)	.814	0.95 (0.85, 1.05)	.285
Leadership position outside of work (Reference: No leadership position outside)	1.01 (0.96, 1.07)	.638	1.01 (0.94, 1.08)	.828	1.02 (0.95, 1.09)	.610
Not satisfied with work-life balance (Reference: Not dissatisfied with work-life balance)	1.04 (0.99, 1.09)	.147	1.00 (0.94, 1.07)	.950	1.03 (0.96, 1.11)	.341
High work exhaustion (Reference: Low/moderate work exhaustion)	1.19 (1.08, 1.30)	**<.001**	1.02 (0.91, 1.15)	.701	1.23 (1.08, 1.39)	**.001**
High disengagement with patients (Reference: Low/moderate disengagement with patients)	1.06 (0.90, 1.26)	.477	1.14 (0.92, 1.42)	.230	1.05 (0.83, 1.31)	.690
High disengagement with colleagues (Reference: Low/moderate disengagement with colleagues)	1.18 (0.96, 1.45)	.121	1.09 (0.84, 1.42)	.510	0.89 (0.68, 1.18)	.427
Overall burnout (Reference: No overall burnout)	1.06 (1.00, 1.12)	**.047**	1.06 (0.99, 1.14)	.093	1.16 (1.08, 1.25)	**<.001**

Note. P values < .05 have been bolded.

Table 4a. Prevalence of Sleep Impairment, Anxiety Symptoms, Depressive Symptoms, and Suicidal Ideation across Work, Family, and BurnoutCharacteristics among Women Physicians

	High Sleep Impairment		High Anxiety Symptoms		High Depressive Symptoms		Suicidal Ideation(Past 12 Months)	
	n / No. in Grp (%)	*P*	n / No. in Grp (%)	*P*	n / No. in Grp (%)	*P*	n / No. in Grp (%)	*P*
Race/Ethnicity								
White or Caucasian	65 / 362 (18.0)	.578	21 / 362 (5.8)	.573	22 / 362 (6.1)	.841	32 / 333 (9.6)	.142
Asian, Native Hawaiian, or Pacific Islander	40 / 288 (13.9)		16 / 288 (5.6)		12 / 288 (4.2)		12 / 255 (4.7)	
Hispanic or Latino	11 / 67 (16.4)		3 / 67 (4.5)		4 / 67 (6.0)		6 / 59 (10.2)	
Black or African American	6 / 44 (13.6)		4 / 44 (9.1)		3 / 44 (6.8)		2 / 37 (5.4)	
Other race/ethnicity	12 / 59 (20.3)		6 / 59 (10.2)		3 / 59 (5.1)		2 / 51 (3.9)	
Age Group								
39 years or younger	52 / 216 (24.1)	**<.001**	19 / 216 (8.8)	.068	17 / 216 (7.9)	.124	15 / 197 (7.6)	.852
40 to 49 years	51 / 303 (16.8)		17 / 303 (5.6)		16 / 303 (5.3)		21 / 271 (7.7)	
50 to 59 years	19 / 189 (10.1)		5 / 189 (2.6)		5 / 189 (2.6)		10 / 172 (5.8)	
60 years or older	6 / 94 (6.4)		5 / 94 (5.3)		4 / 94 (4.3)		5 / 81 (6.2)	
Medical Specialty								
Primary care	49 / 277 (17.7)	.588	18 / 277 (6.5)	.822	16 / 277 (5.8)	.793	23 / 257 (8.9)	.222
Not primary care	85 / 525 (16.2)		32 / 525 (6.1)		28 / 525 (5.3)		31 / 478 (6.5)	
Patient Load								
20 patients per day or less	73 / 447 (16.3)	.227	24 / 447 (5.4)	.091	21 / 447 (4.7)	.156	26 / 426 (6.1)	.053
More than 20 patients per day	58 / 293 (19.8)		25 / 293 (8.5)		21 / 293 (7.2)		27 / 267 (10.1)	
Practice Setting								
Academic	37 / 190 (19.5)	**.032**	18 / 190 (9.5)	**.016**	15 / 190 (7.9)	**.042**	18 / 182 (9.9)	.506
Public Sector/VA/Military	32 / 135 (23.7)		13 / 135 (9.6)		11 / 135 (8.1)		8 / 124 (6.5)	
Private	42 / 313 (13.4)		14 / 313 (4.5)		15 / 313 (4.8)		19 / 284 (6.7)	
Other	23 / 159 (14.5)		5 / 159 (3.1)		3 / 159 (1.9)		9 / 145 (6.2)	
Hours Worked								
Part Time	31 / 182 (17.0)	.313	8 / 182 (4.4)	.096	8 / 182 (4.4)	.067	12 / 171 (7.0)	.916
40 to 50 hours per week	51 / 339 (15.0)		17 / 339 (5.0)		13 / 339 (3.8)		22 / 318 (6.9)	
51 to 60 hours per week	21 / 150 (14.0)		13 / 150 (8.7)		12 / 150 (8.0)		12 / 137 (8.8)	
More than 60 hours per week	31 / 119 (26.1)		12 / 119 (10.1)		11 / 119 (9.2)		8 / 109 (7.3)	
Weekly Call								
Yes	73 / 399 (18.3)	**.048**	30 / 399 (7.5)	.165	29 / 399 (7.3)	**.035**	28 / 371 (7.5)	.834
No	61 / 391 (15.6)		20 / 391 (5.1)		15 / 391 (3.8)		26 / 364 (7.1)	
Leadership Position at Work								
Yes	47 / 340 (13.8)	**<.001**	15 / 340 (4.4)	.059	15 / 340 (4.4)	.231	20 / 318 (6.3)	.921
No	87 / 455 (19.1)		35 / 455 (7.7)		29 / 455 (6.4)		34 / 417 (8.2)	

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Years in Practice								
Intern/Resident/Fellow	23 / 56 (41.1)	**.001**	7 / 56 (12.5)	.070	5 / 56 (8.9)	.144	7 / 49 (14.3)	.289
1 to 10 years	53 / 270 (19.6)		21 / 270 (7.8)		20 / 270 (7.4)		17 / 249 (6.8)	
11 to 20 years	43 / 275 (15.6)		12 / 275 (4.4)		10 / 275 (3.6)		17 / 256 (6.6)	
More than 20 years	15 / 201 (7.5)		10 / 201 (5.0)		9 / 201 (4.5)		13 / 181 (7.2)	
Time Spent on Electronic Health Records								
50% of day or less	53 / 378 (14.0)	**.001**	24 / 378 (6.3)	.398	16 / 378 (4.2)	**.025**	27 / 376 (7.2)	.670
More than 50% of day	71 / 299 (23.7)		24 / 299 (8.0)		25 / 299 (8.4)		24 / 298 (8.1)	
High Negative Attitudes about Electronic Health Records								
Yes	14 / 90 (15.6)	.831	8 / 90 (8.9)	.241	5 / 90 (5.6)	.933	6 / 90 (6.7)	.792
No	120 / 730 (16.4)		42 / 730 (5.8)		39 / 730 (5.3)		48 / 645 (7.4)	
Low Perceived Workplace Diversity/Inclusion								
Yes	13 / 78 (16.7)	.935	8 / 78 (10.3)	.107	7 / 78 (9.0)	.137	4 / 26 (15.4)	.110
No	121 / 742 (16.3)		42 / 742 (5.7)		37 / 742 (5.0)		50 / 709 (7.1)	
Low Perceived Promotion of Diversity/Inclusion at Work								
Yes	16 / 98 (16.3)	.997	7 / 98 (7.1)	.645	7 / 98 (7.1)	.405	3 / 43 (7.0)	.924
No	118 / 722 (16.3)		43 / 722 (6.0)		37 / 722 (5.1)		51 / 692 (7.4)	
Experienced Discrimination at Work								
Yes	61 / 219 (27.9)	**<.001**	25 / 219 (11.4)	**<.001**	21 / 219 (9.6)	**.004**	20 / 208 (9.6)	.139
No	73 / 550 (13.3)		25 / 550 (4.5)		23 / 550 (4.2)		34 / 527 (6.5)	
Low Perceived Sense of Community at Work								
Yes	16 / 60 (26.7)	**.049**	10 / 60 (16.7)	**.001**	11 / 60 (18.3)	**<.001**	8 / 57 (14.0)	**.044**
No	118 / 709 (16.6)		40 / 709 (5.6)		33 / 709 (4.7)		46 / 678 (6.8)	
Colleagues Questioned Competence at Work								
Less than monthly	61 / 198 (30.8)	**<.001**	28 / 571 (4.9)	**.002**	21 / 571 (3.7)	**<.001**	35 / 546 (6.4)	.098
Monthly or more	73 / 571 (12.8)		22 / 198 (11.1)		23 / 198 (11.6)		19 / 189 (10.1)	
Low Perceived Support at Work								
Yes	14 / 105 (13.3)	.372	8 / 105 (7.6)	.485	9 / 105 (8.6)	.119	6 / 34 (17.6)	**.018**
No	120 / 715 (16.8)		42 / 715 (5.9)		35 / 715 (4.9)		48 / 701 (6.8)	
Low Perceived Value at Work								
Yes	18 / 129 (14.0)	.424	11 / 129 (8.5)	.209	12 / 129 (9.3)	**.031**	9 / 57 (15.8)	**.011**
No	116 / 691 (16.8)		39 / 691 (5.6)		32 / 691 (4.6)		45 / 678 (6.6)	
Patients Questioned Competence								
Less than monthly	92 / 639 (14.4)	**<.001**	36 / 639 (5.6)	**.030**	29 / 639 (4.5)	**.002**	41 / 616 (6.7)	.102
Monthly or more	42 / 130 (32.3)		14 / 130 (10.8)		15 / 130 (11.5)		13 / 119 (10.9)	
Low Professional Fulfillment								
Yes	14 / 129 (10.9)	.066	8 / 129 (6.2)	.957	11 / 129 (8.5)	.083	4 / 59 (6.8)	.862
No	120 / 691 (17.4)		42 / 691 (6.1)		35 / 691 (5.1)		50 / 676 (7.4)	
Marital Status								
Married or Domestic Partnership	99 / 640 (15.5)	.192	35 / 640 (5.5)	.150	31 / 640 (4.8)	.205	36 / 576 (6.3)	**.030**
Single, Widowed, Divorced, or Separated	35 / 179 (19.6)		15 / 179 (8.4)		13 / 179 (7.3)		18 / 159 (11.3)	

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Partner Employment Status								
Not a physician	108 / 644 (16.8)	.544	41 / 644 (6.4)	.549	38 / 644 (5.9)	.198	47 / 575 (8.2)	.103
Physician	26 / 175 (14.9)		9 / 175 (5.1)		6 / 175 (3.4)		7 / 160 (4.4)	
Dependent Child								
Yes	82 / 512 (16.0)	.554	28 / 512 (5.5)	.259	24 / 512 (4.7)	.207	32 / 471 (6.8)	.443
No	52 / 295 (17.6)		22 / 295 (7.5)		20 / 295 (6.8)		22 / 264 (8.3)	
Dependent Family Member								
Yes	37 / 246 (15.0)	.429	18 / 246 (7.3)	.382	17 / 246 (6.9)	.227	21 / 225 (9.3)	.170
No	97 / 561 (17.3)		32 / 561 (5.7)		27 / 561 (4.8)		33 / 510 (6.5)	
Pregnancy Status								
Yes	26 / 116 (22.4)	.070	6 / 116 (5.2)	.604	6 / 116 (5.2)	.807	7 / 108 (6.5)	.687
No	107 / 684 (15.6)		44 / 684 (6.4)		38 / 684 (5.6)		47 / 620 (7.6)	
Leadership Position Outside of Work								
Yes	35 / 240 (14.6)	.260	12 / 240 (5.0)	.325	13 / 240 (5.4)	.924	19 / 223 (8.5)	.421
No	99 / 555 (17.8)		38 / 555 (6.8)		31 / 555 (5.6)		35 / 512 (6.8)	
Not Satisfied with Work-Life Balance								
Yes	82 / 333 (24.6)	**<.001**	39 / 333 (11.7)	**<.001**	36 / 333 (10.8)	**<.001**	31 / 329 (9.4)	.058
No	51 / 406 (12.6)		11 / 406 (2.7)		7 / 406 (1.7)		23 / 401 (5.7)	
High Work Exhaustion								
Yes	40 / 84 (47.6)	**<.001**	21 / 84 (25.0)	**<.001**	22 / 84 (26.2)	**<.001**	12 / 82 (14.6)	**.007**
No	94 / 736 (12.8)		29 / 736 (3.9)		22 / 736 (3.0)		42 / 653 (6.4)	
High Disengagement with Patients								
Yes	13 / 30 (43.3)	**<.001**	8 / 30 (26.7)	**<.001**	7 / 30 (23.3)	**<.001**	7 / 29 (24.1)	**<.001**
No	121 / 790 (15.3)		42 / 790 (5.3)		37 / 790 (4.7)		47 / 706 (6.7)	
High Disengagement with Colleagues								
Yes	8 / 20 (40.0)	**.004**	8 / 20 (40.0)	**<.001**	8 / 20 (40.0)	**<.001**	5 / 20 (25.0)	**.002**
No	126 / 800 (15.8)		42 / 800 (5.3)		36 / 800 (4.5)		49 / 715 (6.9)	
Overall Burnout								
Yes	90 / 305 (29.5)	**<.001**	43 / 305 (14.1)	**<.001**	39 / 305 (12.8)	**<.001**	34 / 296 (11.5)	**<.001**
No	44 / 447 (9.8)		7 / 447 (1.6)		5 / 447 (1.1)		20 / 439 (4.6)	

Note. No. in Grp = Number in Group. *P* values < .05 have been bolded.

Table 4b. Associations between Work, Family, and Burnout Characteristics and Mental Health Outcomes among Women Physicians

	High Sleep Impairment		High Anxiety Symptoms		High Depressive Symptoms		Suicidal Ideation (Past 12 Months)	
	Odds Ratio (95% CI)	*P*	Odds Ratio (95% CI)	*P*	Odds Ratio (95% CI)	*P*	Odds Ratio (95% CI)	*P*
Asian (Reference: White)	0.97 (0.91, 1.02)	.236	1.02 (0.98, 1.06)	.394	0.99 (0.95, 1.02)	.482	0.95 (0.91, 1.00)	**.032**
Hispanic or Latino (Reference: White)	0.94 (0.86, 1.03)	.188	0.96 (0.91, 1.02)	.206	0.98 (0.92, 1.03)	.403	0.98 (0.91, 1.06)	.651
Black or African American (Reference: White)	0.95 (0.85, 1.06)	.353	1.04 (0.97, 1.12)	.302	1.00 (0.94, 1.07)	.908	0.95 (0.87, 1.04)	.254
Other race/ethnicity (Reference: White)	1.00 (0.91, 1.10)	.984	1.06 (0.99, 1.13)	.072	0.99 (0.94, 1.05)	.853	0.93 (0.87, 1.01)	.074
Age ≤ 39 years (Reference: Age > 39 years)	0.99 (0.91, 1.08)	.816	1.04 (0.98, 1.10)	.204	1.02 (0.96, 1.07)	.556	1.00 (0.93, 1.07)	.978
Primary care physician (Reference: Not primary care physician)	1.03 (0.98, 1.09)	.228	1.01 (0.98, 1.05)	.570	1.01 (0.97, 1.04)	.762	1.02 (0.98, 1.06)	.366
Patient load > 20 per day (Reference: ≤ 20 per day)	1.03 (0.98, 1.08)	.222	1.02 (0.99, 1.06)	.186	1.01 (0.98, 1.04)	.489	1.03 (0.99, 1.07)	.197
Public and Military/VA work setting (Reference: Academic work setting)	1.03 (0.96, 1.12)	.388	1.01 (0.96, 1.06)	.808	1.00 (0.95, 1.05)	.986	0.94 (0.88, 1.00)	**.034**
Private practice work setting (Reference: Academic work setting)	1.00 (0.93, 1.07)	.988	0.97 (0.93, 1.02)	.237	0.98 (0.94, 1.03)	.461	0.96 (0.91, 1.02)	.175
Other work setting (Reference: Academic work setting)	0.99 (0.92, 1.08)	.869	0.95 (0.90, 1.00)	.050	0.94 (0.89, 0.99)	**.014**	0.96 (0.90, 1.02)	.195
Work 51-60 hours per week (Reference: ≤ 50 hours per week)	0.97 (0.91, 1.03)	.317	1.03 (0.98, 1.07)	.230	1.03 (0.99, 1.07)	.200	1.00 (0.95, 1.05)	.952
Work ≥ 60 hours per week (Reference: ≤ 50 hours per week)	1.02 (0.94, 1.10)	.597	1.00 (0.95, 1.05)	.917	1.00 (0.95, 1.05)	.877	0.95 (0.90, 1.01)	.131
Weekly call (Reference: No weekly call)	0.99 (0.94, 1.04)	.696	1.00 (0.96, 1.03)	.782	1.01 (0.98, 1.05)	.360	0.99 (0.96, 1.03)	.785
Leadership position at work (Reference: No leadership position)	0.98 (0.93, 1.03)	.399	0.97 (0.94, 1.00)	.070	0.98 (0.95, 1.01)	.287	0.98 (0.94, 1.02)	.254
In training (Resident or Fellow) (Reference: In practice > 20 years)	1.26 (1.11, 1.44)	**.001**	1.00 (0.91, 1.09)	.929	0.97 (0.89, 1.05)	.457	1.10 (0.98, 1.22)	.094
In practice 1-10 years (Reference: In practice > 20 years)	1.07 (0.98, 1.17)	.109	0.99 (0.93, 1.05)	.731	1.00 (0.95, 1.06)	.855	1.01 (0.94, 1.08)	.739

In practice 11-20 years (Reference: In practice > 20 years)	1.06 (0.99, 1.13)	.103	0.98 (0.94, 1.03)	.452	0.99 (0.95, 1.04)	.758	1.02 (0.96, 1.07)	.563
Used EHR > 50% of day (Reference: Used EHR ≤ 50%)	1.05 (1.00, 1.10)	.075	0.99 (0.96, 1.02)	.553	1.02 (0.99, 1.05)	.218	1.01 (0.97, 1.05)	.773

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High negative attitudes toward EHR (Reference: Low/moderate negative EHR attitudes)	0.96 (0.89, 1.04)	.280	1.01 (0.95, 1.06)	.848	0.96 (0.92, 1.01)	.099	0.99 (0.94, 1.05)	.833
Low perceived workplace diversity/inclusion (Reference: Moderate/high perceived diversity/inclusion)	1.17 (1.00, 1.37)	**.049**	1.20 (1.08, 1.33)	**.001**	1.08 (0.98, 1.19)	.116	1.10 (0.96, 1.26)	.161
Low perceived promotion of diversity/inclusion at work (Reference: Moderate/high perceived promotion)	0.92 (0.81, 1.06)	.252	0.90 (0.82, 0.99)	**.022**	0.95 (0.88, 1.04)	.260	0.89 (0.80, 0.99)	**.039**
Experienced discrimination at Work (Reference: Did not experience discrimination)	1.09 (1.03, 1.15)	**.005**	1.02 (0.99, 1.06)	.221	0.99 (0.96, 1.03)	.726	1.01 (0.97, 1.06)	.632
Low perceived sense of community at work (Reference: Moderate/high perceived sense of community)	0.97 (0.88, 1.07)	.570	1.02 (0.96, 1.09)	.449	1.06 (1.00, 1.13)	.054	1.02 (0.94, 1.10)	.604
Colleagues questioned competence monthly (Reference: Colleagues questioned competence < monthly)	1.07 (1.01, 1.13)	**.029**	1.01 (0.97, 1.05)	.728	1.02 (0.99, 1.06)	.218	1.00 (0.95, 1.04)	.860
Low perceived support at work (Reference: Moderate/high perceived support)	1.00 (0.87, 1.15)	.964	0.95 (0.87, 1.05)	.319	0.96 (0.88, 1.05)	.414	1.03 (0.92, 1.16)	.598
Low perceived value at work (Reference: Moderate/high perceived value)	0.91 (0.81, 1.02)	.108	1.01 (0.94, 1.09)	.782	1.00 (0.93, 1.08)	.934	1.03 (0.94, 1.13)	.493
Patients questioned competence monthly (Reference: Patients questioned competence < monthly)	1.08 (1.01, 1.16)	**.019**	0.99 (0.95, 1.04)	.658	1.01 (0.97, 1.05)	.615	1.01 (0.95, 1.06)	.840
Low professional fulfillment (Reference: Moderate/high professional fulfillment)	0.85 (0.78, 0.92)	**<.001**	0.94 (0.89, 0.99)	**.022**	0.99 (0.94, 1.05)	.844	0.93 (0.86, 1.00)	**.048**
Single, widowed, divorced or separated relationship status (Reference: Married or domestic partnership)	1.00 (0.94, 1.07)	.939	1.01 (0.96, 1.05)	.762	0.99 (0.96, 1.04)	.795	1.04 (0.99, 1.10)	.126
Does not have partner who is physician (Reference: Has physician partner)	0.98 (0.92, 1.04)	.440	1.00 (0.96, 1.04)	.929	1.01 (0.97, 1.05)	.684	1.01 (0.97, 1.06)	.552
Has dependent children (Reference: No dependent children)	1.00 (0.94, 1.06)	.945	1.01 (0.97, 1.06)	.497	1.00 (0.96, 1.04)	.942	1.00 (0.95, 1.05)	.998
Has dependent family members (Reference: No dependent family members)	0.97 (0.92, 1.03)	.343	1.00 (0.97, 1.04)	.907	1.01 (0.97, 1.04)	.759	1.03 (0.99, 1.08)	.143
Currently pregnant (Reference: Not pregnant)	1.04 (0.97, 1.13)	.285	0.96 (0.91, 1.01)	.154	0.99 (0.95, 1.04)	.770	1.00 (0.94, 1.06)	.993
Leadership position outside of work (Reference: No leadership position outside)	0.99 (0.94, 1.04)	.657	0.98 (0.94, 1.01)	.174	1.00 (0.97, 1.03)	.986	1.03 (0.98, 1.07)	.219
Not satisfied with work-life balance (Reference: Not dissatisfied with work-life balance)	1.03 (0.98, 1.09)	.295	1.04 (1.00, 1.07)	**.044**	1.04 (1.01, 1.08)	.021	1.00 (0.96, 1.05)	.886
High work exhaustion (Reference: Low/moderate work exhaustion)	1.35 (1.23, 1.49)	**<.001**	1.14 (1.07, 1.21)	**<.001**	1.18 (1.11, 1.25)	**<.001**	1.00 (0.93, 1.08)	.969
High disengagement with patients	1.08 (0.90, 1.28)	.410	0.93 (0.82, 1.04)	.194	0.86 (0.77, 0.96)	**.007**	1.13 (0.99, 1.30)	.073

(Reference: Low/moderate disengagement with patients)								
High disengagement with colleagues (Reference: Low/moderate disengagement with colleagues)	0.79 (0.64, 0.98)	**.031**	1.27 (1.10, 1.46)	**.001**	1.31 (1.15, 1.50)	**<.001**	1.01 (0.86, 1.19)	.907
Overall burnout (Reference: No overall burnout)	1.10 (1.04, 1.17)	**.001**	1.07 (1.03, 1.11)	**.001**	1.04 (1.00, 1.08)	**.028**	1.05 (1.00, 1.10)	**.040**

Note. CI = Confidence Interval. *P* values < .05 have been bolded.

Table 5a. Prevalence of Work Exhaustion, Disengagement, and Burnout across Work and Family Characteristics among Women Physicians of Color

	High Work Exhaustion				High Disengagement with Patients				High Disengagement with Colleagues				Overall Burnout			
	Women Physicians of Color		White Women Physicians		Women Physicians of Color		White Women Physicians		Women Physicians of Color		White Women Physicians		Women Physicians of Color		White Women Physicians	
	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*
Age Group																
39 years or younger	16 / 118 (13.6)	.339	9 / 98 (9.2)	.536	4 / 118 (3.4)	.643	8 / 98 (8.2)	.093	3 / 118 (2.5)	.663	4 / 98 (4.1)	.820	47 / 108 (43.5)	.098	37 / 93 (39.8)	.113
40 to 49 years	16 / 193 (8.3)		13 / 110 (11.8)		8 / 193 (4.1)		3 / 110 (2.7)		3 / 193 (1.6)		3 / 110 (2.7)		74 / 175 (42.3)		46 / 102 (45.1)	
50 to 59 years	12 / 101 (11.9)		10 / 88 (11.4)		3 / 101 (3.0)		2 / 88 (2.3)		3 / 101 (3.0)		2 / 88 (2.3)		41 / 92 (44.6)		35 / 86 (40.7)	
60 years or older	2 / 36 (5.6)		3 / 58 (5.2)		0 / 36 (0.0)		1 / 58 (1.7)		0 / 36 (0.0)		1 / 58 (1.7)		6 / 30 (20.0)		13 / 52 (25.0)	
Medical Specialty																
Primary care	21 / 174 (12.1)	.444	11 / 103 (10.7)	.857	9 / 174 (5.2)	.084	6 / 103 (5.8)	.350	7 / 174 (4.0)	**.015**	5 / 103 (4.9)	.230	78 / 162 (48.1)	.038	39 / 102 (38.2)	.862
Not primary care	27 / 276 (9.8)		25 / 249 (10.0)		6 / 276 (2.2)		9 / 249 (3.6)		2 / 276 (0.7)		6 / 249 (2.4)		95 / 251 (37.8)		93 / 237 (39.2)	
Patient Load																
20 patients per day or less	24 / 238 (10.1)	.523	21 / 209 (10.0)	.628	9 / 238 (3.8)	.615	8 / 209 (3.8)	.392	5 / 238 (2.1)	.892	7 / 209 (3.3)	.995	83 / 226 (36.7)	**.006**	75 / 206 (36.4)	.182
More than 20 patients perday	21 / 174 (12.1)		14 / 119 (11.8)		5 / 174 (2.9)		7 / 119 (5.9)		4 / 174 (2.3)		4 / 119 (3.4)		81 / 160 (50.6)		51 / 116 (44.0)	
Practice Setting																
Academic	11 / 83 (13.3)	.599	12 / 107 (11.2)	.417	1 / 83 (1.2)	.584	6 / 107 (5.6)	.637	1 / 83 (1.2)	.266	4 / 107 (3.7)	.318	31 / 82 (37.8)	**.013**	46 / 104 (44.2)	.392
Public Sector/VA/Military	9 / 66 (13.6)		9 / 69 (13.0)		2 / 66 (3.0)		4 / 69 (5.8)		0 / 66 (0.0)		4 / 69 (5.8)		29 / 59 (49.2)		28 / 67 (41.8)	
Private	18 / 203 (8.9)		7 / 110 (6.4)		9 / 203 (4.4)		3 / 110 (2.7)		4 / 203 (2.0)		1 / 110 (0.9)		66 / 186 (35.5)		35 / 105 (33.3)	
Other	10 / 95 (10.5)		8 / 64 (12.5)		3 / 95 (3.2)		2 / 64 (3.1)		4 / 95 (4.2)		2 / 64 (3.1)		47 / 86 (54.7)		23 / 63 (36.5)	
Hours Worked																
Part Time	10 / 105 (9.5)	.418	6 / 77 (7.8)	.567	3 / 105 (2.9)	.961	3 / 77 (3.9)	.824	3 / 105 (2.9)	.489	1 / 77 (1.3)	.096	42 / 100 (42.0)	.593	28 / 74 (37.8)	.194
40 to 50 hours per week	21 / 208 (10.1)		14 / 131 (10.7)		8 / 208 (3.8)		5 / 131 (3.8)		4 / 208 (1.9)		3 / 131 (2.3)		80 / 195 (41.0)		42 / 128 (32.8)	
51 to 60 hours per week	7 / 71 (9.9)		7 / 79 (8.9)		2 / 71 (2.8)		3 / 79 (3.8)		0 / 71 (0.0)		2 / 79 (2.5)		25 / 66 (37.9)		37 / 78 (47.4)	
More than 60 hours perweek	10 / 58 (17.2)		9 / 61 (14.8)		2 / 58 (3.4)		4 / 61 (6.6)		2 / 58 (3.4)		5 / 61 (8.2)		26 / 52 (50.0)		25 / 59 (42.4)	
Weekly Call																
Yes	29 / 221 (13.1)	.126	20 / 178 (11.2)	.576	9 / 221 (4.1)	.431	9 / 178 (5.1)	.483	4 / 221 (1.8)	.736	8 / 178 (4.5)	.146	95 / 206 (46.1)	.082	83 / 172 (48.3)	**<.001**
No	19 / 221 (8.6)		16 / 170 (9.4)		6 / 221 (2.7)		6 / 170 (3.5)		5 / 221 (2.3)		3 / 170 (1.8)		78 / 207 (37.7)		49 / 167 (29.3)	

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Leadership Position atWork																
Yes	14 / 171 (8.2)	.163	14 / 169 (8.3)	.234	3 / 171 (1.8)	.136	5 / 169 (3.0)	.236	2 / 171 (1.2)	.313	4 / 169 (2.4)	.421	57 / 160 (35.6)	**.040**	66 / 165 (40.0)	.696
No	34 / 274 (12.4)		22 / 181 (12.2)		12 / 274 (4.4)		10 / 181 (5.5)		7 / 274 (2.6)		7 / 181 (3.9)		116 / 253 (45.8)		66 / 174 (37.9)	
Years in Practice																
Intern/Resident/Fellow	4 / 26 (15.4)	.308	3 / 30 (10.0)	.068	0 / 26 (0.0)	.454	2 / 30 (6.7)	.348	0 / 26 (0.0)	.889	2 / 30 (6.7)	.430	12 / 24 (50.0)	.562	10 / 26 (38.5)	.625
1 to 10 years	21 / 153 (13.7)		10 / 117 (8.5)		6 / 153 (3.9)		7 / 117 (6.0)		3 / 153 (2.0)		5 / 117 (4.3)		60 / 140 (42.9)		46 / 114 (40.4)	
11 to 20 years	17 / 190 (8.9)		15 / 85 (17.6)		8 / 190 (4.2)		4 / 85 (4.7)		4 / 190 (2.1)		2 / 85 (2.4)		76 / 178 (42.7)		36 / 83 (43.4)	
More than 20 years	6 / 81 (7.4)		8 / 120 (6.7)		1 / 81 (1.2)		2 / 120 (1.7)		2 / 81 (2.5)		2 / 120 (1.7)		25 / 71 (35.2)		40 / 116 (34.5)	
Time Spent on ElectronicHealth Records																
50% of day or less	16 / 184 (8.7)	.054	13 / 194 (6.7)	**.003**	7 / 184 (3.8)	.778	5 / 194 (2.6)	**.016**	3 / 184 (1.6)	.475	2 / 194 (1.0)	**.004**	67 / 184 (36.4)	**.005**	72 / 194 (37.1)	.209
More than 50% of day	28 / 184 (15.2)		20 / 115 (17.4)		6 / 184 (3.3)		10 / 115 (8.7)		5 / 184 (2.7)		8 / 115 (7.0)		94 / 184 (51.1)		51 / 115 (44.3)	
High Negative Attitudes about Electronic Health Records																
Yes	8 / 44 (18.2)	.079	8 / 46 (17.4)	.071	2 / 44 (4.5)	.619	1 / 46 (2.2)	.473	2 / 44 (4.5)	.195	3 / 46 (6.5)	.141	18 / 44 (40.9)	.889	22 / 46 (47.8)	.184
No	40 / 414 (9.7)		28 / 316 (8.9)		13 / 414 (3.1)		14 / 316 (4.4)		7 / 414 (1.7)		8 / 316 (2.5)		155 / 369 (42.0)		110 / 293 (37.5)	
Low Perceived Workplace Diversity/Inclusion																
Yes	2 / 50 (4.0)	.113	3 / 28 (10.7)	.887	0 / 50 (0.0)	.168	1 / 28 (3.6)	.874	0 / 50 (0.0)	.289	2 / 28 (7.1)	.188	10 / 19 (52.6)	.331	7 / 8 (87.5)	**.004**
No	46 / 408 (11.3)		33 / 334 (9.9)		15 / 408 (3.7)		14 / 334 (4.2)		9 / 408 (2.2)		9 / 334 (2.7)		163 / 394 (41.4)		125 / 331 (37.8)	
Low Perceived Promotion of Diversity/Inclusion atWork																
Yes	5 / 62 (8.1)	.504	3 / 36 (8.3)	.734	1 / 62 (1.6)	.429	0 / 36 (0.0)	.189	0 / 62 (0.0)	.231	1 / 36 (2.8)	.923	18 / 31 (58.1)	.058	10 / 15 (66.7)	**.024**
No	43 / 396 (10.9)		33 / 326 (10.1)		14 / 396 (3.5)		15 / 326 (4.6)		9 / 396 (2.3)		10 / 326 (3.1)		155 / 382 (40.6)		122 / 324 (37.7)	
Experienced Discriminationat Work																
Yes	23 / 122 (18.9)	**.002**	19 / 97 (19.6)	**.001**	10 / 122 (8.2)	**.001**	7 / 97 (7.2)	.108	7 / 122 (5.7)	**.001**	7 / 97 (7.2)	**.008**	58 / 117 (49.6)	**.047**	54 / 95 (56.8)	**<.001**
No	25 / 305 (8.2)		17 / 245 (6.9)		5 / 305 (1.6)		8 / 245 (3.3)		2 / 305 (0.7)		4 / 245 (1.6)		115 / 296 (38.9)		78 / 244 (32.0)	
Low Perceived Sense ofCommunity at Work																

Yes	10 / 34 (29.4)	**<.001**	6 / 26 (23.1)	**.030**	3 / 34 (8.8)	.080	3 / 26 (11.5)	.064	2 / 34 (5.9)	.110	3 / 26 (11.5)	**.012**	21 / 33 (63.6)	**.008**	16 / 26 (61.5)	**.014**
No	38 / 393 (9.7)		30 / 316 (9.5)		12 / 393 (3.1)		12 / 316 (3.8)		7 / 393 (1.8)		8 / 316 (2.5)		152 / 380 (40.0)		116 / 313 (37.1)	

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Colleagues Questioned Competence at Work																
Less than monthly	27 / 316 (8.5)	**.003**	20 / 255 (7.8)	**.006**	10 / 316 (3.2)	.509	6 / 255 (2.4)	**.002**	4 / 316 (1.3)	**.041**	5 / 255 (2.0)	**.024**	118 / 305 (38.7)	**.027**	87 / 254 (34.3)	**.002**
Monthly or more	21 / 111 (18.9)		16 / 87 (18.4)		5 / 111 (4.5)		9 / 87 (10.3)		5 / 111 (4.5)		6 / 87 (6.9)		55 / 108 (50.9)		45 / 85 (52.9)	
Low Perceived Support atWork																
Yes	12 / 71 (16.9)	.055	5 / 34 (14.7)	.330	3 / 71 (4.2)	.625	1 / 34 (2.9)	.712	2 / 71 (2.8)	.574	2 / 34 (5.9)	.310	18 / 26 (69.2)	**.004**	10 / 11 (90.9)	**<.001**
No	36 / 387 (9.3)		31 / 328 (9.5)		12 / 387 (3.1)		14 / 328 (4.3)		7 / 387 (1.8)		9 / 328 (2.7)		155 / 387 (40.1)		122 / 328 (37.2)	
Low Perceived Value atWork																
Yes	17 / 83 (20.5)	**.001**	7 / 46 (15.2)	.201	5 / 83 (6.0)	.120	3 / 46 (6.5)	.386	3 / 83 (3.6)	.232	3 / 46 (6.5)	.141	26 / 38 (68.4)	**.001**	15 / 23 (65.2)	**.007**
No	31 / 375 (8.3)		29 / 316 (9.2)		10 / 375 (2.7)		12 / 316 (3.8)		6 / 375 (1.6)		8 / 316 (2.5)		147 / 375 (39.2)		117 / 316 (37.0)	
Patients Questioned Competence																
Less than monthly	34 / 357 (9.5)	**.011**	24 / 282 (8.5)	**.008**	10 / 357 (2.8)	.071	7 / 282 (2.5)	**<.001**	5 / 357 (1.4)	**.022**	4 / 282 (1.4)	**<.001**	140 / 348 (40.2)	.114	103 / 281 (36.7)	.058
Monthly or more	14 / 70 (20.0)		12 / 60 (20.0)		5 / 70 (7.1)		8 / 60 (13.3)		4 / 70 (5.7)		7 / 60 (11.7)		33 / 65 (50.8)		29 / 58 (50.0)	
Low Professional Fulfillment																
Yes	15 / 88 (17.0)	**.025**	8 / 41 (19.5)	**.030**	4 / 88 (4.5)	.456	4 / 41 (9.8)	.056	2 / 88 (2.3)	.817	4 / 41 (9.8)	**.008**	32 / 43 (74.4)	**<.001**	14 / 18 (77.8)	**.001**
No	33 / 370 (8.9)		28 / 321 (8.7)		11 / 370 (3.0)		11 / 321 (3.4)		7 / 370 (1.9)		7 / 321 (2.2)		141 / 370 (38.1)		118 / 321 (36.8)	
Marital Status																
Married or Domestic Partnership	34 / 362 (9.4)	.140	25 / 278 (9.0)	.256	13 / 362 (3.6)	.461	9 / 278 (3.2)	.110	8 / 362 (2.2)	.463	7 / 278 (2.5)	.284	125 / 328 (38.1)	**.002**	97 / 261 (37.2)	.221
Single, Widowed, Divorced,or Separated	14 / 96 (14.6)		11 / 83 (13.3)		2 / 96 (2.1)		6 / 83 (7.2)		1 / 96 (1.0)		4 / 83 (4.8)		48 / 85 (56.5)		35 / 78 (44.9)	
Partner Employment Status																
Not a physician	40 / 345 (11.6)	.174	32 / 299 (10.7)	.309	11 / 345 (3.2)	.855	14 / 299 (4.7)	.270	7 / 345 (2.0)	.863	10 / 299 (3.3)	.470	140 / 311 (45.0)	**.024**	113 / 279 (40.5)	.203
Physician	8 / 113 (7.1)		4 / 62 (6.5)		4 / 113 (3.5)		1 / 62 (1.6)		2 / 113 (1.8)		1 / 62 (1.6)		33 / 102 (32.4)		19 / 60 (31.7)	
Dependent Child																
Yes	30 / 304 (9.9)	.443	15 / 208 (7.2)	**.031**	12 / 304 (3.9)	.290	5 / 208 (2.4)	**.044**	8 / 304 (2.6)	.165	3 / 208 (1.4)	**.033**	116 / 281 (41.3)	.715	76 / 200 (38.0)	.671
No	18 / 147 (12.2)		21 / 148 (14.2)		3 / 147 (2.0)		10 / 148 (6.8)		1 / 147 (0.7)		8 / 148 (5.4)		57 / 132 (43.2)		56 / 139 (40.3)	
Dependent Family Member																

Yes	23 / 163 (14.1)	.072	12 / 83 (14.5)	.134	8 / 163 (4.9)	.159	5 / 83 (6.0)	.348	8 / 163 (4.9)	**.001**	5 / 83 (6.0)	.078	68 / 150 (45.3)	.284	34 / 81 (42.0)	.520
No	25 / 288 (8.7)		24 / 273 (8.8)		7 / 288 (2.4)		10 / 273 (3.7)		1 / 288 (0.3)		6 / 273 (2.2)		105 / 263 (39.9)		98 / 258 (38.0)	

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Pregnancy Status																
Yes	5 / 63 (7.9)	.438	2 / 53 (3.8)	.094	3 / 63 (4.8)	.504	1 / 53 (1.9)	.355	2 / 63 (3.2)	.479	0 / 53 (0.0)	.157	25 / 58 (43.1)	.867	19 / 51 (37.3)	.747
No	43 / 384 (11.2)		34 / 300 (11.3)		12 / 384 (3.1)		14 / 300 (4.7)		7 / 384 (1.8)		11 / 300 (3.7)		147 / 351 (41.9)		113 / 285 (39.6)	
Leadership PositionOutside of Work																
Yes	11 / 137 (8.0)	.211	17 / 103 (16.5)	**.013**	4 / 137 (2.9)	.725	5 / 103 (4.9)	.734	4 / 137 (2.9)	.370	6 / 103 (5.8)	.063	44 / 129 (34.1)	**.031**	38 / 100 (38.0)	.819
No	37 / 308 (12.0)		19 / 247 (7.7)		11 / 308 (3.6)		10 / 247 (4.0)		5 / 308 (1.6)		5 / 247 (2.0)		129 / 284 (45.4)		94 / 239 (39.3)	
Not Satisfied with Work-LifeBalance																
Yes	35 / 179 (19.6)	**<.001**	25 / 154 (16.2)	**.001**	12 / 179 (6.7)	**.001**	11 / 154 (7.1)	**.030**	8 / 179 (4.5)	**.006**	9 / 154 (5.8)	**.016**	110 / 179 (61.5)	**<.001**	92 / 154 (59.7)	**<.001**
No	12 / 226 (5.3)		9 / 180 (5.0)		2 / 226 (0.9)		4 / 180 (2.2)		1 / 226 (0.4)		2 / 180 (1.1)		60 / 226 (26.5)		36 / 180 (20.0)	

Note. No. in Grp = Number in Group. *P* values < .05 have been bolded.

Table 5b. Associations between Work and Family Characteristics and Work Exhaustion among Women Physicians of Color

Outcome: High Work Exhaustion	Women Physicians of Color		White Women Physicians	
Predictors: Work and Family Characteristics	OR (95% CI)	*P*	OR (95% CI)	*P*
Age ≤ 39 years (Ref: Age > 39 years)	1.03 (0.93, 1.14)	.543	1.05 (0.94, 1.17)	.403
Primary care physician (Ref: Not primary care physician)	1.03 (0.97, 1.09)	.358	0.99 (0.93, 1.06)	.881
Patient load > 20 per day (Ref: ≤ 20 per day)	0.98 (0.92, 1.04)	.470	1.01 (0.95, 1.07)	.809
Public and Military/VA work setting (Ref: Academic work setting)	1.02 (0.93, 1.13)	.662	0.97 (0.89, 1.07)	.553
Private practice work setting (Ref: Academic work setting)	0.99 (0.91, 1.07)	.738	0.91 (0.84, 1.00)	**.046**
Other work setting (Ref: Academic work setting)	1.00 (0.91, 1.11)	.952	0.97 (0.88, 1.07)	.548
Work 51-60 hours per week (Ref: ≤ 50 hours per week)	0.98 (0.91, 1.06)	.558	0.96 (0.89, 1.04)	.354
Work ≥ 60 hours per week (Ref: ≤ 50 hours per week)	0.99 (0.91, 1.09)	.912	0.97 (0.88, 1.07)	.514
Weekly call (Ref: No weekly call)	1.05 (0.99, 1.11)	.116	1.01 (0.95, 1.08)	.700
Leadership position at work (Ref: No leadership position)	0.96 (0.91, 1.02)	.192	0.93 (0.87, 0.99)	**.032**
In training (Resident or Fellow) (Ref: In practice > 20 years)	1.06 (0.90, 1.25)	.465	0.90 (0.76, 1.05)	.180
In practice 1-10 years (Ref: In practice > 20 years)	1.09 (0.98, 1.20)	.111	0.98 (0.89, 1.09)	.707
In practice 11-20 years (Ref: In practice > 20 years)	1.05 (0.97, 1.13)	.253	1.18 (1.08, 1.28)	**<.001**
Used EHR > 50% of day (Ref: Used EHR ≤ 50%)	1.02 (0.96, 1.09)	.456	1.08 (1.01, 1.16)	**.026**
High negative attitudes toward EHR (Ref: Low/moderate negative EHR attitudes)	1.08 (0.98, 1.18)	.117	1.05 (0.96, 1.15)	.302
Low perceived workplace diversity/inclusion (Ref: Moderate/high perceived diversity/inclusion)	0.77 (0.65, 0.90)	**.002**	0.96 (0.77, 1.21)	.751
Low perceived promotion of diversity/inclusion at work (Ref: Moderate/high perceived promotion)	1.01 (0.87, 1.17)	.890	0.86 (0.71, 1.03)	.096
Experienced discrimination at work (Ref: Did not experience discrimination)	1.06 (0.99, 1.13)	.100	1.07 (0.99, 1.15)	.075
Low perceived sense of community at work (Ref: Moderate/high perceived sense of community)	1.05 (0.94, 1.19)	.378	1.05 (0.93, 1.18)	.419
Colleagues questioned competence monthly (Ref: Colleagues questioned competence < monthly)	1.04 (0.98, 1.12)	.216	1.03 (0.95, 1.11)	.471
Low perceived support at work (Ref: Moderate/high perceived support)	0.94 (0.81, 1.09)	.410	1.04 (0.85, 1.27)	.702
Low perceived value at work (Ref: Moderate/high perceived value)	1.21 (1.06, 1.39)	**.005**	0.97 (0.84, 1.12)	.642
Patients questioned competence monthly (Ref: Patients questioned competence < monthly)	1.02 (0.94, 1.10)	.626	1.06 (0.97, 1.16)	.174
Low professional fulfillment (Ref: Moderate/high professional fulfillment)	1.04 (0.96, 1.13)	.362	1.15 (1.02, 1.31)	**.027**
Single, widowed, divorced or separated relationship status (Ref: Married or domestic partnership)	1.01 (0.93, 1.09)	.804	1.00 (0.93, 1.08)	.936
Does not have partner who is physician (Ref: Has physician partner)	1.04 (0.98, 1.11)	.231	1.05 (0.96, 1.13)	.278
Has dependent children (Ref: No dependent children)	1.00 (0.93, 1.07)	.952	0.90 (0.84, 0.97)	**.007**
Has dependent family members (Ref: No dependent family members)	1.07 (1.01, 1.13)	**.029**	1.08 (1.01, 1.16)	**.031**
Currently pregnant (Ref: Not pregnant)	0.94 (0.86, 1.03)	.197	1.04 (0.94, 1.15)	.502
Leadership position outside of work (Ref: No leadership position outside)	0.96 (0.91, 1.02)	.229	1.10 (1.03, 1.18)	**.006**
Not satisfied with work-life balance (Ref: Not dissatisfied with work-life balance)	1.10 (1.04, 1.17)	**.001**	1.10 (1.03, 1.18)	**.004**

Note. OR = Odds Ratio. CI = Confidence Interval. Ref. = Reference Group. *P* values < .05 have been bolded.

Table 5c. Associations between Work and Family Characteristics and Disengagement with Patients among Women Physicians of Color

Outcome: High Disengagement with Patients	Women Physicians of Color		White Women Physicians	
Predictors: Work and Family Characteristics	OR (95% CI)	*P*	OR (95% CI)	*P*
Age ≤ 39 years (Ref: Age > 39 years)	1.00 (0.94, 1.06)	.944	1.10 (1.02, 1.19)	**.019**
Primary care physician (Ref: Not primary care physician)	1.03 (0.99, 1.06)	.147	1.02 (0.97, 1.07)	.458
Patient load > 20 per day (Ref: ≤ 20 per day)	0.97 (0.94, 1.01)	.129	1.01 (0.97, 1.05)	.651
Public and Military/VA work setting (Ref: Academic work setting)	1.03 (0.97, 1.10)	.293	0.97 (0.91, 1.03)	.258
Private practice work setting (Ref: Academic work setting)	1.05 (0.99, 1.10)	.083	0.95 (0.90, 1.01)	.100
Other work setting (Ref: Academic work setting)	1.03 (0.98, 1.10)	.266	0.94 (0.88, 1.01)	.082
Work 51-60 hours per week (Ref: ≤ 50 hours per week)	0.99 (0.95, 1.04)	.787	0.99 (0.94, 1.04)	.726
Work ≥ 60 hours per week (Ref: ≤ 50 hours per week)	1.00 (0.95, 1.06)	.883	0.96 (0.90, 1.02)	.200
Weekly call (Ref: No weekly call)	1.02 (0.99, 1.06)	.206	1.01 (0.97, 1.05)	.625
Leadership position at work (Ref: No leadership position)	0.97 (0.94, 1.01)	.092	0.98 (0.94, 1.02)	.286
In training (Resident or Fellow) (Ref: In practice > 20 years)	1.01 (0.92, 1.12)	.822	0.92 (0.83, 1.03)	.166
In practice 1-10 years (Ref: In practice > 20 years)	1.04 (0.98, 1.10)	.236	0.98 (0.91, 1.05)	.542
In practice 11-20 years (Ref: In practice > 20 years)	1.04 (0.99, 1.09)	.098	1.05 (0.99, 1.12)	.074
Used EHR > 50% of day (Ref: Used EHR ≤ 50%)	0.98 (0.95, 1.02)	.269	1.05 (1.00, 1.09)	**.040**
High negative attitudes toward EHR (Ref: Low/moderate negative EHR attitudes)	1.00 (0.94, 1.05)	.925	0.97 (0.92, 1.04)	.393
Low perceived workplace diversity/inclusion (Ref: Moderate/high perceived diversity/inclusion)	0.91 (0.83, 1.01)	.071	1.10 (0.94, 1.29)	.221
Low perceived promotion of diversity/inclusion at work (Ref: Moderate/high perceived promotion)	0.99 (0.90, 1.08)	.804	0.84 (0.74, 0.95)	**.007**
Experienced discrimination at work (Ref: Did not experience discrimination)	1.06 (1.02, 1.10)	**.003**	1.02 (0.97, 1.07)	.467
Low perceived sense of community at work (Ref: Moderate/high perceived sense of community)	1.02 (0.95, 1.10)	.568	1.04 (0.96, 1.12)	.359
Colleagues questioned competence monthly (Ref: Colleagues questioned competence < monthly)	1.00 (0.96, 1.04)	.943	1.04 (0.98, 1.09)	.168
Low perceived support at work (Ref: Moderate/high perceived support)	0.95 (0.87, 1.04)	.273	0.90 (0.78, 1.03)	.121
Low perceived value at work (Ref: Moderate/high perceived value)	1.09 (1.00, 1.18)	**.046**	1.03 (0.93, 1.13)	.580
Patients questioned competence monthly (Ref: Patients questioned competence < monthly)	1.02 (0.97, 1.07)	.414	1.07 (1.01, 1.13)	**.023**
Low professional fulfillment (Ref: Moderate/high professional fulfillment)	1.00 (0.95, 1.06)	.900	1.11 (1.02, 1.21)	**.018**
Single, widowed, divorced or separated relationship status (Ref: Married or domestic partnership)	0.99 (0.95, 1.04)	.723	1.00 (0.95, 1.06)	.886
Does not have partner who is physician (Ref: Has physician partner)	1.00 (0.96, 1.04)	.948	1.02 (0.97, 1.08)	.460
Has dependent children (Ref: No dependent children)	1.00 (0.96, 1.04)	.936	0.96 (0.91, 1.01)	.131
Has dependent family members (Ref: No dependent family members)	1.02 (0.99, 1.06)	.187	1.05 (1.00, 1.10)	.065
Currently pregnant (Ref: Not pregnant)	1.01 (0.96, 1.07)	.679	0.98 (0.92, 1.05)	.609
Leadership position outside of work (Ref: No leadership position outside)	0.99 (0.95, 1.02)	.480	1.03 (0.98, 1.07)	.274
Not satisfied with work-life balance (Ref: Not dissatisfied with work-life balance)	1.05 (1.02, 1.09)	**.004**	1.03 (0.99, 1.08)	.132

Note. OR = Odds Ratio. CI = Confidence Interval. Ref. = Reference Group. *P* values < .05 have been bolded.

Table 5d. Associations between Work and Family Characteristics and Disengagement with Colleagues among Women Physicians of Color

Outcome: High Disengagement with Colleagues	Women Physicians of Color		White Women Physicians	
Predictors: Work and Family Characteristics	OR (95% CI)	*P*	OR (95% CI)	*P*
Age ≤ 39 years (Ref: Age > 39 years)	1.04 (0.99, 1.09)	.119	1.00 (0.94, 1.07)	.897
Primary care physician (Ref: Not primary care physician)	1.03 (1.00, 1.05)	.050	1.03 (0.99, 1.07)	.114
Patient load > 20 per day (Ref: ≤ 20 per day)	0.99 (0.96, 1.01)	.356	0.99 (0.95, 1.02)	.523
Public and Military/VA work setting (Ref: Academic work setting)	1.00 (0.95, 1.04)	.910	1.01 (0.96, 1.06)	.779
Private practice work setting (Ref: Academic work setting)	1.02 (0.98, 1.06)	.375	0.97 (0.92, 1.02)	.257
Other work setting (Ref: Academic work setting)	1.05 (1.00, 1.10)	**.042**	0.99 (0.94, 1.05)	.790
Work 51-60 hours per week (Ref: ≤ 50 hours per week)	0.98 (0.95, 1.02)	.323	1.00 (0.96, 1.05)	.929
Work ≥ 60 hours per week (Ref: ≤ 50 hours per week)	1.02 (0.97, 1.06)	.423	1.01 (0.96, 1.07)	.613
Weekly call (Ref: No weekly call)	1.00 (0.98, 1.03)	.832	1.02 (0.99, 1.06)	.213
Leadership position at work (Ref: No leadership position)	0.98 (0.96, 1.01)	.251	0.99 (0.95, 1.02)	.432
In training (Resident or Fellow) (Ref: In practice > 20 years)	0.97 (0.90, 1.05)	.420	1.02 (0.92, 1.12)	.726
In practice 1-10 years (Ref: In practice > 20 years)	0.99 (0.94, 1.03)	.575	1.03 (0.97, 1.09)	.354
In practice 11-20 years (Ref: In practice > 20 years)	1.00 (0.96, 1.03)	.792	1.03 (0.98, 1.08)	.266
Used EHR > 50% of day (Ref: Used EHR ≤ 50%)	1.00 (0.97, 1.03)	.997	1.04 (1.00, 1.09)	**.031**
High negative attitudes toward EHR (Ref: Low/moderate negative EHR attitudes)	1.03 (0.98, 1.07)	.241	1.04 (0.99, 1.09)	.156
Low perceived workplace diversity/inclusion (Ref: Moderate/high perceived diversity/inclusion)	0.99 (0.92, 1.07)	.819	1.13 (0.99, 1.29)	.071
Low perceived promotion of diversity/inclusion at work (Ref: Moderate/high perceived promotion)	0.94 (0.87, 1.00)	.060	0.85 (0.77, 0.95)	**.004**
Experienced discrimination at work (Ref: Did not experience discrimination)	1.05 (1.01, 1.08)	**.003**	1.03 (0.99, 1.08)	.175
Low perceived sense of community at work (Ref: Moderate/high perceived sense of community)	1.01 (0.95, 1.06)	.773	1.07 (1.00, 1.14)	.067
Colleagues questioned competence monthly (Ref: Colleagues questioned competence < monthly)	1.02 (0.99, 1.05)	.233	1.00 (0.95, 1.04)	.868
Low perceived support at work (Ref: Moderate/high perceived support)	0.98 (0.91, 1.05)	.572	0.94 (0.83, 1.05)	.265
Low perceived value at work (Ref: Moderate/high perceived value)	1.04 (0.98, 1.11)	.169	1.02 (0.94, 1.11)	.619
Patients questioned competence monthly (Ref: Patients questioned competence < monthly)	1.02 (0.98, 1.05)	.413	1.07 (1.02, 1.12)	**.009**
Low professional fulfillment (Ref: Moderate/high professional fulfillment)	0.99 (0.95, 1.03)	.665	1.09 (1.01, 1.17)	**.024**
Single, widowed, divorced or separated relationship status (Ref: Married or domestic partnership)	0.99 (0.96, 1.03)	.714	1.00 (0.95, 1.04)	.839
Does not have partner who is physician (Ref: Has physician partner)	1.01 (0.98, 1.04)	.702	1.00 (0.96, 1.05)	.897
Has dependent children (Ref: No dependent children)	1.02 (0.98, 1.05)	.360	0.97 (0.93, 1.02)	.254
Has dependent family members (Ref: No dependent family members)	1.04 (1.02, 1.07)	**.002**	1.05 (1.00, 1.09)	**.034**
Currently pregnant (Ref: Not pregnant)	1.00 (0.96, 1.04)	.953	0.99 (0.93, 1.05)	.706
Leadership position outside of work (Ref: No leadership position outside)	1.01 (0.98, 1.03)	.710	1.04 (1.00, 1.08)	.052
Not satisfied with work-life balance (Ref: Not dissatisfied with work-life balance)	1.03 (1.00, 1.05)	.067	1.02 (0.98, 1.05)	.391

Note. OR = Odds Ratio. CI = Confidence Interval. Ref. = Reference Group. *P* values < .05 have been bolded.

Table 5e. Associations between Work and Family Characteristics and Overall Burnout among Women Physicians of Color

Outcome: Overall Burnout	Women Physicians of Color		White Women Physicians	
Predictors: Work and Family Characteristics	OR (95% CI)	*P*	OR (95% CI)	*P*
Age ≤ 39 years (Ref: Age > 39 years)	0.98 (0.84, 1.15)	.836	1.06 (0.89, 1.26)	.538
Primary care physician (Ref: Not primary care physician)	1.08 (0.99, 1.18)	.081	0.95 (0.86, 1.06)	.338
Patient load > 20 per day (Ref: ≤ 20 per day)	1.09 (1.00, 1.19)	.062	1.08 (0.98, 1.19)	.129
Public and Military/VA work setting (Ref: Academic work setting)	1.08 (0.92, 1.26)	.341	1.05 (0.91, 1.21)	.477
Private practice work setting (Ref: Academic work setting)	0.95 (0.84, 1.09)	.484	0.94 (0.82, 1.08)	.403
Other work setting (Ref: Academic work setting)	1.14 (0.98, 1.32)	.099	0.98 (0.84, 1.14)	.795
Work 51-60 hours per week (Ref: ≤ 50 hours per week)	0.90 (0.80, 1.02)	.100	1.02 (0.91, 1.15)	.724
Work ≥ 60 hours per week (Ref: ≤ 50 hours per week)	0.94 (0.81, 1.09)	.437	0.90 (0.78, 1.05)	.180
Weekly call (Ref: No weekly call)	1.12 (1.03, 1.22)	**.011**	1.14 (1.04, 1.26)	**.006**
Leadership position at work (Ref: No leadership position)	0.90 (0.83, 0.99)	**.032**	1.03 (0.93, 1.13)	.615
In training (Resident or Fellow) (Ref: In practice > 20 years)	1.05 (0.81, 1.36)	.725	0.82 (0.64, 1.06)	.130
In practice 1-10 years (Ref: In practice > 20 years)	1.10 (0.94, 1.29)	.248	0.94 (0.81, 1.11)	.476
In practice 11-20 years (Ref: In practice > 20 years)	1.10 (0.97, 1.24)	.142	1.05 (0.92, 1.19)	.500
Used EHR > 50% of day (Ref: Used EHR ≤ 50%)	1.07 (0.98, 1.17)	.120	1.01 (0.91, 1.12)	.855
High negative attitudes toward EHR (Ref: Low/moderate negative EHR attitudes)	0.95 (0.83, 1.10)	.516	1.07 (0.93, 1.22)	.354
Low perceived workplace diversity/inclusion (Ref: Moderate/high perceived diversity/inclusion)	0.88 (0.67, 1.16)	.366	1.42 (0.95, 2.12)	.086
Low perceived promotion of diversity/inclusion at work (Ref: Moderate/high perceived promotion)	1.13 (0.91, 1.41)	.273	0.88 (0.66, 1.18)	.410
Experienced discrimination at work (Ref: Did not experience discrimination)	1.01 (0.91, 1.12)	.845	1.15 (1.03, 1.29)	**.014**
Low perceived sense of community at work (Ref: Moderate/high perceived sense of community)	1.08 (0.89, 1.30)	.443	1.01 (0.84, 1.21)	.937
Colleagues questioned competence monthly (Ref: Colleagues questioned competence < monthly)	1.02 (0.92, 1.13)	.722	1.03 (0.91, 1.15)	.681
Low perceived support at work (Ref: Moderate/high perceived support)	0.94 (0.73, 1.20)	.597	1.14 (0.82, 1.58)	.437
Low perceived value at work (Ref: Moderate/high perceived value)	1.06 (0.87, 1.30)	.557	1.08 (0.87, 1.35)	.483
Patients questioned competence monthly (Ref: Patients questioned competence < monthly)	1.01 (0.89, 1.14)	.892	1.02 (0.90, 1.17)	.725
Low professional fulfillment (Ref: Moderate/high professional fulfillment)	1.18 (1.03, 1.36)	**.018**	1.29 (1.05, 1.59)	**.017**
Single, widowed, divorced or separated relationship status (Ref: Married or domestic partnership)	1.20 (1.06, 1.35)	**.004**	1.02 (0.90, 1.15)	.757
Does not have partner who is physician (Ref: Has physician partner)	1.06 (0.96, 1.17)	.283	1.06 (0.94, 1.20)	.358
Has dependent children (Ref: No dependent children)	1.06 (0.95, 1.18)	.292	0.99 (0.88, 1.11)	.810
Has dependent family members (Ref: No dependent family members)	1.04 (0.95, 1.14)	.409	1.00 (0.89, 1.11)	.957
Currently pregnant (Ref: Not pregnant)	1.09 (0.95, 1.25)	.231	1.07 (0.91, 1.25)	.416
Leadership position outside of work (Ref: No leadership position outside)	0.93 (0.85, 1.02)	.115	0.96 (0.87, 1.07)	.471
Not satisfied with work-life balance (Ref: Not dissatisfied with work-life balance)	1.39 (1.27, 1.53)	**<.001**	1.47 (1.33, 1.62)	**<.001**

Note. OR = Odds Ratio. CI = Confidence Interval. Ref. = Reference Group. *P* values < .05 have been bolded.

Table 6a. Prevalence of Career Choice Regret, Specialty Choice Regret, and Plans for Early Retirement across Work, Family, and Burnout Characteristics among Women Physicians ofColor

	Career Choice Regret				Specialty Choice Regret				Plans for Early Retirement			
	Women Physicians of Color		White Women Physicians		Women Physicians of Color		White Women Physicians		Women Physicians of Color		White Women Physicians	
	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*
Age Group												
39 years or younger	23 / 107 (21.5)	.073	16 / 92 (17.4)	.373	25 / 107 (23.4)	.598	17 / 92 (18.5)	.513	38 / 107 (35.5)	.016	29 / 88 (33.0)	.002
40 to 49 years	30 / 173 (17.3)		12 / 101 (11.9)		49 / 173 (28.3)		25 / 101 (24.8)		42 / 170 (24.7)		29 / 100 (29.0)	
50 to 59 years	11 / 91 (12.1)		13 / 85 (15.3)		27 / 91 (29.7)		19 / 85 (22.4)		26 / 91 (28.6)		32 / 85 (37.6)	
60 years or older	1 / 29 (3.4)		4 / 52 (7.7)		10 / 29 (34.5)		8 / 52 (15.4)		2 / 29 (6.9)		4 / 51 (7.8)	
Medical Specialty												
Primary care	32 / 159 (20.1)	.134	16 / 102 (15.7)	.554	61 / 159 (38.4)	<.001	31 / 102 (30.4)	.003	38 / 155 (24.5)	.427	29 / 102 (28.4)	.797
Not primary care	36 / 249 (14.5)		31 / 234 (13.2)		51 / 249 (20.5)		38 / 234 (16.2)		70 / 249 (28.1)		68 / 228 (29.8)	
Patient Load												
20 patients per day or less	32 / 226 (14.2)	.074	29 / 205 (14.1)	.852	68 / 226 (30.1)	.219	40 / 205 (19.5)	.381	59 / 223 (26.5)	.887	56 / 200 (28.0)	.612
More than 20 patients per day	33 / 156 (21.2)		17 / 114 (14.9)		38 / 156 (24.4)		27 / 114 (23.7)		40 / 155 (25.8)		35 / 114 (30.7)	
Practice Setting												
Academic	16 / 82 (19.5)	.708	16 / 102 (15.7)	.161	14 / 82 (17.1)	.027	16 / 102 (15.7)	.415	24 / 80 (30.0)	.449	29 / 99 (29.3)	.801
Public Sector/VA/Military	8 / 59 (13.6)		12 / 67 (17.9)		12 / 59 (20.3)		16 / 67 (23.9)		15 / 59 (25.4)		18 / 66 (27.3)	
Private	28 / 182 (15.4)		8 / 104 (7.7)		57 / 182 (31.3)		21 / 104 (20.2)		42 / 180 (23.3)		29 / 104 (27.9)	
Other	16 / 85 (18.8)		11 / 63 (17.5)		29 / 85 (34.1)		16 / 63 (25.4)		27 / 85 (31.8)		21 / 61 (34.4)	
Hours Worked												
Part Time	24 / 98 (24.5)	.049	9 / 74 (12.2)	.449	37 / 98 (37.8)	.053	17 / 74 (23.0)	.044	29 / 98 (29.6)	.658	22 / 73 (30.1)	.489
40 to 50 hours per week	25 / 193 (13.0)		16 / 128 (12.5)		48 / 193 (24.9)		22 / 128 (17.2)		50 / 191 (26.2)		31 / 125 (24.8)	
51 to 60 hours per week	8 / 65 (12.3)		10 / 76 (13.2)		13 / 65 (20.0)		23 / 76 (30.3)		14 / 65 (21.5)		24 / 75 (32.0)	
More than 60 hours per week	11 / 52 (21.2)		12 / 58 (20.7)		14 / 52 (26.9)		7 / 58 (12.1)		15 / 50 (30.0)		20 / 57 (35.1)	
Weekly Call												
Yes	35 / 204 (17.2)	.790	26 / 170 (15.3)	.485	51 / 204 (25.0)	.267	23 / 170 (13.5)	.001	61 / 203 (30.0)	.130	58 / 167 (34.7)	.031
No	33 / 204 (16.2)		21 / 166 (12.7)		61 / 204 (29.9)		46 / 166 (27.7)		47 / 201 (23.4)		39 / 163 (23.9)	
Leadership Position at Work												
Yes	18 / 158 (11.4)	.023	17 / 164 (10.4)	.062	42 / 158 (26.6)	.755	36 / 164 (22.0)	.351	43 / 157 (27.4)	.812	53 / 159 (33.3)	.130
No	50 / 250 (20.0)		30 / 172 (17.4)		70 / 250 (28.0)		33 / 172 (19.2)		65 / 247 (26.3)		44 / 171 (25.7)	
Years in Practice												
Intern/Resident/Fellow	8 / 24 (33.3)	.042	8 / 25 (32.0)	.023	5 / 24 (20.8)	.343	3 / 25 (12.0)	.736	6 / 23 (26.1)	.405	8 / 25 (32.0)	.631
1 to 10 years	27 / 139 (19.4)		11 / 114 (9.6)		32 / 139 (23.0)		25 / 114 (21.9)		43 / 138 (31.2)		31 / 110 (28.2)	
11 to 20 years	26 / 175 (14.9)		14 / 82 (17.1)		55 / 175 (31.4)		17 / 82 (20.7)		45 / 174 (25.9)		28 / 81 (34.6)	
More than 20 years	7 / 70 (10.0)		14 / 115 (12.2)		20 / 70 (28.6)		24 / 115 (20.9)		14 / 69 (20.3)		30 / 114 (26.3)	
Time Spent on Electronic Health Records												
50% of day or less	25 / 184 (13.6)	.054	24 / 194 (12.4)	.156	39 / 184 (21.2)	.010	41 / 194 (21.1)	.456	45 / 183 (24.6)	.198	52 / 188 (27.7)	.143
More than 50% of day	39 / 184 (21.2)		21 / 115 (18.3)		61 / 184 (33.2)		24 / 115 (20.9)		56 / 183 (30.6)		41 / 115 (35.7)	
High Negative Attitudes about Electronic Health Records												
Yes	9 / 44 (20.5)	.475	10 / 46 (21.7)	.103	4 / 44 (9.1)	.004	10 / 46 (21.7)	.838	11 / 43 (25.6)	.857	17 / 44 (38.6)	.148
No	59 / 364 (16.2)		37 / 290 (12.8)		108 / 364 (29.7)		59 / 290 (20.3)		97 / 361 (26.9)		80 / 286 (28.0)	
Low Perceived Workplace Diversity/Inclusion												
Yes	5 / 18 (27.8)	.196	2 / 8 (25.0)	.363	4 / 18 (22.2)	.611	3 / 8 (37.5)	.229	8 / 18 (44.4)	.082	3 / 8 (37.5)	.610
No	63 / 390 (16.2)		45 / 328 (13.7)		108 / 390 (27.7)		66 / 328 (20.1)		100 / 386 (25.9)		94 / 322 (29.2)	
Low Perceived Promotion of Diversity/Inclusion at Work												
Yes	9 / 30 (30.0)	.042	3 / 14 (21.4)	.412	10 / 30 (33.3)	.453	3 / 14 (21.4)	.933	11 / 30 (36.7)	.201	6 / 14 (42.9)	.258
No	59 / 378 (15.6)		44 / 322 (13.7)		102 / 378 (27.0)		66 / 322 (20.5)		97 / 374 (25.9)		91 / 316 (28.8)	

(continued on next page)

Experienced Discrimination at Work												
Yes	35 / 117 (29.9)	<.001	19 / 93 (20.4)	.035	44 / 117 (37.6)	.004	22 / 93 (23.7)	.381	42 / 117 (35.9)	.008	34 / 92 (37.0)	.061
No	33 / 291 (11.3)		28 / 243 (11.5)		68 / 291 (23.4)		47 / 243 (19.3)		66 / 287 (23.0)		63 / 238 (26.5)	
Low Perceived Sense of Community at Work												
Yes	10 / 33 (30.3)	.028	6 / 24 (25.0)	.107	11 / 33 (33.3)	.430	11 / 24 (45.8)	.001	12 / 32 (37.5)	.152	9 / 22 (40.9)	.220
No	58 / 375 (15.5)		41 / 312 (13.1)		101 / 375 (26.9)		58 / 312 (18.6)		96 / 372 (25.8)		88 / 308 (28.6)	
Colleagues Questioned Competence at Work												
Less than monthly	43 / 301 (14.3)	.030	24 / 252 (9.5)	<.001	78 / 301 (25.9)	.243	50 / 252 (19.8)	.585	76 / 298 (25.5)	.349	65 / 247 (26.3)	.034
Monthly or more	25 / 107 (23.4)		23 / 84 (27.4)		34 / 107 (31.8)		19 / 84 (22.6)		32 / 106 (30.2)		32 / 83 (38.6)	
Low Perceived Support at Work												
Yes	8 / 24 (33.3)	.024	3 / 10 (30.0)	.138	9 / 24 (37.5)	.255	7 / 10 (70.0)	<.001	8 / 24 (33.3)	.451	4 / 9 (44.4)	.315
No	60 / 384 (15.6)		44 / 326 (13.5)		103 / 384 (26.8)		62 / 326 (19.0)		100 / 380 (26.3)		93 / 321 (29.0)	
Low Perceived Value at Work												
Yes	14 / 36 (38.9)	<.001	8 / 22 (36.4)	.002	14 / 36 (38.9)	.107	10 / 22 (45.5)	.003	14 / 36 (38.9)	.084	10 / 21 (47.6)	.058
No	54 / 372 (14.5)		39 / 314 (12.4)		98 / 372 (26.3)		59 / 314 (18.8)		94 / 368 (25.5)		87 / 309 (28.2)	
Patients Questioned Competence												
Less than monthly	49 / 344 (14.2)	.002	18 / 57 (31.6)	<.001	95 / 344 (27.6)	.862	54 / 279 (19.4)	.236	20 / 62 (32.3)	.285	68 / 273 (24.9)	<.001
Monthly or more	19 / 64 (29.7)		29 / 279 (10.4)		17 / 64 (26.6)		15 / 57 (26.3)		88 / 342 (25.7)		29 / 57 (50.9)	
Low Professional Fulfillment												
Yes	24 / 43 (55.8)	<.001	9 / 18 (50.0)	<.001	21 / 43 (48.8)	.001	9 / 18 (50.0)	.001	20 / 41 (48.8)	.001	8 / 17 (47.1)	.101
No	44 / 365 (12.1)		38 / 318 (11.9)		91 / 365 (24.9)		60 / 318 (18.9)		88 / 363 (24.2)		89 / 313 (28.4)	
Marital Status												
Married or Domestic Partnership	48 / 325 (14.8)	.042	34 / 258 (13.2)	.436	86 / 325 (26.5)	.376	50 / 258 (19.4)	.340	85 / 323 (26.3)	.705	74 / 255 (29.0)	.783
Single, Widowed, Divorced, or Separated	20 / 83 (24.1)		13 / 78 (16.7)		26 / 83 (31.3)		19 / 78 (24.4)		23 / 81 (28.4)		23 / 75 (30.7)	
Partner Employment Status												
Not a physician	53 / 306 (17.3)	.539	39 / 278 (14.0)	.962	86 / 306 (28.1)	.608	61 / 278 (21.9)	.162	79 / 302 (26.2)	.654	82 / 273 (30.0)	.575
Physician	15 / 102 (14.7)		8 / 58 (13.8)		26 / 102 (25.5)		8 / 58 (13.8)		29 / 102 (28.4)		15 / 57 (26.3)	
Dependent Child												
Yes	38 / 278 (13.7)	.018	20 / 198 (10.1)	.014	80 / 278 (28.8)	.380	43 / 198 (21.7)	.521	76 / 277 (27.4)	.637	57 / 196 (29.1)	.880
No	30 / 130 (23.1)		27 / 138 (19.6)		32 / 130 (24.6)		26 / 138 (18.8)		32 / 127 (25.2)		40 / 134 (29.9)	
Dependent Family Member												
Yes	21 / 148 (14.2)	.311	12 / 81 (14.8)	.806	50 / 148 (33.8)	.031	17 / 81 (21.0)	.908	36 / 146 (24.7)	.478	23 / 80 (28.8)	.885
No	47 / 260 (18.1)		35 / 255 (13.7)		62 / 260 (23.8)		52 / 255 (20.4)		72 / 258 (27.9)		74 / 250 (29.6)	
Pregnancy Status												
Yes	7 / 58 (12.1)	.318	4 / 50 (8.0)	.196	13 / 58 (22.4)	.329	9 / 50 (18.0)	.645	19 / 58 (32.8)	.279	10 / 49 (20.4)	.136
No	60 / 346 (17.3)		42 / 283 (14.8)		99 / 346 (28.6)		59 / 283 (20.8)		89 / 243 (36.6)		86 / 278 (30.9)	
Leadership Position Outside of Work												
Yes	16 / 129 (12.4)	.116	18 / 99 (18.2)	.152	33 / 129 (25.6)	.565	25 / 99 (25.3)	.167	37 / 129 (28.7)	.544	28 / 99 (28.3)	.772
No	52 / 279 (18.6)		29 / 237 (12.2)		79 / 279 (28.3)		44 / 237 (18.6)		71 / 275 (25.8)		69 / 231 (29.9)	
Not Satisfied with Work-Life Balance												
Yes	42 / 179 (23.5)	.001	31 / 154 (20.1)	.003	57 / 179 (31.8)	.059	35 / 154 (22.7)	.388	56 / 177 (31.6)	.059	59 / 151 (39.1)	<.001
No	26 / 226 (11.5)		16 / 180 (8.9)		53 / 226 (23.5)		34 / 180 (18.9)		52 / 224 (23.2)		37 / 177 (20.9)	
High Work Exhaustion												
Yes	24 / 47 (51.1)	<.001	17 / 35 (48.6)	<.001	20 / 47 (42.6)	.014	14 / 35 (40.0)	.003	23 / 46 (50.0)	<.001	23 / 34 (67.6)	<.001
No	44 / 361 (12.2)		30 / 301 (10.0)		92 / 361 (25.5)		55 / 301 (18.3)		85 / 358 (23.7)		74 / 296 (25.0)	
High Disengagement with Patients												

Yes	9 / 14 (64.3)	<.001	8 / 15 (53.3)	<.001	9 / 14 (64.3)	.002	7 / 15 (46.7)	.010	7 / 13 (53.8)	.025	9 / 15 (60.0)	.008
No	59 / 394 (15.0)		39 / 321 (12.1)		103 / 394 (26.1)		62 / 321 (19.3)		101 / 391 (25.8)		88 / 315 (27.9)	
High Disengagement with Colleagues												
Yes	6 / 9 (66.7)	<.001	8 / 11 (72.7)	<.001	6 / 9 (66.7)	.008	6 / 11 (54.5)	.005	4 / 8 (50.0)	.133	7 / 11 (63.6)	.011
No	62 / 399 (15.5)		39 / 325 (12.0)		106 / 399 (26.6)		63 / 325 (19.4)		104 / 396 (26.3)		90 / 319 (28.2)	
Overall Burnout												
Yes	50 / 170 (29.4)	<.001	30 / 130 (23.1)	<.001	60 / 170 (35.3)	.003	35 / 130 (26.9)	.021	61 / 167 (36.5)	<.001	62 / 127 (48.8)	<.001
No	18 / 238 (7.6)		17 / 206 (8.3)		52 / 238 (21.8)		34 / 206 (16.5)		47 / 237 (19.8)		35 / 203 (17.2)	

Note. No. in Grp = Number in Group. *P* values < .05 have been bolded.

Table 6b. Associations between Work, Family, and Burnout Characteristics and Career Choice Regret among Women Physicians of Color

Outcome: Career Choice Regret	Women Physicians of Color		White Women Physicians	
Predictors: Work, Family, and Burnout Characteristics	OR (95% CI)	*P*	OR (95% CI)	*P*
Age ≤ 39 years (Ref: Age > 39 years)	1.01 (0.89, 1.13)	.909	1.11 (0.98, 1.26)	.112
Primary care physician (Ref: Not primary care physician)	1.02 (0.96, 1.10)	.495	1.00 (0.92, 1.08)	.983
Patient load > 20 per day (Ref: ≤ 20 per day)	1.04 (0.97, 1.11)	.264	1.00 (0.93, 1.08)	.991
Public and Military/VA work setting (Ref: Academic work setting)	0.91 (0.81, 1.02)	.117	0.97 (0.87, 1.08)	.583
Private practice work setting (Ref: Academic work setting)	0.99 (0.90, 1.10)	.883	0.91 (0.82, 1.01)	.069
Other work setting (Ref: Academic work setting)	0.98 (0.87, 1.09)	.670	0.99 (0.88, 1.11)	.856
Work 51-60 hours per week (Ref: ≤ 50 hours per week)	0.95 (0.86, 1.04)	.225	0.97 (0.89, 1.06)	.537
Work ≥ 60 hours per week (Ref: ≤ 50 hours per week)	0.93 (0.83, 1.04)	.184	0.93 (0.83, 1.04)	.208
Weekly call (Ref: No weekly call)	0.99 (0.93, 1.06)	.744	1.00 (0.93, 1.08)	.950
Leadership position at work (Ref: No leadership position)	0.98 (0.91, 1.05)	.557	0.95 (0.88, 1.02)	.186
In training (Resident or Fellow) (Ref: In practice > 20 years)	1.16 (0.96, 1.42)	.132	1.01 (0.84, 1.22)	.920
In practice 1-10 years (Ref: In practice > 20 years)	1.04 (0.92, 1.18)	.490	0.87 (0.78, 0.98)	**.023**
In practice 11-20 years (Ref: In practice > 20 years)	1.04 (0.95, 1.15)	.356	1.04 (0.94, 1.15)	.456
Used EHR > 50% of day (Ref: Used EHR ≤ 50%)	1.03 (0.96, 1.10)	.396	0.99 (0.92, 1.07)	.766
High negative attitudes toward EHR (Ref: Low/moderate negative EHR attitudes)	1.01 (0.90, 1.12)	.925	1.05 (0.95, 1.16)	.367
Low perceived workplace diversity/inclusion (Ref: Moderate/high perceived diversity/inclusion)	0.97 (0.79, 1.20)	.784	0.96 (0.71, 1.30)	.801
Low perceived promotion of diversity/inclusion at work (Ref: Moderate/high perceived promotion)	1.09 (0.92, 1.29)	.310	1.02 (0.81, 1.28)	.865
Experienced discrimination at work (Ref: Did not experience discrimination)	1.13 (1.05, 1.22)	**.001**	1.00 (0.92, 1.08)	.950
Low perceived sense of community at work (Ref: Moderate/high perceived sense of community)	0.97 (0.84, 1.12)	.658	0.98 (0.86, 1.13)	.812
Colleagues questioned competence monthly (Ref: Colleagues questioned competence < monthly)	0.99 (0.92, 1.08)	.854	1.09 (1.00, 1.19)	**.049**
Low perceived support at work (Ref: Moderate/high perceived support)	0.90 (0.74, 1.08)	.254	0.90 (0.70, 1.15)	.393
Low perceived value at work (Ref: Moderate/high perceived value)	1.08 (0.93, 1.26)	.311	1.15 (0.97, 1.35)	.103
Patients questioned competence monthly (Ref: Patients questioned competence < monthly)	1.08 (0.98, 1.19)	.108	1.13 (1.03, 1.25)	**.013**
Low professional fulfillment (Ref: Moderate/high professional fulfillment)	1.32 (1.19, 1.47)	**<.001**	1.28 (1.09, 1.50)	**.002**
Single, widowed, divorced or separated relationship status (Ref: Married or domestic partnership)	1.03 (0.93, 1.13)	.599	0.97 (0.89, 1.06)	.491
Does not have partner who is physician (Ref: Has physician partner)	0.99 (0.92, 1.06)	.750	0.99 (0.90, 1.09)	.828
Has dependent children (Ref: No dependent children)	0.93 (0.86, 1.01)	.070	0.94 (0.86, 1.03)	.166
Has dependent family members (Ref: No dependent family members)	0.93 (0.87, 1.00)	.057	1.03 (0.95, 1.12)	.500
Currently pregnant (Ref: Not pregnant)	0.94 (0.85, 1.04)	.210	1.01 (0.90, 1.14)	.865
Leadership position outside of work (Ref: No leadership position outside)	1.00 (0.93, 1.07)	.959	1.04 (0.96, 1.13)	.303
Not satisfied with work-life balance (Ref: Not dissatisfied with work-life balance)	1.04 (0.97, 1.12)	.251	1.04 (0.96, 1.12)	.377
High work exhaustion (Ref: Low/moderate work exhaustion)	1.17 (1.04, 1.32)	**.012**	1.18 (1.02, 1.37)	**.025**
High disengagement with patients (Ref: Low/moderate disengagement with patients)	1.20 (0.94, 1.54)	.148	0.89 (0.70, 1.13)	.336
High disengagement with colleagues (Ref: Low/moderate disengagement with colleagues)	1.08 (0.78, 1.48)	.650	1.35 (1.02, 1.79)	**.033**

Overall burnout (Ref: No overall burnout)	1.08 (1.01, 1.17)	**.035**	1.04 (0.96, 1.13)	.376

Note. OR = Odds Ratio. CI = Confidence Interval. Ref. = Reference Group. *P* values < .05 have been bolded.

Table 6c. Associations between Work, Family, and Burnout Characteristics and Specialty Choice Regret among Women Physicians of Color

Outcome: Specialty Choice Regret	Women Physicians of Color		White Women Physicians	
Predictors: Work, Family, and Burnout Characteristics	OR (95% CI)	*P*	OR (95% CI)	*P*
Age ≤ 39 years (Ref: Age > 39 years)	1.05 (0.91, 1.23)	.494	0.92 (0.79, 1.08)	.293
Primary care physician (Ref: Not primary care physician)	1.12 (1.02, 1.22)	**.012**	1.11 (1.01, 1.22)	**.028**
Patient load > 20 per day (Ref: ≤ 20 per day)	0.89 (0.81, 0.97)	**.007**	0.98 (0.90, 1.07)	.722
Public and Military/VA work setting (Ref: Academic work setting)	1.00 (0.86, 1.17)	.954	1.16 (1.02, 1.31)	**.024**
Private practice work setting (Ref: Academic work setting)	1.16 (1.02, 1.32)	**.022**	1.17 (1.04, 1.33)	**.012**
Other work setting (Ref: Academic work setting)	1.13 (0.97, 1.31)	.111	1.20 (1.05, 1.38)	**.008**
Work 51-60 hours per week (Ref: ≤ 50 hours per week)	0.95 (0.84, 1.07)	.366	1.21 (1.09, 1.35)	**<.001**
Work ≥ 60 hours per week (Ref: ≤ 50 hours per week)	1.02 (0.88, 1.17)	.830	1.05 (0.92, 1.20)	.450
Weekly call (Ref: No weekly call)	0.97 (0.89, 1.06)	.486	0.84 (0.77, 0.92)	**<.001**
Leadership position at work (Ref: No leadership position)	1.01 (0.93, 1.11)	.785	1.06 (0.97, 1.16)	.170
In training (Resident or Fellow) (Ref: In practice > 20 years)	0.94 (0.73, 1.21)	.634	1.09 (0.87, 1.37)	.468
In practice 1-10 years (Ref: In practice > 20 years)	0.94 (0.80, 1.10)	.444	1.07 (0.93, 1.23)	.360
In practice 11-20 years (Ref: In practice > 20 years)	1.00 (0.89, 1.13)	.987	0.97 (0.86, 1.10)	.662
Used EHR > 50% of day (Ref: Used EHR ≤ 50%)	1.09 (1.00, 1.19)	.056	0.92 (0.84, 1.01)	.072
High negative attitudes toward EHR (Ref: Low/moderate negative EHR attitudes)	0.79 (0.69, 0.91)	**.001**	1.05 (0.92, 1.18)	.477
Low perceived workplace diversity/inclusion (Ref: Moderate/high perceived diversity/inclusion)	0.86 (0.66, 1.12)	.263	1.34 (0.92, 1.94)	.125
Low perceived promotion of diversity/inclusion at work (Ref: Moderate/high perceived promotion)	1.07 (0.86, 1.32)	.555	0.89 (0.67, 1.16)	.386
Experienced discrimination at work (Ref: Did not experience discrimination)	1.14 (1.04, 1.26)	**.008**	1.03 (0.93, 1.14)	.576
Low perceived sense of community at work (Ref: Moderate/high perceived sense of community)	1.01 (0.84, 1.21)	.917	1.25 (1.06, 1.48)	**.009**
Colleagues questioned competence monthly (Ref: Colleagues questioned competence < monthly)	1.04 (0.94, 1.15)	.470	0.97 (0.87, 1.08)	.592
Low perceived support at work (Ref: Moderate/high perceived support)	0.95 (0.74, 1.21)	.668	1.17 (0.86, 1.58)	.314
Low perceived value at work (Ref: Moderate/high perceived value)	1.08 (0.88, 1.32)	.459	1.10 (0.90, 1.34)	.340
Patients questioned competence monthly (Ref: Patients questioned competence < monthly)	0.95 (0.85, 1.08)	.452	1.04 (0.92, 1.17)	.513
Low professional fulfillment (Ref: Moderate/high professional fulfillment)	1.18 (1.03, 1.36)	**.020**	1.22 (1.00, 1.48)	**.046**
Single, widowed, divorced or separated relationship status (Ref: Married or domestic partnership)	1.05 (0.93, 1.18)	.431	1.08 (0.97, 1.20)	.157
Does not have partner who is physician (Ref: Has physician partner)	0.98 (0.89, 1.08)	.660	1.00 (0.89, 1.11)	.938
Has dependent children (Ref: No dependent children)	1.03 (0.93, 1.14)	.601	1.07 (0.96, 1.19)	.210
Has dependent family members (Ref: No dependent family members)	1.09 (1.00, 1.19)	.062	0.97 (0.88, 1.07)	.532
Currently pregnant (Ref: Not pregnant)	0.96 (0.85, 1.10)	.592	1.01 (0.87, 1.17)	.915
Leadership position outside of work (Ref: No leadership position outside)	0.97 (0.88, 1.06)	.439	1.00 (0.91, 1.09)	.943
Not satisfied with work-life balance (Ref: Not dissatisfied with work-life balance)	1.05 (0.96, 1.16)	.281	0.98 (0.89, 1.07)	.655
High work exhaustion (Ref: Low/moderate work exhaustion)	1.01 (0.86, 1.18)	.919	1.07 (0.90, 1.28)	.436
High disengagement with patients (Ref: Low/moderate disengagement with patients)	1.20 (0.87, 1.65)	.267	1.17 (0.87, 1.56)	.295
High disengagement with colleagues (Ref: Low/moderate disengagement with colleagues)	0.98 (0.65, 1.48)	.930	1.02 (0.73, 1.43)	.920

Overall burnout (Ref: No overall burnout)	1.05 (0.95, 1.16)	.349	1.04 (0.94, 1.15)	.424

Note. OR = Odds Ratio. CI = Confidence Interval. Ref. = Reference Group. *P* values < .05 have been bolded.

Table 6d. Associations between Work, Family, and Burnout Characteristics and Early Retirement among Women Physicians of Color

Outcome: Plans for Early Retirement	Women Physicians of Color		White Women Physicians	
Predictors: Work, Family, and Burnout Characteristics	OR (95% CI)	*P*	OR (95% CI)	*P*
Age ≤ 39 years (Ref: Age > 39 years)	1.14 (0.98, 1.34)	.096	1.30 (1.09, 1.55)	**.003**
Primary care physician (Ref: Not primary care physician)	0.96 (0.88, 1.05)	.375	0.96 (0.87, 1.07)	.472
Patient load > 20 per day (Ref: ≤ 20 per day)	0.99 (0.91, 1.09)	.887	1.00 (0.91, 1.11)	.975
Public and Military/VA work setting (Ref: Academic work setting)	0.96 (0.82, 1.12)	.601	0.97 (0.84, 1.12)	.674
Private practice work setting (Ref: Academic work setting)	0.98 (0.86, 1.12)	.789	1.08 (0.94, 1.24)	.297
Other work setting (Ref: Academic work setting)	1.03 (0.89, 1.21)	.676	1.10 (0.94, 1.28)	.234
Work 51-60 hours per week (Ref: ≤ 50 hours per week)	0.92 (0.82, 1.04)	.200	1.02 (0.91, 1.15)	.726
Work ≥ 60 hours per week (Ref: ≤ 50 hours per week)	0.97 (0.83, 1.13)	.693	1.03 (0.89, 1.19)	.711
Weekly call (Ref: No weekly call)	1.07 (0.98, 1.16)	.160	1.05 (0.96, 1.16)	.293
Leadership position at work (Ref: No leadership position)	1.03 (0.94, 1.13)	.552	1.15 (1.04, 1.28)	**.005**
In training (Resident or Fellow) (Ref: In practice > 20 years)	0.83 (0.64, 1.09)	.182	0.83 (0.65, 1.08)	.165
In practice 1-10 years (Ref: In practice > 20 years)	0.95 (0.80, 1.12)	.523	0.86 (0.74, 1.01)	.068
In practice 11-20 years (Ref: In practice > 20 years)	0.99 (0.88, 1.13)	.912	0.96 (0.84, 1.10)	.551
Used EHR > 50% of day (Ref: Used EHR ≤ 50%)	1.05 (0.96, 1.14)	.327	1.01 (0.91, 1.11)	.887
High negative attitudes toward EHR (Ref: Low/moderate negative EHR attitudes)	0.94 (0.82, 1.09)	.418	1.07 (0.93, 1.23)	.332
Low perceived workplace diversity/inclusion (Ref: Moderate/high perceived diversity/inclusion)	1.25 (0.95, 1.64)	.116	0.87 (0.57, 1.30)	.491
Low perceived promotion of diversity/inclusion at work (Ref: Moderate/high perceived promotion)	0.96 (0.77, 1.20)	.728	1.18 (0.87, 1.60)	.280
Experienced discrimination at work (Ref: Did not experience discrimination)	1.06 (0.96, 1.18)	.242	0.98 (0.88, 1.10)	.736
Low perceived sense of community at work (Ref: Moderate/high perceived sense of community)	1.08 (0.89, 1.32)	.423	1.02 (0.84, 1.24)	.833
Colleagues questioned competence monthly (Ref: Colleagues questioned competence < monthly)	0.99 (0.89, 1.10)	.850	0.98 (0.87, 1.10)	.741
Low perceived support at work (Ref: Moderate/high perceived support)	0.87 (0.67, 1.12)	.276	0.94 (0.66, 1.34)	.744
Low perceived value at work (Ref: Moderate/high perceived value)	1.00 (0.81, 1.23)	.984	1.08 (0.87, 1.35)	.478
Patients questioned competence monthly (Ref: Patients questioned competence < monthly)	1.02 (0.90, 1.16)	.728	1.24 (1.08, 1.41)	**.002**
Low professional fulfillment (Ref: Moderate/high professional fulfillment)	1.20 (1.04, 1.39)	**.015**	1.04 (0.83, 1.30)	.729
Single, widowed, divorced or separated relationship status (Ref: Married or domestic partnership)	1.05 (0.93, 1.19)	.412	0.92 (0.81, 1.04)	.175
Does not have partner who is physician (Ref: Has physician partner)	0.95 (0.86, 1.05)	.326	1.05 (0.93, 1.19)	.443
Has dependent children (Ref: No dependent children)	1.05 (0.94, 1.17)	.385	1.08 (0.96, 1.21)	.210
Has dependent family members (Ref: No dependent family members)	0.97 (0.88, 1.06)	.515	0.94 (0.85, 1.05)	.306
Currently pregnant (Ref: Not pregnant)	1.02 (0.89, 1.16)	.811	0.85 (0.72, 1.00)	.050
Leadership position outside of work (Ref: No leadership position outside)	1.08 (0.98, 1.18)	.121	0.93 (0.84, 1.04)	.192
Not satisfied with work-life balance (Ref: Not dissatisfied with work-life balance)	1.02 (0.93, 1.12)	.690	1.04 (0.94, 1.16)	.422
High work exhaustion (Ref: Low/moderate work exhaustion)	1.18 (1.00, 1.39)	**.044**	1.44 (1.18, 1.77)	**<.001**
High disengagement with patients (Ref: Low/moderate disengagement with patients)	1.18 (0.85, 1.65)	.327	0.87 (0.63, 1.19)	.375
High disengagement with colleagues (Ref: Low/moderate disengagement with colleagues)	0.83 (0.54, 1.28)	.397	0.92 (0.63, 1.34)	.673
Overall burnout (Ref: No overall burnout)	1.09 (0.98, 1.20)	.109	1.24 (1.11, 1.38)	**<.001**

Note. OR = Odds Ratio. CI = Confidence Interval. Ref. = Reference Group. *P* values < .05 have been bolded.

Table 7a. Prevalence of Sleep Impairment, Anxiety Symptoms, Depressive Symptoms, and Suicidal Ideation across Work, Family, and Burnout Characteristics among Women Physiciansof Color

	High Sleep Impairment				High Anxiety Symptoms				High Depressive Symptoms				Suicidal Ideation (Past 12 Months)			
	Women Physicians of Color		White Women Physicians		Women Physicians of Color		White Women Physicians		Women Physicians of Color		White Women Physicians		Women Physicians of Color		White Women Physicians	
	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*	n / No. in Grp(%)	*P*
Age Group																
39 years or younger	21 / 118 (17.8)	.130	31 / 98 (31.6)	**<.001**	11 / 118 (9.3)	**.025**	8 / 98 (8.2)	.585	6 / 118 (5.1)	.087	11 / 98 (11.2)	**.030**	5 / 106 (4.7)	.814	10 / 91 (11.0)	.688
40 to 49 years	33 / 193 (17.1)		18 / 110 (16.4)		12 / 193 (6.2)		5 / 110 (4.5)		10 / 193 (5.2)		6 / 110 (5.5)		10 / 171 (5.8)		11 / 100 (11.0)	
50 to 59 years	9 / 101 (8.9)		10 / 88 (11.4)		0 / 101 (0.0)		5 / 88 (5.7)		1 / 101 (1.0)		4 / 88 (4.5)		3 / 88 (3.4)		7 / 84 (8.3)	
60 years or older	3 / 36 (8.3)		3 / 58 (5.2)		3 / 36 (8.3)		2 / 58 (3.4)		4 / 36 (11.1)		0 / 58 (0.0)		2 / 29 (6.9)		3 / 52 (5.8)	
Medical Specialty																
Primary care	27 / 174 (15.5)	.130	22 / 103 (21.4)	.368	14 / 174 (8.0)	.272	4 / 103 (3.9)	.289	10 / 174 (5.7)	.506	6 / 103 (5.8)	.832	12 / 156 (7.7)	.119	11 / 101 (10.9)	.601
Not primary care	42 / 276 (15.2)		43 / 249 (17.3)		15 / 276 (5.4)		17 / 249 (6.8)		12 / 276 (4.3)		16 / 249 (6.4)		10 / 246 (4.1)		21 / 232 (9.1)	
Patient Load																
20 patients per day or less	34 / 238 (14.3)	.204	39 / 209 (18.7)	.606	13 / 238 (5.5)	.208	11 / 209 (5.3)	.264	10 / 238 (4.2)	.334	11 / 209 (5.3)	.264	10 / 222 (4.5)	.182	16 / 204 (7.8)	.119
More than 20 patients perday	33 / 174 (19.0)		25 / 119 (21.0)		15 / 174 (8.6)		10 / 119 (8.4)		11 / 174 (6.3)		10 / 119 (8.4)		12 / 154 (7.8)		15 / 113 (13.3)	
Practice Setting																
Academic	14 / 83 (16.9)	.464	23 / 107 (21.5)	.121	10 / 83 (12.0)	.066	8 / 107 (7.5)	.160	6 / 83 (7.2)	.302	9 / 107 (8.4)	.256	6 / 81 (7.4)	.384	12 / 101 (11.9)	.612
Public Sector/VA/Military	14 / 66 (21.2)		18 / 69 (26.1)		6 / 66 (9.1)		7 / 69 (10.1)		5 / 66 (7.6)		6 / 69 (8.7)		2 / 58 (3.4)		6 / 66 (9.1)	
Private	27 / 203 (13.3)		15 / 110 (13.6)		9 / 203 (4.4)		5 / 110 (4.5)		9 / 203 (4.4)		6 / 110 (5.5)		12 / 180 (6.7)		7 / 104 (6.7)	
Other	14 / 95 (14.7)		9 / 64 (14.1)		4 / 95 (4.2)		1 / 64 (1.6)		2 / 95 (2.1)		1 / 64 (1.6)		2 / 83 (2.4)		7 / 62 (11.3)	
Hours Worked																
Part Time	18 / 105 (17.1)	.203	13 / 77 (16.9)	.192	3 / 105 (2.9)	.082	5 / 77 (6.5)	.571	4 / 105 (3.8)	.180	4 / 77 (5.2)	.508	5 / 98 (5.1)	.792	7 / 73 (9.6)	.992
40 to 50 hours per week	27 / 208 (13.0)		24 / 131 (18.3)		12 / 208 (5.8)		5 / 131 (3.8)		7 / 208 (3.4)		6 / 131 (4.6)		9 / 190 (4.7)		13 / 128 (10.2)	
51 to 60 hours per week	10 / 71 (14.1)		11 / 79 (13.9)		7 / 71 (9.9)		6 / 79 (7.6)		6 / 71 (8.5)		6 / 79 (7.6)		5 / 62 (8.1)		7 / 75 (9.3)	
More than 60 hours perweek	14 / 58 (24.1)		17 / 61 (27.9)		7 / 58 (12.1)		5 / 61 (8.2)		5 / 58 (8.6)		6 / 61 (9.8)		3 / 52 (5.8)		5 / 57 (8.8)	

(continued on next page)

Weekly Call																
Yes	35 / 221 (15.8)	.896	38 / 178 (21.3)	.191	17 / 221 (7.7)	.337	13 / 178 (7.3)	.309	15 / 221 (6.8)	.080	14 / 178 (7.9)	.226	11 / 202 (5.4)	.981	17 / 169 (10.1)	.778
No	34 / 221 (15.4)		27 / 170 (15.9)		12 / 221 (5.4)		8 / 170 (4.7)		7 / 221 (3.2)		8 / 170 (4.7)		11 / 200 (5.5)		15 / 164 (9.1)	
Leadership Position atWork																
Yes	23 / 171 (13.5)	.344	24 / 169 (14.2)	**.042**	8 / 171 (4.7)	.214	7 / 169 (4.1)	.157	8 / 171 (4.7)	.838	7 / 169 (4.1)	.110	10 / 156 (6.4)	.510	10 / 162 (6.2)	**.038**
No	46 / 274 (16.8)		41 / 181 (22.7)		21 / 274 (7.7)		14 / 181 (7.7)		14 / 274 (5.1)		15 / 181 (8.3)		12 / 246 (4.9)		22 / 171 (12.9)	
Years in Practice																
Intern/Resident/Fellow	9 / 26 (34.6)	**.013**	14 / 30 (46.7)	**<.001**	5 / 26 (19.2)	**.024**	2 / 30 (6.7)	.780	2 / 26 (7.7)	.517	3 / 30 (10.0)	.188	3 / 24 (12.5)	.455	4 / 25 (16.0)	.616
1 to 10 years	26 / 153 (17.0)		27 / 117 (23.1)		12 / 153 (7.8)		9 / 117 (7.7)		9 / 153 (5.9)		11 / 117 (9.4)		7 / 137 (5.1)		10 / 112 (8.9)	
11 to 20 years	27 / 190 (14.2)		16 / 85 (18.8)		8 / 190 (4.2)		4 / 85 (4.7)		6 / 190 (3.2)		4 / 85 (4.7)		8 / 174 (4.6)		9 / 82 (11.0)	
More than 20 years	7 / 81 (8.6)		8 / 120 (6.7)		4 / 81 (4.9)		6 / 120 (5.0)		5 / 81 (6.2)		4 / 120 (3.3)		4 / 67 (6.0)		9 / 114 (7.9)	
Time Spent on ElectronicHealth Records																
50% of day or less	19 / 184 (10.3)	**.001**	34 / 194 (17.5)	.108	12 / 184 (6.5)	.549	12 / 194 (6.2)	.580	6 / 184 (3.3)	.066	10 / 194 (5.2)	.136	9 / 182 (4.9)	.508	18 / 194 (9.3)	.740
More than 50% of day	42 / 184 (22.8)		29 / 115 (25.2)		15 / 184 (8.2)		9 / 115 (7.8)		14 / 184 (7.6)		11 / 115 (9.6)		12 / 183 (6.6)		12 / 115 (10.4)	
High Negative Attitudesabout Electronic Health Records																
Yes	5 / 44 (11.4)	.470	9 / 46 (19.6)	.761	4 / 44 (9.1)	.429	4 / 46 (8.7)	.369	2 / 44 (4.5)	.933	3 / 46 (6.5)	.893	2 / 44 (4.5)	.774	4 / 46 (8.7)	.821
No	64 / 414 (15.5)		56 / 316 (17.7)		25 / 414 (6.0)		17 / 316 (5.4)		20 / 414 (4.8)		19 / 316 (6.0)		20 / 358 (5.6)		28 / 287 (9.8)	
Low Perceived Workplace Diversity/Inclusion																
Yes	8 / 50 (16.0)	.845	5 / 28 (17.9)	.989	6 / 50 (12.0)	.081	2 / 28 (7.1)	.752	5 / 50 (10.0)	.069	2 / 28 (7.1)	.806	2 / 18 (11.1)	.282	2 / 8 (25.0)	.135
No	61 / 408 (15.0)		60 / 334 (18.0)		23 / 408 (5.6)		19 / 334 (5.7)		17 / 408 (4.2)		20 / 334 (6.0)		20 / 384 (5.2)		30 / 325 (9.2)	
Low Perceived Promotion of Diversity/Inclusion atWork																
Yes	10 / 62 (16.1)	.801	6 / 36 (16.7)	.832	6 / 62 (9.7)	.245	1 / 36 (2.8)	.414	5 / 62 (8.1)	.197	2 / 36 (5.6)	.810	2 / 29 (6.9)	.726	1 / 14 (7.1)	.749
No	59 / 396 (14.9)		59 / 326 (18.1)		23 / 396 (5.8)		20 / 326 (6.1)		17 / 396 (4.3)		20 / 326 (6.1)		20 / 373 (5.4)		31 / 319 (9.7)	

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Experienced Discriminationat Work																
Yes	32 / 122 (26.2)	**<.001**	29 / 97 (29.9)	**.001**	14 / 122 (11.5)	**.015**	11 / 97 (11.3)	**.012**	9 / 122 (7.4)	.188	12 / 97 (12.4)	**.005**	5 / 116 (4.3)	.514	15 / 92 (16.3)	**.010**
No	37 / 305 (12.1)		36 / 245 (14.7)		15 / 305 (4.9)		10 / 245 (4.1)		13 / 305 (4.3)		10 / 245 (4.1)		17 / 286 (5.9)		17 / 241 (7.1)	
Low Perceived Sense ofCommunity at Work																
Yes	8 / 34 (23.5)	.224	8 / 26 (30.8)	.112	6 / 34 (17.6)	**.009**	4 / 26 (15.4)	**.041**	5 / 34 (14.7)	**.009**	6 / 26 (23.1)	**<.001**	3 / 33 (9.1)	.340	5 / 24 (20.8)	.053
No	61 / 393 (15.5)		57 / 316 (18.0)		23 / 393 (5.9)		17 / 316 (5.4)		17 / 393 (4.3)		16 / 316 (5.1)		19 / 369 (5.1)		27 / 309 (8.7)	
Colleagues Questioned Competence at Work																
Less than monthly	38 / 316 (12.0)	**<.001**	35 / 255 (13.7)	**<.001**	15 / 316 (4.7)	**.005**	13 / 255 (5.1)	.169	9 / 316 (2.8)	**<.001**	12 / 255 (4.7)	**.026**	14 / 296 (4.7)	.274	21 / 250 (8.4)	.194
Monthly or more	31 / 111 (27.9)		30 / 87 (34.5)		14 / 111 (12.6)		8 / 87 (9.2)		13 / 111 (11.7)		10 / 87 (11.5)		8 / 106 (7.5)		11 / 83 (13.3)	
Low Perceived Support atWork																
Yes	9 / 71 (12.7)	.540	5 / 34 (14.7)	.604	7 / 71 (9.9)	.184	1 / 34 (2.9)	.454	7 / 71 (9.9)	**.030**	2 / 34 (5.9)	.960	3 / 24 (12.5)	.119	3 / 10 (30.0)	**.026**
No	60 / 387 (15.5)		60 / 328 (18.3)		22 / 387 (5.7)		20 / 328 (6.1)		15 / 387 (3.9)		20 / 328 (6.1)		19 / 378 (5.0)		29 / 323 (9.0)	
Low Perceived Value atWork																
Yes	10 / 83 (12.0)	.396	8 / 46 (17.4)	.915	8 / 83 (9.6)	.172	3 / 46 (6.5)	.823	8 / 83 (9.6)	**.023**	4 / 46 (8.7)	.426	5 / 35 (14.3)	**.016**	4 / 22 (18.2)	.158
No	59 / 375 (15.7)		57 / 316 (18.0)		21 / 375 (5.6)		18 / 316 (5.7)		14 / 375 (3.7)		18 / 316 (5.7)		17 / 367 (4.6)		28 / 311 (9.0)	
Patients Questioned Competence																
Less than monthly	59 / 370 (15.9)	**.006**	42 / 282 (14.9)	**<.001**	22 / 357 (6.2)	.243	14 / 282 (5.0)	.050	15 / 357 (4.2)	**.045**	14 / 282 (5.0)	**.016**	17 / 339 (5.0)	.349	24 / 277 (8.7)	.193
Monthly or more	10 / 88 (11.4)		23 / 60 (38.3)		7 / 70 (10.0)		7 / 60 (11.7)		7 / 70 (10.0)		8 / 60 (13.3)		5 / 63 (7.9)		8 / 56 (14.3)	
Low Professional Fulfillment																
Yes	10 / 88 (11.4)	.280	4 / 41 (9.8)	.146	6 / 88 (6.8)	.835	2 / 41 (4.9)	.788	6 / 88 (6.8)	.325	5 / 41 (12.2)	.082	3 / 42 (7.1)	.615	1 / 17 (5.9)	.592
No	59 / 370 (15.9)		61 / 321 (19.0)		23 / 370 (6.2)		19 / 321 (5.9)		16 / 370 (4.3)		17 / 321 (5.3)		19 / 360 (5.3)		31 / 316 (9.8)	
Marital Status																
Married or Domestic Partnership	52 / 362 (14.4)	.416	47 / 278 (16.9)	.320	20 / 362 (5.5)	.168	15 / 278 (5.4)	.531	15 / 362 (4.1)	.200	16 / 278 (5.8)	.622	14 / 320 (4.4)	.056	22 / 256 (8.6)	.251
Single, Widowed, Divorced,or Separated	17 / 96 (17.7)		18 / 83 (21.7)		9 / 96 (9.4)		6 / 83 (7.2)		7 / 96 (7.3)		6 / 83 (7.2)		8 / 82 (9.8)		10 / 77 (13.0)	

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Partner Employment Status																
Not a physician	51 / 345 (14.8)	.767	57 / 299 (19.1)	.251	23 / 345 (6.7)	.607	18 / 299 (6.0)	.718	18 / 345 (5.2)	.469	20 / 299 (6.7)	.300	21 / 300 (7.0)	**.021**	26 / 275 (9.5)	.834
Physician	18 / 113 (15.9)		8 / 62 (12.9)		6 / 113 (5.3)		3 / 62 (4.8)		4 / 113 (3.5)		2 / 62 (3.2)		1 / 102 (1.0)		6 / 58 (10.3)	
Dependent Child																
Yes	49 / 304 (16.1)	.487	33 / 208 (15.9)	.166	18 / 304 (5.9)	.526	10 / 208 (4.8)	.300	13 / 304 (4.3)	.394	11 / 208 (5.3)	.408	14 / 274 (5.1)	.640	18 / 197 (9.1)	.725
No	20 / 147 (13.6)		32 / 148 (21.6)		11 / 147 (7.5)		11 / 148 (7.4)		9 / 147 (6.1)		11 / 148 (7.4)		8 / 128 (6.3)		14 / 136 (10.3)	
Dependent Family Member																
Yes	25 / 163 (15.3)	.987	12 / 83 (14.5)	.306	9 / 163 (5.5)	.559	9 / 83 (10.8)	**.029**	10 / 163 (6.1)	.351	7 / 83 (8.4)	.330	9 / 146 (6.2)	.645	12 / 79 (15.2)	.054
No	44 / 288 (15.3)		53 / 273 (19.4)		20 / 288 (6.9)		12 / 273 (4.4)		12 / 288 (4.2)		15 / 273 (5.5)		13 / 256 (5.1)		20 / 254 (7.9)	
Pregnancy Status																
Yes	14 / 63 (22.2)	.108	12 / 53 (22.6)	.355	5 / 63 (7.9)	.614	1 / 53 (1.9)	.175	3 / 63 (4.8)	.950	3 / 53 (5.7)	.852	2 / 58 (3.4)	.453	5 / 50 (10.0)	.937
No	55 / 384 (14.3)		52 / 300 (17.3)		24 / 384 (6.3)		20 / 300 (6.7)		19 / 384 (4.9)		19 / 300 (6.3)		20 / 340 (5.9)		27 / 280 (9.6)	
Leadership PositionOutside of Work																
Yes	19 / 137 (13.9)	.525	16 / 103 (15.5)	.345	3 / 137 (2.2)	**.014**	9 / 103 (8.7)	.164	5 / 137 (3.6)	.401	8 / 103 (7.8)	.461	7 / 125 (5.6)	.940	12 / 98 (12.2)	.292
No	50 / 308 (16.2)		49 / 247 (19.8)		26 / 308 (8.4)		12 / 247 (4.9)		17 / 308 (5.5)		14 / 247 (5.7)		15 / 277 (5.4)		20 / 235 (8.5)	
Not Satisfied with Work-LifeBalance																
Yes	41 / 179 (22.9)	**.005**	41 / 154 (26.6)	**.001**	23 / 179 (12.8)	**<.001**	16 / 154 (10.4)	**.004**	20 / 179 (11.2)	**<.001**	16 / 154 (10.4)	**.004**	13 / 177 (7.3)	.153	18 / 152 (11.8)	.217
No	28 / 226 (12.4)		23 / 180 (12.8)		6 / 226 (2.7)		5 / 180 (2.8)		2 / 226 (0.9)		5 / 180 (2.8)		9 / 222 (4.1)		14 / 179 (7.8)	
High Work Exhaustion																
Yes	22 / 48 (45.8)	**<.001**	18 / 36 (50.0)	**<.001**	12 / 48 (25.0)	**<.001**	9 / 36 (25.0)	**<.001**	11 / 48 (22.9)	**<.001**	11 / 36 (30.6)	**<.001**	4 / 47 (8.5)	.330	8 / 35 (22.9)	**.008**
No	47 / 410 (11.5)		47 / 326 (14.4)		17 / 410 (4.1)		12 / 326 (3.7)		11 / 410 (2.7)		11 / 326 (3.4)		18 / 355 (5.1)		24 / 298 (8.1)	
High Disengagement withPatients																
Yes	4 / 15 (26.7)	.202	9 / 15 (60.0)	**<.001**	3 / 15 (20.0)	**.027**	5 / 15 (33.3)	**<.001**	2 / 15 (13.3)	.116	5 / 15 (33.3)	**<.001**	1 / 14 (7.1)	.780	6 / 15 (40.0)	**<.001**
No	65 / 443 (14.7)		56 / 347 (16.1)		26 / 443 (5.9)		16 / 347 (4.6)		20 / 443 (4.5)		17 / 347 (4.9)		21 / 388 (5.4)		26 / 318 (8.2)	
High Disengagement withColleagues																
Yes	2 / 9 (22.2)	.544	6 / 11 (54.5)	**.001**	2 / 9 (22.2)	**.048**	6 / 11 (54.5)	**<.001**	2 / 9 (22.2)	**.014**	6 / 11 (54.5)	**<.001**	1 / 9 (11.1)	.452	4 / 11 (36.4)	**.002**
No	67 / 449 (14.9)		59 / 351 (16.8)		27 / 449		15 / 351 (4.3)		20 / 449		16 / 351 (4.6)		21 / 393 (5.3)		28 / 322 (8.7)	

	(6.0)	(4.5)

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Overall Burnout																
Yes	50 / 173 (28.9)	**<.001**	40 / 132 (30.3)	**<.001**	26 / 173 (15.0)	**<.001**	17 / 132 (12.9)	**<.001**	20 / 173 (11.6)	**<.001**	19 / 132 (14.4)	**<.001**	15 / 167 (9.0)	**.009**	19 / 129 (14.7)	**.012**
No	19 / 240 (7.9)		25 / 207 (12.1)		3 / 240 (1.3)		4 / 207 (1.9)		2 / 240 (0.8)		3 / 207 (1.4)		7 / 235 (3.0)		13 / 204 (6.4)	

Note. No. in Grp = Number in Group. *P* values < .05 have been bolded.

Table 7b. Associations between Work, Family, and Burnout Characteristics and Sleep Impairment among Women Physicians of Color

Outcome: High Sleep Impairment	Women Physicians of Color		White Women Physicians	
Predictors: Work, Family, and Burnout Characteristics	OR (95% CI)	*P*	OR (95% CI)	*P*
Age ≤ 39 years (Ref: Age > 39 years)	0.92 (0.82, 1.03)	.154	1.07 (0.93, 1.24)	.333
Primary care physician (Ref: Not primary care physician)	1.00 (0.94, 1.07)	.974	1.09 (1.00, 1.18)	.050
Patient load > 20 per day (Ref: ≤ 20 per day)	1.04 (0.98, 1.11)	.218	1.02 (0.94, 1.10)	.606
Public and Military/VA work setting (Ref: Academic work setting)	1.03 (0.92, 1.15)	.625	1.03 (0.92, 1.16)	.581
Private practice work setting (Ref: Academic work setting)	1.02 (0.93, 1.12)	.676	0.96 (0.86, 1.07)	.441
Other work setting (Ref: Academic work setting)	1.02 (0.91, 1.14)	.758	0.95 (0.84, 1.07)	.416
Work 51-60 hours per week (Ref: ≤ 50 hours per week)	0.99 (0.91, 1.08)	.818	0.95 (0.86, 1.04)	.278
Work ≥ 60 hours per week (Ref: ≤ 50 hours per week)	1.07 (0.97, 1.20)	.183	0.94 (0.83, 1.06)	.288
Weekly call (Ref: No weekly call)	0.97 (0.91, 1.04)	.431	1.02 (0.95, 1.11)	.565
Leadership position at work (Ref: No leadership position)	0.99 (0.92, 1.06)	.703	0.97 (0.90, 1.05)	.493
In training (Resident or Fellow) (Ref: In practice > 20 years)	1.19 (0.99, 1.44)	.064	1.29 (1.05, 1.58)	**.015**
In practice 1-10 years (Ref: In practice > 20 years)	1.05 (0.93, 1.18)	.418	1.08 (0.95, 1.23)	.226
In practice 11-20 years (Ref: In practice > 20 years)	1.01 (0.92, 1.10)	.847	1.09 (0.98, 1.22)	.100
Used EHR > 50% of day (Ref: Used EHR ≤ 50%)	1.08 (1.01, 1.15)	**.028**	1.02 (0.94, 1.10)	.681
High negative attitudes toward EHR (Ref: Low/moderate negative EHR attitudes)	0.92 (0.83, 1.03)	.144	1.00 (0.89, 1.12)	.982
Low perceived workplace diversity/inclusion (Ref: Moderate/high perceived diversity/inclusion)	1.13 (0.94, 1.37)	.188	1.32 (0.99, 1.76)	.056
Low perceived promotion of diversity/inclusion at work (Ref: Moderate/high perceived promotion)	0.96 (0.81, 1.13)	.597	0.88 (0.70, 1.11)	.274
Experienced discrimination at work (Ref: Did not experience discrimination)	1.09 (1.01, 1.17)	**.019**	1.10 (1.00, 1.20)	**.043**
Low perceived sense of community at work (Ref: Moderate/high perceived sense of community)	0.94 (0.82, 1.07)	.358	0.99 (0.86, 1.15)	.907
Colleagues questioned competence monthly (Ref: Colleagues questioned competence < monthly)	1.07 (0.99, 1.16)	.079	1.06 (0.96, 1.16)	.238
Low perceived support at work (Ref: Moderate/high perceived support)	1.04 (0.87, 1.23)	.687	0.97 (0.75, 1.24)	.781
Low perceived value at work (Ref: Moderate/high perceived value)	0.86 (0.74, 1.00)	.054	0.97 (0.81, 1.16)	.710
Patients questioned competence monthly (Ref: Patients questioned competence < monthly)	1.07 (0.98, 1.17)	.111	1.10 (0.99, 1.22)	.077
Low professional fulfillment (Ref: Moderate/high professional fulfillment)	0.88 (0.80, 0.97)	**.011**	0.76 (0.65, 0.89)	**.001**
Single, widowed, divorced or separated relationship status (Ref: Married or domestic partnership)	1.03 (0.94, 1.12)	.575	0.98 (0.89, 1.08)	.635
Does not have partner who is physician (Ref: Has physician partner)	0.94 (0.88, 1.01)	.118	1.02 (0.92, 1.13)	.659
Has dependent children (Ref: No dependent children)	1.04 (0.96, 1.13)	.296	0.96 (0.87, 1.05)	.351
Has dependent family members (Ref: No dependent family members)	0.97 (0.91, 1.04)	.352	0.97 (0.89, 1.06)	.472
Currently pregnant (Ref: Not pregnant)	1.07 (0.97, 1.18)	.172	1.01 (0.89, 1.14)	.908
Leadership position outside of work (Ref: No leadership position outside)	1.01 (0.95, 1.08)	.750	0.97 (0.89, 1.05)	.442
Not satisfied with work-life balance (Ref: Not dissatisfied with work-life balance)	1.02 (0.95, 1.09)	.579	1.04 (0.96, 1.14)	.341
High work exhaustion (Ref: Low/moderate work exhaustion)	1.43 (1.27, 1.61)	**<.001**	1.30 (1.11, 1.52)	**.001**
High disengagement with patients (Ref: Low/moderate disengagement with patients)	1.01 (0.80, 1.28)	.936	1.17 (0.90, 1.52)	.239
High disengagement with colleagues (Ref: Low/moderate disengagement with colleagues)	0.69 (0.51, 0.94)	**.018**	0.86 (0.63, 1.17)	.332

Overall burnout (Ref: No overall burnout)	1.12 (1.04, 1.21)	**.002**	1.05 (0.96, 1.15)	.271

Note. OR = Odds Ratio. CI = Confidence Interval. Ref. = Reference Group. *P* values < .05 have been bolded.

Table 7c. Associations between Work, Family, and Burnout Characteristics and Anxiety Symptoms among Women Physicians of Color

Outcome: High Anxiety Symptoms	Women Physicians of Color		White Women Physicians	
Predictors: Work, Family, and Burnout Characteristics	OR (95% CI)	*P*	OR (95% CI)	*P*
Age ≤ 39 years (Ref: Age > 39 years)	1.01 (0.93, 1.10)	.738	1.09 (1.00, 1.18)	.063
Primary care physician (Ref: Not primary care physician)	1.04 (0.99, 1.09)	.126	0.95 (0.91, 1.00)	.076
Patient load > 20 per day (Ref: ≤ 20 per day)	1.02 (0.98, 1.07)	.320	1.03 (0.98, 1.08)	.193
Public and Military/VA work setting (Ref: Academic work setting)	0.97 (0.90, 1.05)	.491	1.01 (0.95, 1.09)	.694
Private practice work setting (Ref: Academic work setting)	0.95 (0.89, 1.02)	.154	0.99 (0.92, 1.05)	.660
Other work setting (Ref: Academic work setting)	0.94 (0.87, 1.02)	.133	0.94 (0.87, 1.01)	.093
Work 51-60 hours per week (Ref: ≤ 50 hours per week)	1.04 (0.98, 1.10)	.228	0.99 (0.94, 1.05)	.806
Work ≥ 60 hours per week (Ref: ≤ 50 hours per week)	1.01 (0.94, 1.09)	.723	0.95 (0.89, 1.02)	.185
Weekly call (Ref: No weekly call)	1.00 (0.95, 1.04)	.922	0.99 (0.95, 1.04)	.753
Leadership position at work (Ref: No leadership position)	0.98 (0.93, 1.03)	.362	0.96 (0.91, 1.00)	.065
In training (Resident or Fellow) (Ref: In practice > 20 years)	1.06 (0.93, 1.21)	.395	0.94 (0.83, 1.06)	.309
In practice 1-10 years (Ref: In practice > 20 years)	0.99 (0.91, 1.08)	.890	0.97 (0.90, 1.05)	.458
In practice 11-20 years (Ref: In practice > 20 years)	0.99 (0.93, 1.05)	.764	0.97 (0.91, 1.04)	.395
Used EHR > 50% of day (Ref: Used EHR ≤ 50%)	0.99 (0.95, 1.04)	.712	0.97 (0.93, 1.02)	.290
High negative attitudes toward EHR (Ref: Low/moderate negative EHR attitudes)	1.02 (0.95, 1.10)	.598	0.99 (0.92, 1.06)	.736
Low perceived workplace diversity/inclusion (Ref: Moderate/high perceived diversity/inclusion)	1.15 (1.01, 1.32)	**.037**	1.23 (1.03, 1.47)	**.019**
Low perceived promotion of diversity/inclusion at work (Ref: Moderate/high perceived promotion)	0.93 (0.83, 1.05)	.248	0.86 (0.75, 0.99)	**.035**
Experienced discrimination at work (Ref: Did not experience discrimination)	1.02 (0.97, 1.07)	.450	1.04 (0.98, 1.10)	.179
Low perceived sense of community at work (Ref: Moderate/high perceived sense of community)	1.00 (0.91, 1.10)	.988	1.01 (0.93, 1.11)	.752
Colleagues questioned competence monthly (Ref: Colleagues questioned competence < monthly)	1.02 (0.97, 1.08)	.442	1.00 (0.94, 1.06)	.948
Low perceived support at work (Ref: Moderate/high perceived support)	1.03 (0.91, 1.16)	.669	0.86 (0.74, 1.00)	.055
Low perceived value at work (Ref: Moderate/high perceived value)	0.98 (0.88, 1.09)	.669	1.06 (0.95, 1.19)	.275
Patients questioned competence monthly (Ref: Patients questioned competence < monthly)	0.98 (0.92, 1.04)	.519	1.00 (0.94, 1.07)	.972
Low professional fulfillment (Ref: Moderate/high professional fulfillment)	0.93 (0.87, 1.00)	**.046**	0.96 (0.87, 1.06)	.374
Single, widowed, divorced or separated relationship status (Ref: Married or domestic partnership)	1.02 (0.96, 1.09)	.480	1.00 (0.94, 1.06)	.927
Does not have partner who is physician (Ref: Has physician partner)	0.99 (0.94, 1.04)	.785	1.00 (0.94, 1.06)	.880
Has dependent children (Ref: No dependent children)	1.02 (0.96, 1.08)	.508	1.02 (0.96, 1.08)	.528
Has dependent family members (Ref: No dependent family members)	0.98 (0.93, 1.02)	.336	1.05 (0.99, 1.11)	.082
Currently pregnant (Ref: Not pregnant)	1.00 (0.94, 1.08)	.899	0.93 (0.87, 1.01)	.088
Leadership position outside of work (Ref: No leadership position outside)	0.96 (0.92, 1.01)	.091	1.02 (0.96, 1.07)	.546
Not satisfied with work-life balance (Ref: Not dissatisfied with work-life balance)	1.03 (0.98, 1.09)	.179	1.05 (1.00, 1.10)	.073
High work exhaustion (Ref: Low/moderate work exhaustion)	1.17 (1.08, 1.28)	**<.001**	1.06 (0.97, 1.17)	.210
High disengagement with patients (Ref: Low/moderate disengagement with patients)	1.02 (0.86, 1.20)	.819	0.87 (0.74, 1.02)	.081
High disengagement with colleagues (Ref: Low/moderate disengagement with colleagues)	0.96 (0.77, 1.19)	.687	1.64 (1.36, 1.97)	**<.001**
Overall burnout (Ref: No overall burnout)	1.07 (1.02, 1.13)	**.007**	1.05 (0.99, 1.11)	.086

Note. OR = Odds Ratio. CI = Confidence Interval. Ref. = Reference Group. *P* values < .05 have been bolded.

Table 7d. Associations between Work, Family, and Burnout Characteristics and Depressive Symptoms among Women Physicians of Color

Outcome: High Depressive Symptoms	Women Physicians of Color		White Women Physicians	
Predictors: Work, Family, and Burnout Characteristics	OR (95% CI)	*P*	OR (95% CI)	*P*
Age ≤ 39 years (Ref: Age > 39 years)	0.95 (0.88, 1.02)	.131	1.12 (1.03, 1.22)	**.011**
Primary care physician (Ref: Not primary care physician)	1.02 (0.98, 1.06)	.335	0.99 (0.94, 1.04)	.613
Patient load > 20 per day (Ref: ≤ 20 per day)	1.00 (0.97, 1.05)	.810	1.02 (0.97, 1.07)	.417
Public and Military/VA work setting (Ref: Academic work setting)	1.00 (0.93, 1.07)	.993	0.97 (0.91, 1.04)	.451
Private practice work setting (Ref: Academic work setting)	0.97 (0.92, 1.03)	.368	0.99 (0.93, 1.06)	.861
Other work setting (Ref: Academic work setting)	0.94 (0.88, 1.01)	.087	0.93 (0.86, 1.00)	.050
Work 51-60 hours per week (Ref: ≤ 50 hours per week)	1.03 (0.97, 1.08)	.341	1.02 (0.96, 1.08)	.608
Work ≥ 60 hours per week (Ref: ≤ 50 hours per week)	0.99 (0.93, 1.06)	.798	0.98 (0.91, 1.06)	.629
Weekly call (Ref: No weekly call)	1.02 (0.98, 1.06)	.248	0.99 (0.95, 1.04)	.767
Leadership position at work (Ref: No leadership position)	0.99 (0.95, 1.03)	.657	0.97 (0.92, 1.02)	.256
In training (Resident or Fellow) (Ref: In practice > 20 years)	0.99 (0.88, 1.11)	.873	0.93 (0.82, 1.06)	.279
In practice 1-10 years (Ref: In practice > 20 years)	1.01 (0.94, 1.09)	.743	0.97 (0.90, 1.05)	.510
In practice 11-20 years (Ref: In practice > 20 years)	0.98 (0.93, 1.03)	.424	0.99 (0.92, 1.05)	.665
Used EHR > 50% of day (Ref: Used EHR ≤ 50%)	1.02 (0.98, 1.07)	.258	1.02 (0.97, 1.07)	.525
High negative attitudes toward EHR (Ref: Low/moderate negative EHR attitudes)	0.96 (0.90, 1.02)	.218	0.96 (0.89, 1.02)	.202
Low perceived workplace diversity/inclusion (Ref: Moderate/high perceived diversity/inclusion)	1.11 (0.99, 1.25)	.071	1.03 (0.86, 1.23)	.755
Low perceived promotion of diversity/inclusion at work (Ref: Moderate/high perceived promotion)	0.96 (0.86, 1.06)	.431	0.96 (0.83, 1.10)	.530
Experienced discrimination at work (Ref: Did not experience discrimination)	0.97 (0.93, 1.02)	.225	1.03 (0.97, 1.09)	.323
Low perceived sense of community at work (Ref: Moderate/high perceived sense of community)	1.00 (0.92, 1.09)	.964	1.08 (0.99, 1.18)	.092
Colleagues questioned competence monthly (Ref: Colleagues questioned competence < monthly)	1.04 (0.99, 1.09)	.133	0.99 (0.94, 1.05)	.792
Low perceived support at work (Ref: Moderate/high perceived support)	1.02 (0.92, 1.13)	.705	0.86 (0.74, 1.01)	.063
Low perceived value at work (Ref: Moderate/high perceived value)	0.99 (0.90, 1.09)	.916	1.01 (0.91, 1.13)	.805
Patients questioned competence monthly (Ref: Patients questioned competence < monthly)	1.01 (0.96, 1.07)	.611	1.02 (0.95, 1.08)	.649
Low professional fulfillment (Ref: Moderate/high professional fulfillment)	0.97 (0.92, 1.03)	.361	1.07 (0.97, 1.18)	.175
Single, widowed, divorced or separated relationship status (Ref: Married or domestic partnership)	1.00 (0.95, 1.06)	.865	0.99 (0.93, 1.05)	.733
Does not have partner who is physician (Ref: Has physician partner)	0.99 (0.95, 1.04)	.806	1.02 (0.96, 1.09)	.464
Has dependent children (Ref: No dependent children)	0.99 (0.94, 1.04)	.695	1.02 (0.97, 1.09)	.408
Has dependent family members (Ref: No dependent family members)	1.00 (0.96, 1.04)	.837	1.03 (0.97, 1.08)	.379
Currently pregnant (Ref: Not pregnant)	1.03 (0.97, 1.09)	.393	0.96 (0.89, 1.04)	.327
Leadership position outside of work (Ref: No leadership position outside)	1.00 (0.96, 1.04)	.933	1.02 (0.96, 1.07)	.549
Not satisfied with work-life balance (Ref: Not dissatisfied with work-life balance)	1.05 (1.01, 1.10)	**.019**	1.04 (0.99, 1.10)	.148
High work exhaustion (Ref: Low/moderate work exhaustion)	1.19 (1.11, 1.28)	**<.001**	1.17 (1.06, 1.29)	**.002**
High disengagement with patients (Ref: Low/moderate disengagement with patients)	0.90 (0.77, 1.04)	.145	0.80 (0.68, 0.94)	**.008**
High disengagement with colleagues (Ref: Low/moderate disengagement with colleagues)	1.10 (0.91, 1.33)	.339	1.55 (1.28, 1.88)	**<.001**

Overall burnout (Ref: No overall burnout)	1.04 (0.99, 1.09)	.129	1.05 (0.99, 1.11)	.102

Note. OR = Odds Ratio. CI = Confidence Interval. Ref. = Reference Group. *P* values < .05 have been bolded.

Table 7e. Associations between Work, Family, and Burnout Characteristics and Suicidal Ideation among Women Physicians of Color

Outcome: Suicidal Ideation (Past 12 Months)	Women Physicians of Color		White Women Physicians	
Predictors: Work, Family, and Burnout Characteristics	OR (95% CI)	*P*	OR (95% CI)	*P*
Age ≤ 39 years (Ref: Age > 39 years)	0.97 (0.89, 1.06)	.537	1.00 (0.89, 1.13)	.991
Primary care physician (Ref: Not primary care physician)	1.03 (0.98, 1.08)	.208	1.02 (0.95, 1.10)	.512
Patient load > 20 per day (Ref: ≤ 20 per day)	1.01 (0.97, 1.06)	.637	1.04 (0.98, 1.11)	.223
Public and Military/VA work setting (Ref: Academic work setting)	0.93 (0.86, 1.01)	.085	0.95 (0.87, 1.05)	.325
Private practice work setting (Ref: Academic work setting)	0.99 (0.92, 1.06)	.671	0.91 (0.83, 1.00)	.060
Other work setting (Ref: Academic work setting)	0.94 (0.87, 1.02)	.120	1.00 (0.90, 1.10)	.930
Work 51-60 hours per week (Ref: ≤ 50 hours per week)	1.02 (0.96, 1.09)	.535	0.98 (0.90, 1.06)	.552
Work ≥ 60 hours per week (Ref: ≤ 50 hours per week)	0.96 (0.88, 1.03)	.243	0.93 (0.84, 1.02)	.130
Weekly call (Ref: No weekly call)	0.98 (0.94, 1.03)	.469	1.01 (0.94, 1.07)	.857
Leadership position at work (Ref: No leadership position)	1.03 (0.98, 1.08)	.304	0.90 (0.84, 0.96)	**.002**
In training (Resident or Fellow) (Ref: In practice > 20 years)	1.13 (0.99, 1.30)	.071	1.08 (0.91, 1.28)	.388
In practice 1-10 years (Ref: In practice > 20 years)	1.03 (0.94, 1.12)	.549	0.98 (0.88, 1.09)	.738
In practice 11-20 years (Ref: In practice > 20 years)	0.99 (0.93, 1.06)	.871	1.06 (0.97, 1.16)	.168
Used EHR > 50% of day (Ref: Used EHR ≤ 50%)	1.01 (0.97, 1.06)	.627	0.99 (0.93, 1.06)	.872
High negative attitudes toward EHR (Ref: Low/moderate negative EHR attitudes)	1.02 (0.94, 1.09)	.680	0.97 (0.88, 1.06)	.488
Low perceived workplace diversity/inclusion (Ref: Moderate/high perceived diversity/inclusion)	1.03 (0.89, 1.19)	.689	1.23 (0.93, 1.62)	.139
Low perceived promotion of diversity/inclusion at work (Ref: Moderate/high perceived promotion)	0.95 (0.84, 1.07)	.427	0.80 (0.65, 0.98)	**.030**
Experienced discrimination at work (Ref: Did not experience discrimination)	0.97 (0.92, 1.02)	.195	1.08 (1.00, 1.17)	**.041**
Low perceived sense of community at work (Ref: Moderate/high perceived sense of community)	0.99 (0.89, 1.09)	.768	1.06 (0.93, 1.20)	.370
Colleagues questioned competence monthly (Ref: Colleagues questioned competence < monthly)	1.00 (0.94, 1.06)	.942	0.99 (0.92, 1.08)	.898
Low perceived support at work (Ref: Moderate/high perceived support)	0.97 (0.85, 1.11)	.658	1.19 (0.95, 1.50)	.124
Low perceived value at work (Ref: Moderate/high perceived value)	1.11 (0.99, 1.24)	.074	0.98 (0.84, 1.13)	.773
Patients questioned competence monthly (Ref: Patients questioned competence < monthly)	1.01 (0.95, 1.08)	.730	1.00 (0.92, 1.10)	.976
Low professional fulfillment (Ref: Moderate/high professional fulfillment)	0.97 (0.90, 1.05)	.450	0.84 (0.72, 0.97)	**.022**
Single, widowed, divorced or separated relationship status (Ref: Married or domestic partnership)	1.03 (0.97, 1.10)	.337	1.05 (0.97, 1.14)	.237
Does not have partner who is physician (Ref: Has physician partner)	1.05 (0.99, 1.10)	.078	0.94 (0.86, 1.02)	.148
Has dependent children (Ref: No dependent children)	1.01 (0.95, 1.07)	.785	0.98 (0.90, 1.06)	.588
Has dependent family members (Ref: No dependent family members)	1.00 (0.95, 1.05)	.928	1.10 (1.02, 1.18)	**.013**
Currently pregnant (Ref: Not pregnant)	0.99 (0.93, 1.07)	.867	1.07 (0.96, 1.19)	.222
Leadership position outside of work (Ref: No leadership position outside)	1.01 (0.96, 1.06)	.640	1.05 (0.98, 1.13)	.179
Not satisfied with work-life balance (Ref: Not dissatisfied with work-life balance)	1.01 (0.96, 1.06)	.829	1.00 (0.94, 1.08)	.919
High work exhaustion (Ref: Low/moderate work exhaustion)	0.98 (0.90, 1.07)	.684	0.96 (0.84, 1.09)	.503
High disengagement with patients (Ref: Low/moderate disengagement with patients)	0.98 (0.82, 1.16)	.787	1.32 (1.06, 1.63)	**.012**
High disengagement with colleagues (Ref: Low/moderate disengagement with colleagues)	1.07 (0.86, 1.33)	.552	1.00 (0.78, 1.29)	.978
Overall burnout (Ref: No overall burnout)	1.06 (1.00, 1.12)	**.039**	1.05 (0.97, 1.13)	.236

Note. OR = Odds Ratio. CI = Confidence Interval. Ref. = Reference Group. *P* values < .05 have been bolded.

CHAPTER 5: WOMEN PHYSICIANS OF COLOR FOCUS GROUP DISCUSSIONS

Introduction

In collaboration with University of California Health (UC Health) and the WellMD Center at Stanford University School of Medicine, Physicians for a Healthy California (PHC) conducted the *Women Physicians of Color Well-Being Study* with funding provided by The Physicians Foundation. The study aimed to identify potential drivers of burnout among women physicians of color using both quantitative and qualitative approaches. For the qualitative component of the study, focus groups were conducted to shed light on the potential correlates ofburnout, career satisfaction, and mental health among women physicians of color, a crucial demographic group of medical providers. This effort was carried out in line with Shanafelt et al.'s (2017) *Key Drivers of Burnout and Engagement in Physicians Model* to broaden our understanding of how factors such as workload and job demands, control and flexibility at work,efficiency and resources, work culture and values, social support and community at work, meaning in work, and work-life integration may contribute to burnout outcomes. In this chapter,we summarize our findings from four focus groups conducted in California to examine burnout among women physicians of color.

Methods

Procedure

Four focus groups comprising women physicians of color were conducted in geographically dispersed regions of California to examine their experiences with working in health care and to explore how these experiences may contribute to their perceived burnout, career satisfaction, and mental health. A convenience sample of 21 women physicians of color were recruited from the California Medical Association (CMA) and the Network of Ethnic Physician Organizations (NEPO) who had valid e-mail addresses and had granted permission tobe contacted. This list of individuals was filtered by zip codes that were within a 90-mile radius of the four focus group locations – Oakland, Riverside, Stockton, and Burbank (Los Angeles region). Approximately 9,000 individuals were sent an informational flyer describing the purpose of the focus groups with contact information for the program. The target number of participants for each of the four focus groups was between six and eight. The study was commissioned by the CMA and approved by the Institutional Review Board of the University ofCalifornia at Riverside.

Reflexivity

Prior to enrolling in a focus group, participants were e-mailed a consent form. The consent form included a brief summary of the discussion topic, but not specific questions from the focus group interview protocol. At the beginning of each focus group, participants were given time to read and sign a hard copy of the consent form and were provided an opportunity to ask any questions related to the discussion topic. The focus groups were conducted in the early evening in private conference rooms. Participants were provided with a complimentary dinner for their participation. The focus groups were led by two women, an experienced clinical psychologist—who served as a facilitator—as well as a program coordinator for the study who provided a brief overview of the research and helped to take notes for each session. The facilitator was independently appointed to conduct the focus groups and therefore had no prior experience with the participants. Meanwhile, the participants had become familiar with the study and its goals through their review of the consent form as well as informational materials provided during recruitment. Each participant was assigned a letter and instructed to refer to eachother by letter, omitting the use of names and pronouns to ensure confidentiality and the free sharing of personal experiences. Each focus group was audio recorded.

Instrument

An Focus Group Interview Protocol **(Appendix 1)** was developed with feedback from theAdvisory Committee members of the *Physicians for a Healthy California Women Physicians of Color Well-Being Study*. The clinical psychologist guided the focus groups with specific questions to prompt discussion. Each focus group lasted approximately two hours. The first 20 to 25 minutes allowed for participants to get meals, read the consent form, and ask questions. The remaining 90 minutes were used for discussion.

Analysis

The audio recordings of the focus group sessions were transcribed by professional transcription companies. Notes taken during the focus group sessions were incorporated into the transcripts to add context. The transcripts were coded and analyzed using a narrative methodological orientation and to identify emerging themes across focus groups. Saturation was achieved in the coding of the interviews. The themes that were identified were situated within thebroader domains of Shanafelt et al.'s (2017) *Key Drivers of Burnout and Engagement in Physicians Model.* In this way, the analysis helps to identify and enhance our understanding of the factors within the workload and job demands, control and flexibility at work, efficiency and resources, work culture and values, social support and community at work, meaning in work, andwork-life integration domains that may be linked to burnout, career satisfaction, and mental health among women physicians of color.

Results and Findings

Participants

The demographic characteristics of the focus group participants are reported in **Table 8**.

A total of 21 women physicians of color participated in the focus groups for this study. Most participants identified as Black or African American (57.1%), primarily between 50 and 59 yearsold (42.9%). The focus group participants represented a diverse range of medical specialties and practice settings. Most participants practiced primary care (52.4%) and had been licensed for over 20 years (57.1%). Their practice settings ranged from hospital clinics and emergency rooms, teaching hospitals and training programs, private practice, to combinations of a few (e.g.,emergency room and hospital clinics, private practice and teaching hospitals). The largest focus group occurred in the Los Angeles region, with 7 participants, followed by the Inland Empire and Stockton with 5 participants each.

Narratives on Key Drivers of BurnoutWorkload and Job Demands

Concerning workload, participating physicians remarked that they were often expected orrequired to see a large number of patients in a short amount of time. This made it challenging to provide the level and quality of patient care that they desired on a consistent basis. The focus on patient throughput and revenue generation has created more clinical and financial pressures, which were compounded with an increasing number of administrative demands due to the growing number of documentation requirements. Although the electronic health records (EHR) have been helpful in many ways, it has made healthy boundary setting more difficult with work“creeping into” one’s home environment, self-care time, and time with family and friends. Withregard to specialty, one physician noted that she chose her specialty because it was known to have more flexibility.

Control and Flexibility at Work

Flexibility in scheduling and time management were viewed by focus group participants as a valuable option in work. Having some influence and control of their schedule or how they transitioned into their schedule helped focus group participants feel less stressed about balancingtheir work and family lives. They were happier at their place of employment and were more likely to stay. Some participants had been at their place of employment for more than 20 years and ultimately achieved senior physician status, which allowed for more opportunities to participate in leadership. Eventually, they established the authority and confidence to begin voicing more concerns about bias at work. One physician noted that while there were many challenges at her workplace, she would not transfer to another hospital for fear of losing the privileges that come with seniority. She expressed fear that age bias may prevent her from goinginto a new workplace.

Efficiency and Resources

Participants noted minimal knowledge or utilization of resources provided by their employer. Participants reported that their supervisors intervened when a physician appeared stressed and needed time away from work. It was noted that staff physicians rarely engaged in preventative measures to reduce their own stress and burnout, which sometimes resulted in feelings of disconnect from the workplace and their colleagues. Participants described feeling as if they were “on their own,” with many noting that leadership has never asked about their stress levels or ideas for useful resources. A few participants acknowledged that their work had employee assistance programs (EAP) available as a workplace tool, but they were not clear abouthow to utilize this resource and none of the participants acknowledged utilizing such programs.

Many of the participants cited that EHR was a source of stress, even though it has conventionally been viewed as an innovation intended to improve both efficiency and patient health outcomes. The participants felt that the documentation requirements were overwhelming,impacting work stress and patient care. They also believed that their EHR system was not developed by physicians and felt that this was why these systems generally were not intuitive.

One of the issues they encountered with EHR was that they frequently had to filter through redundant information, which resulted in spending more time to complete basic tasks that hindered their productivity. They described feeling that EHR could sometimes get in the way of direct patient care. For instance, they often had to make a choice between being on the computer, completing the necessary EHR documentation during the patient’s visit, or waiting until after their shift and spending longer hours at work to complete this task. Participants reported feeling that it was more difficult to connect with patients and attentively listen to their issues when they sat behind a computer screen to work on the EHR.

The increased electronic patient-doctor communication, in which patients can message and e-mail physicians directly without reliable triage, has further increased physicians’ workload. One physician described having to program “smart phrases” to respond to questions regarding matters that can often be adequately addressed by support staff. Physicians noted that messages from patients seemed to be “never-ending” at times, and patients often expected an immediate reply, making it difficult to end their workday.

Work Culture and Values

The lack of racial, ethnic, or gender diversity in leadership was a consistent theme. As a result, the focus group participants expressed that they which has led them to feeling excluded, unrepresented, and even invisible at times. Feeling as if their voices were lost in leadership meetings, the participants described experiences of people speaking over them, as well as takingtheir ideas without appropriate acknowledgement of their contribution.

Most of the participants noted that either they or a colleague have been routinely passedover for promotions in favor of a Caucasian male physician despite having similar or, in some cases, greater experience and

qualifications. One participant noted that she was told by another underrepresented male physician that “you could never have a leadership position because you are not a Jewish man.” Many of the focus group participants experienced similar work culture experiences like this, which has contributed to feelings of hopelessness, anger, and distress.

With regard to discrimination, all participants had experienced instances of bias related togender, race, or ethnicity. This was consistent across all focus groups, with race/ethnicity bias frequently emerging. This issue was so common that some participants noted that they had even come to “expect interactions to be laced with micro-aggressions, lack of support, and invalidation.” This was particularly true for those physicians who had been in practice for more than 15 years. Some noted that it happened so often they were “used to it” and it “came with the territory” of being a physician from an underrepresented racial or ethnic group. One physician said that “this is the price I pay for being a doctor. I will have these experiences. I am born with this body and I have to figure out a way to navigate the world without it stopping me from what Ihave to do”.

As many of the physicians described how they have had to navigate the micro- aggressions from their colleagues and patients, they described how a large portion of the stress came not only from being angry and/or saddened by these encounters, but also came from feelingthe need to suppress the experience to regulate their emotions. This was motivated by a desire to avoid reinforcing stereotypes regarding women of color and circumventing further victimization.Many participants described having very negative experiences but felt that they could not visibly express their emotions, or confront the offender or report to leadership, due to fearing the ramifications of speaking up. They stated that they would “not be taken seriously” and be told they were “too emotional,” “too angry,” or “being too sensitive,” thus leading to their authority being further undermined, their experience invalidated, and possibly being subject to retaliation.

Social Support and Community at Work

The participating physicians expressed mixed feelings about the social support and senseof community experienced in the workplace. The participants took pride in being part of an important community that sought to help and teach others. On the other hand, bias and isolation in the workplace remained a persistent challenge for the participants. The participants felt that because of implicit biases, they were often misunderstood and without community at work. Onephysician, who is now in private practice, described a previous work experience in a hospital where she was a supervisor to predominately white staff. In that position, she often felt undermined and excluded from collegial functions and social events, which led to feelings of loneliness and isolation. Another physician, who identified as Latina, expressed that she felt

disconnected from her peers. She described how she had to find ways to socially engage outsideof work, which was very challenging given her demanding schedule.

Having the support of colleagues who were willing to cover shifts or provide emotional support in difficult professional situations, as well as supervisors who advocated for physicians' concerns, were seen as invaluable. Simultaneously, however, the participants also found that theyoften experienced having their orders or diagnoses questioned directly or indirectly by nurses or other doctors. Participants reported that they felt compelled to explain the rationale behind diagnoses, orders, and treatment recommendations more frequently than their white male colleagues. One participant described an experience in which a consultant once openly questioned her diagnosis in front of the patient. The participant not only felt undermined, but it affected her "confidence and belief" in herself as a healer. One participant described her recent research in which she found that physicians of color disproportionately had their orders questioned by nursing staff and that this was linked to poor performance reviews as a result. Another physician concurred that they disliked the hospital setting because she constantly had todefend her diagnoses or had her authority challenged by older male physicians. One participant, who identified as African American, described being labeled as "threatening" and "angry" by a white female colleague in leadership because she started to push back on being cut off or spokenover during meetings.

Meaning in Work

Regarding interpersonal experiences with patients, the participants described how, when accompanied by a male colleague or trainee, particularly if the partner was white, patients woulddirect their attention and question to that individual. One participant, who identified as Black, recalled meeting a patient in the waiting room with a medical student, who was white, and the patient rose to shake hands and greet her trainee with, "Nice to meet you doctor." Similarly, many of the participating physicians described being mistaken for medical support staff, such asnurses or phlebotomists, or janitorial staff, despite wearing their white coats and badges.

Some physicians reported patients' refusal to engage with them because of their gender, race, or ethnicity, leading to feelings of anger and humiliation. Another Black participant described being called a racial epithet by a patient, which required an intervention by their colleague. Another participant recalled how she once informed a male patient that they could nothave their pet dog with them in the treatment room. The patient responded with how he wished he had a male doctor because then that would not have been an issue. A senior physician described attempting to help a patient in emotional crisis and was told, "...you're black, I don't want to talk to you."

With regard to professional fulfillment, having a consistent salary with predictable, pre- determined, bonuses was described as key to participants' job satisfaction because it allowed them to focus on delivering quality patient care. With this pay structure, these physicians felt thatthey could spend more

time with patients without the pressure of having a salary based on revenue generation and clinical productivity.

Work-Life Integration

Regarding work-life integration, participants described having a very challenging time managing the demands of their career with the demands of their personal life. They described nothaving clear boundaries on work obligations, even during scheduled leave time, which impacted their personal relationships and contributed to their stress. To get more time to meet their family obligations, some participants have had to change employers to obtain more flexible schedules,which came with the cost of having to reduce work hours and accept significant pay cuts. Other participants discussed how the burden of balance work and family life fell solely on their negotiations with their partner and other family members. A few physicians described dividing family responsibilities with their husband, who became responsible for managing the home andchildren. Only then were these participants able to focus more on their careers.

Some participants noted using their free time to actively engage and participate in professional organizations that were specific to women or women of color, providing them opportunities to connect with those not well represented at their place of employment. This wasparticularly helpful in allowing the participants to integrate their work and personal lives. Furthermore, many participants described that having longstanding and trusting relationships hasafforded them with the mentorship and guidance that allowed them to learn how to better integrate and balance their work and family lives. Furthermore, participation in these activities has gotten them through the difficulty of navigating the microaggressions and macroaggressions that have persisted since medical training. These relationships provided them with an escape from the stereotypes, biases, and imposter syndrome that they occasionally encountered at work.Participants noted that the support of family and friends has been pivotal in providing social and emotional support. Indeed, participants described relying on friendships and family to bridge theisolation they sometimes experienced in their daily work environment.

The participants described a variety of strategies they used to manage stress and achieve better work-life integration and balance, including seeking the support of family members and friends, participating in professional organizations, and engaging in spiritual, leisurely and exercise activities. A strong theme among participants was relying on elements of faith and spirituality in their lives as a significant source of stress management. One physician described managing her work stressors with prayer. Most participants engaged in religious and non- religious activities that helped them view the world as having a power that was larger than themselves, which brought them comfort. Participants described engaging in regular leisure activities with their partners and family, such as getting together to watch television. Many of theparticipating physicians described annual or bi-annual travel with family and/or friends.

Participation in exercise and/or physical activity, such as hiking and Zumba, was also discussed.

Ultimately, however, the participants mentioned that there is much work to be done onthe part of health care organizations to ensure that staff physicians could better integrate and balance their work and personal lives. Upon discussing work-life integration, the participants noted that much of the responsibility has fallen on them individually to address this issue.

Accordingly, it was widely agreed that health care organizations needed to re-examine their policies and procedures to identify system-wide changes that would facilitate how physicianscould achieve better work-life integration and balance.

Discussion

In our focus group study, the narratives that emerged shed light on the high prevalence ofmicroaggressions and macroaggressions toward women physicians of color. Whether it be unconscious bias manifesting through mistaking a physician for a support staff member, or outright discrimination by patients and colleagues, the experiences were universal among focus group participants. The participants also described being excluded from leadership opportunitiesand vertical career growth, having their competence questioned by both patients and colleagues, feeling isolated at work. This points to the crucial need for health care organizations to immediately address the culture of their workplace, improve diversity, equity and inclusion, andbolster the level of accountability on the part of organizational leaders with regard to these concerns. The responsibility for enacting these changes rests with leadership at all levels not justwithin the organization, but outside of the organization as well, from small medical practice groups to national physician associations.

The focus group discussions identified how health care organizations would benefit fromspecial attention and training on biased interactions and behaviors among all employees, including leadership. Discriminatory practices should be regularly examined in health care organizations that cover a wide range of metrics related to equity within the organization such asdiversity of leadership, salary gaps, and rates of promotion. It is imperative that these findings bemade publicly available for there to be greater accountability. Finally, health care organizations would benefit from comprehensive wellness and well-being initiatives that monitor and address physician burnout, career satisfaction, and mental health, as well as their experiences regarding the potential workplace and family drivers of these outcomes: (1) workload and job demands, (2)control and flexibility at work, (3) efficiency and resources, (4) work culture and values, (5) social support and community at work, (6) meaning in work, and (7) work-life integration. It is these critical factors that must be incorporated into routine institutional metrics by health care organizations. Overall, the focus group participants expressed optimism that progress can be made on these matters so long as there is continued attention to and research on these deeply layered issues.

Conclusion

This focus group study was a key starting point for future ongoing research investigating the well-being of women physicians of color. The participants universally described experiences with bias in the workplace, leading to feelings of invalidation, isolation, burnout, and emotional distress. It was also noted that health care organizations must do more to enable physicians to integrate and balance their work and personal lives. Many physicians have chosen their medical specialties based primarily on the goal of achieving greater flexibility. And yet, it has become fartoo common for physicians to carry the burden of work-life integration and balance on their own.Future research should continue to examine the experiences of women physicians of color at work, and to identify those institutional policies that most effectively address how health care organizations can foster a more inclusive and supportive environment for their staff.

Table 8. Demographic Characteristics of Women Physicians of Color Focus Group Participants

	Total	Stockton	Los Angeles	Oakland	Inland Empire
	N (%)	N (%)	N (%)	N (%)	N (%)
Total Participants:	21 (100.0)	5 (100.0)	7 (100.0)	4 (100.0)	5 (100.0)
Race/Ethnicity					
Asian, Native Hawaiian,or Pacific Islander	4 (19.0)	2 (40.0)	1 (14.3)	1 (25.0)	0 (0.0)
Hispanic or Latino	4 (19.0)	0 (0.0)	2 (28.6)	0 (0.0)	2 (40.0)
Black or African American	12 (57.1)	3 (60.0)	4 (57.1)	2 (50.0)	3 (60.0)
Other race/ethnicity	1 (4.8)	0 (0.0)	0 (0.0)	1 (25.0)	0 (0.0)
Age Group					
39 years or younger	1 (4.8)	0 (0.0)	0 (0.0)	1 (25.0)	0 (0.0)
40 to 49 years	4 (19.0)	1 (20.0)	1 (14.3)	0 (0.0)	2 (40.0)
50 to 59 years	9 (42.9)	2 (40.0)	3 (42.9)	2 (50.0)	2 (40.0)
60 years or older	3 (14.3)	2 (40.0)	1 (14.3)	0 (0.0)	0 (0.0)
Missing	4 (19.0)	0 (0.0)	2 (28.6)	1 (25.0)	1 (20.0)
Medical Specialty					
Primary care	11 (52.4)	3 (60.0)	4 (57.1)	2 (50.0)	2 (40.0)
Not primary care	10 (47.6)	2 (40.0)	3 (42.9)	2 (50.0)	3 (60.0)
Years Licensed					
1 to 10 years	6 (28.6)	1 (20.0)	1 (14.3)	1 (25.0)	3 (60.0)
11 to 20 years	3 (14.3)	0 (0.0)	1 (14.3)	1 (25.0)	1 (20.0)
More than 20 years	12 (57.1)	4 (80.0)	5 (71.4)	2 (50.0)	1 (20.0)

Note. Primary care = Non-specialty in internal medicine, family medicine, and pediatrics.

Appendix 1. Focus Group Interview Protocol

Overview

- *Objective:* To understand physician burnout and stress among ethnically diverse physician women specific to thestate of California
- *Discussion Points:* (1) Physical and Emotional Exhaustion. (2) Feelings and Attitudes of Work (i.e., environment).

(3) Worries and concerns about physical health and well-being

Introduction

- *Introduction:* Thank you for coming today and joining us! {Facilitator introduces her/himself and the team}
- *Consent Form:* Before we begin, I need to ask all of you to sign the informed consent document. If there are anyquestions or clarifications needed, please don't hesitate to ask.
- *Statement of Confidentiality:* All information shared in the session will be kept confidential. Any personalidentifying information will not be disclosed. All information will be used for the purposes of the study

Ground Rules

The topic we will discuss today can be sensitive, personal and or emotional. For that reason, we would like to establish basic working agreements for the purposes of this conversation: (1) Be respectful; (2) Turn off all electronic devices; (3) Share talking time with others. This is an open-discussion forum in which the questions areopen to anyone to respond. We want your honest opinion and perspectives regarding the topic. Please feel free to speak. You are not required to raise your hand.

We would like to inform you that the session is being audio recorded taped and will be utilized for data collectionand analysis purposes of the study.

Introduction of Subject

The primary reason we are here today is to talk about your experiences of burnout and stress in the workplace as anethnic physician woman. Our goals of the session are to:

1. Discuss the conditions and atmosphere of one's workplace.
2. Feelings and attitudes of work, describing the positive and negative aspects of work.
3. Identifying resources provided at work to assist conditions of fatigue or stress.
4. Discuss positive and negative relationships with patients, co-workers, and supervisors.
5. Provide feedback regarding interactions with electronic health records (EHR).

Focus Group Questions:

1. What are the advantages and disadvantages of your workplace?
    a. Probe Question: Think about environment, interaction with patients, co-workers, and or supervisors
    b. What suggestions would you make to improve the climate of your workplace?
2. What do you consider the major cause of stress as it relates to working as a Physician?
3. What tools or resources do you use to help deal with stress at work? What resources and or strategies does yourworkplace offer to help you in mange and prevent your stress?
4. What are your opinions regarding indirect care tasks (i.e. EHR)?
5. What are your personal experiences and or observations of bias/discrimination related to race/ethnicity?
6. What are your personal experiences and or observations of bias/discrimination related to gender?

Probe Questions: (1) Can you say more about that? (2) Can you give an example? (3) Does anyone else have somethoughts on that?

Exit Question: Is there anything else anyone would like to add?

Closing: Thank you for taking the time to participate in the focus group. We value the opinions and perspectivesshared.

CHAPTER 6: FINDINGS AND RECOMMENDATIONS

Overview of Findings

Burnout has been characterized as a syndrome of exhaustion, depersonalization, and reduced effectiveness (Maslach & Jackson, 1981). Studies have shown that at least 50 percent ofphysicians in the United States experience burnout (Shanafelt et al., 2019b) and has been linked to numerous negative career and mental health outcomes (Busis et al., 2017; Sinsky et al., 2017;Shanafelt et al., 2011; Vela-Bueno et al., 2008). Burnout is not an individual issue. Rather, it hasimplications for physicians' patients, colleagues, hospitals, and society (Shanafelt et al., 2009a). For example, burnout has been associated with the quality of care that is provided to patients (Halbesleben & Rathert, 2008). Medical associations and health care organizations play critical roles in addressing burnout among physicians (Shanafelt, Goh, & Sinsky, 2017). They play an important role in identifying how burnout and contributes to the well-being of physicians. And more importantly, institutions and health care organizations are crucial to implementing the systems-wide changes needed to address this issue.

Not only are health care leaders responsible for recognizing burnout among physicians, but additional efforts are needed to cultivate a diverse workforce that meets the demands of growing underserved populations in the United States. Among these tasks is establishing inclusive and supportive organizational structures in the work environments of physicians (Garcia et al., 2020). Accordingly, the *Physicians for a Healthy California Women Physicians ofColor Well-Being Study* was initiated to investigate the specific challenges facing women physicians of color and their implications. Whereas previous studies have examined differences in physician burnout by race/ethnicity, we build on this body of research by exploring how work and family characteristics are differentially associated with burnout, career, and mental health outcomes in women physicians (Garcia et al., 2020).

This study was guided by Shanafelt et al.'s (2017) *Key Drivers of Burnout and Engagement in Physicians Model*, which suggests that (1) workload and job demands, (2) controland flexibility at work, (3) efficiency and resources, (4) work culture and values, (5) social support and community at work, (6) meaning in work, and (7) work-life integration represent keyprogrammatic and intervention targets in supporting physician wellness and well-being. Indeed, our study showed that some of these factors may have specific links to burnout, career satisfaction, and mental health outcomes among women physicians of color. These findings provide the necessary evidence on the need for policy changes that enhance the well-being of physicians and bolstering the health care workforce. In this final chapter of our report, we describe our findings in greater detail and present recommendations based on our results.

Recommendations

In this section, we present recommendations to reduce burnout among women physicians of color using Shanafelt and Noseworthy's (2017) *Organizational Strategies* framework. Below, we outline and describe each of the nine strategies that were first introduced by Shanafelt and Noseworthy (2017), and we describe their recommendations in the context of our findings. Usingthe results of our study coupled with insights from the *Physicians for a Healthy California Women Physicians of Color Well-Being Study* Advisory Committee, we expand on Shanafelt andNoseworthy's (2017) work by elaborating on their recommendations as they pertain to women physicians of color.

Acknowledge and Assess the Problem

It is widely understood that physician burnout is not the problem belonging to an individual, but one that must be owned and addressed by health care organizations and systems.In our study, we found that many organizational factors may contribute to burnout among women physicians of color. This builds upon what is already understood and outlined in the *Key Drivers of Burnout and Engagement in Physicians Model* (Shanafelt & Noseworthy, 2017). Accordingly, health care organizations must recognize that they should be actively addressing workplace factors that are linked to burnout, career outcomes, and mental health in women physicians of color. In taking these steps, we stress the need to move beyond just being aware of the issue and taking inadequate steps such as merely establishing wellness committees. It is not enough to provide wellness trainings or provide individual resources for exercise/nutrition. The emphasis on wellness programs may have the unintended consequence of minimizing the gravity of burnout and the responsibility of the organization to implement far-reaching institutional changes. Meaningful, substantial, systemic plans of action must be effectively implemented to drive culture change and truly promote equity and well-being among women physicians of color.We must examine our working environment, our culture of medicine, and figure out how we canalter our course to prevent physician burnout.

In conducting our study, it became clear that health care organizations need to collect andmonitor metrics related to the work and home experiences of their staff physicians, as well as conduct mental health screenings and assessments of career satisfaction. To encourage ongoing progress, the well-being of women physicians and physicians of color should be set as routine institutional performance metrics. Such metrics would include burnout, career satisfaction, and mental health as well as potential workplace and family drivers of these outcomes: (1) workload and job demands, (2) control and flexibility at work, (3) efficiency and resources, (4) work culture and values, (5) social support and community at work, (6) meaning in work, and (7) work-life integration. These measures can be used to guide the development of policies and programs. Results may be used to identify opportunities to support individual units (e.g., divisions or departments) and address the organization and its processes (Shanafelt, Goh, & Sinsky, 2017). Health care organizations may establish task forces that are

charged with developing policies or work-unit interventions and ensuring enforcement.

In collecting this data, assessments should be administered periodically using standardized instruments and procedures that protect the confidentiality of respondents. Individuals need to be afforded the opportunity to report their experiences without fear of retaliation. In order to conduct an in-depth assessment, staff should be allowed to have open conversations with organizational leaders—including the Chief Executive Officer—about the challenges that they encounter at work. Staff should feel empowered to name the issues while leaders listen. This may be achieved by convening an advisory council to organizational leadership. These processes cannot be rushed and multiple opportunities for discussion need to be made available. Likewise, data will need to be collected using a variety of formats (e.g., anonymous reporting, town halls, correspondences, face-to-face meetings and video interviews,small groups). Institutions may also opt to conduct comprehensive exit interviews when underrepresented minorities leave the institution.

It is also important to note that these efforts also need to go beyond just Equal Opportunity and Diversity Offices. Instead, the data and findings need to be more accessible to the leadership within the health care organization. There need to be a means for administrators totrack and monitor incoming data in real time so that adjustments can be made accordingly. Physician staff should have the opportunity to evaluate and give feedback to their supervisors. Similarly, academic faculty should be able to anonymously evaluate their Department Chairs, and that the Dean's Office should be able to review aggregate reports that summarize the faculty's feelings about the Chair. In this way, departmental and institutional leadership must beheld accountable. Departments may present annual "State of the Department" reports to organization leaders. The submission of these reports may need to be tied to financial incentivesas a means of motivation. Moreover, metrics should be reported to the Board of Trustees on a regular basis. It is imperative for members at the highest level of the organization to be aware about the status of the well-being of their physician staff along with emerging issues on equity. Any task forces or committees charged with assessing the problems and determining policy and programmatic solutions should have access to senior leadership for their support.

Those findings concerning burnout, career satisfaction, mental health, and related drivers need to be contextualized around other organizational performance metrics (e.g., safety, quality, financial, patient satisfaction). Especially important is including measures of equity in the workplace. For example, departments should establish formal policies and procedures to track and publicly report workforce demographics, such as the percentage of minority women faculty and those in leadership positions (e.g., executive leadership or Deans and Chairs) plus representation across ranks. Salary gaps between minority groups and rates of promotion and progress represent crucial metrics as well. Additional metrics include the percentage of minority women residents and faculty applying to departmental programs, the

percentage of those selectedfor interviews, being ranked, and matched or hired. It is also imperative to report data related to retention and attrition along with the allocation of resources to women and minorities (e.g., equipment and staff support). Careful monitoring and reporting of these measures are essential for organizational leaders to be held accountable for the well-being of their physician staff and for establishing an equitable work environment (Kuo et al., 2019).

Develop and Implement Targeted Interventions

It has been recommended that health care organizations regularly assess and identify struggling units for targeted interventions (Shanafelt, Goh, & Sinsky, 2017). The rationale for this is that the drivers of burnout may vary "locally" among physicians based on their specialty and work units. Indeed, in our study, we found that women who practiced primary care or worked in private practice settings were more likely to express specialty choice regret. This speaks to the need for more targeted efforts to foster physician well-being. Doing so may optimize the function of the health care organization. Work unit interventions have often focusedon improving efficiency and reducing the clerical burden for staff physicians (Shanafelt & Noseworthy, 2017). In support of these efforts, our findings suggested that improving efficiency may be especially important for women physicians of color, as those who spent over half of theirday on electronic health records were more likely to exhibit sleep impairment. And in our focus groups, the participants noted that attending to the demands of electronic health records (EHR) was a cause of stress. Many of their concerns stemmed from how systems were not intuitive and involved filtering through redundant information. In these ways, such systems can negatively impact direct patient care and slow down productivity. In implementing these supports, an important consideration is the possibility that women physicians may not equally benefit from staff support compared to their male colleagues. There may be a biased expectation that women "accept" clerical duties more readily than men, which results in women getting less administrative support. Special attention will need to be given to this concern and mitigated when carrying out workplace interventions.

It has been shown that modest interventions that address the organization or systems levelhave the potential to reduce burnout (Swensen et al., 2016). To develop and implement targeted interventions, Shanafelt and Noseworthy (2017) have recommended a stepwise, participatory, and collaborative action planning approach. This commonly involves a *Listen–Act–Develop– Repeat* strategy (Swensen et al., 2016). *Listening* includes actively seeking to identify and understand the specific drivers of burnout. *Acting* involves empowering physicians to develop and implement solutions that address the top drivers of burnout in their work. *Developing* entails cultivating physician leaders who are working to make improvements. And *repeating* is committing to a continuous cycle of improvement. In the remainder of this section, we elaborate on each of these four components as described by Shanafelt and Noseworthy (2017).

The *Listen* component may begin with assembling a consultation team of two to three physicians and administrators who have expertise and experience in leadership and workforce engagement. This consultation team meets with work unit leaders to get their insight on specific local challenges. The consultation team would also conduct two to three focus groups with work-unit team members. The goal of the focus groups would be to identify specific local challenges as well as potential solutions (Shanafelt & Noseworthy, 2017). Furthermore, the consultation team can further evaluate and prioritize improvement goals and corrective action plans, quickly deploying resources to expedite positive change. By targeting pressing challenges that can be addressed immediately, this approach helps create immediate progress as well as long-term plansand investments that can be made to address broader challenges. If external obstacles are identified (e.g., problems with electronic health records, reimbursement, etc.), the consultation team should acknowledge these issues with work unit team members and provide assurance that senior leaders will work to resolve those concerns.

The *Act* component would involve debriefing work unit leaders on the findings from the focus groups with team members (Shanafelt & Noseworthy, 2017). The consultation team wouldprovide work unit leaders with information on the top concerns of team members and how these issues manifest. The consultation team would also highlight which changes work unit members believe are most urgent. Work unit leaders are critical to implementing specific changes in collaboration with the members of the work unit. Work unit leaders should empower their team members to work together to develop and implement at least one change. During the *Develop* and *Repeat* components, the consultation team works to coach and support the work unit leaders.Work unit leaders should meet regularly meet with their unit members to assess progress and revise action plans as indicated in a timely manner. In order to determine the efficacy of interventions, the unit must have reliable data and metrics, and adjust action plans as needed in real time. As discussed previously, measures of well-being, diversity and equity that are pertinentto the action plans set by the work unit leaders and team members should be collected.

Throughout this process, the consultation team should document their progress and present updates to senior leaders. While interventions may not yield immediate outcomes, the process itself may help reduce burnout and promote engagement. This is because the changes are drivenby the priorities of the members of the team, which furthers their empowerment.

Harness the Power of Leadership

Leadership is important for organizational success and can influence the satisfaction of individual physicians (Shanafelt et al., 2015). In our focus groups, participants consistently noted the lack of racial, ethnic, and gender diversity in leadership. These discrepancies may often leavewomen physicians of color feeling excluded, unrepresented, and without a voice. Furthermore, itwas common for women physicians of color to report instances in which they or a fellow underrepresented in medicine staff

member were passed over for promotions despite having stronger qualifications than their colleagues. In addition to representation, the behaviors of a supervisor are also linked to the well-being of individual physicians (Shanafelt et al., 2015).

Indeed, our focus group participants shared several anecdotes about experiencing and witnessing bias related to race, ethnicity, and gender. Moreover, the women physicians of color interviewed in our study reported experiencing both macro- and micro-level aggressions from their colleagues, which included questioning their clinical judgment. Not only were these interactions embarrassing and invalidating for physicians, they also caused stress, anxiety, anger, and feelingsof isolation in the workplace. Beyond experiences between colleagues, differences have also been noted in how staff treat women versus men. For example, in the operating room, scrub technicians may refer to male physicians as “doctor,” whereas female surgeons may be referred by their first name (Bellini et al., 2019). There have also been reports that women attendings and residents may have their medical orders questioned more frequently. It has also been observed that staff will provide more support to male attendings in outpatient settings.

Taken together, it was clear from our study that leadership plays a crucial role in supporting the well-being of women physicians of color. The narratives expressed in the focus groups suggested that health care organizations must commit to instituting reforms, including diversity, equity and inclusion trainings for all physician leadership and staff. It is imperative to ensure that leaders of health care organizations have basic competencies that enable them to listen, engage, and support minority physicians in the workplace. Accountability also plays a keypart in ensuring effective leadership. Staff should be provided with the opportunity to review and provide feedback on their supervisors to senior leaders. It is not sufficient to simply meet organizational productivity targets as well. There must also be a thorough and methodical evaluation of the workplace culture and environment to promote physician well-being and patient safety.

Our study showed that women physicians with low professional fulfillment were more likely to experience burnout, as well as career and specialty choice regret. Accordingly, a fundamental aspect of effective leadership involves recognizing the unique talents and skills ofthe physicians working within the organization (Shanafelt & Noseworthy, 2017). Leaders mustbe mindful of the interests and passions that motivate the physicians working on their team.

Physicians may feel a greater sense of reward and purpose by working with specific types of patients (e.g., underserved minority groups, patients with certain conditions) or participating in specific activities (e.g., community outreach, teaching, administration, research). The role of effective leaders is to establish opportunities and a feasible pathway for physicians to pursue these interests (Shanafelt & Noseworthy, 2017). Studies have shown that “joy in work” is criticalto reducing burnout (Perlo et al., 2017). Spending at least 20 percent of one’s time on enjoyable work activities is found to be protective against physician burnout (Shanafelt et al., 2009b).

In addition to the character and behavioral attributes of leadership within health care organizations, the members of our focus groups emphasized that women physicians of color needto be provided with professional development opportunities to become leaders within their organization. Specifically, there must be intentional policies and procedures that address the underrepresentation of women physicians of color in supervisory and leadership positions.

Women physicians of color need better access to mentorship and career guidance to promote career growth and professional development. Annual performance reviews should be done between staff and supervisors that include a discussion on how women physicians of color maybe given access to resources and support that advance their short-term and long-term goals. Departments should provide funding to support attendance to leadership courses (e.g., ExecutiveLeadership in Academic Medicine [ELAM] Program at Drexel University College of Medicine)to cultivate the development of women physicians of color. To reinforce diversity and equity initiatives, senior management teams should strive to reflect the diversity of the physician workforce and surrounding community.

An integral component of addressing physician well-being, particularly among women physicians of color, entails working across all levels of the health care organization. One potential position for this task may be the appointment of a Chief Well-Being Officer to serve onthe executive leadership team (Shanafelt, Goh, & Sinsky, 2017). It is important that these individuals' sole responsibility is to galvanize substantive changes within the health organization. For instance, it is not sufficient to delegate this task to organizational leaders on a volunteer or 10 percent full-time equivalent (FTE) basis. These individuals should be equipped with resources and staff responsible to carry out important tasks such as creating programs and processes to promote diversity and inclusion, gathering and analyzing data, and tracking metrics over time to ensure that intervention efforts are effective. It has been the experience of our Advisory Committee members that such efforts often receive less priority among individuals who have been charged with this responsibility, especially since many physicians have salaries that are based on relative value units (RVUs). In this way, we must acknowledge that health careorganizations have far too often created systems that have left key issues such as wellness, diversity, and equity being inadequately addressed. In these systems, Department Chairs are incentivized to focus on clinical productivity and revenue generation, which contribute to work exhaustion and burnout among physicians. To remedy this concern, organizational leaders must dedicate more FTEs and commit staff resources toward implementing wellness and equity policies in support of their staff physicians, especially women physicians of color. Chief Quality Officers may also be pivotal in these tasks (Shanafelt & Noseworthy, 2017). As such, they need to be provided with the resources to conduct organizational assessments and be empowered to change or intervene in processes as needed.

Cultivate Community at Work

Researchers have suggested that physicians often make their profession a key piece of their identity, given the unique nature, demands, and challenges of their work (Meier et al., 2001). Meanwhile, our study found that women physicians of color who were single, widowed, divorced, or separated were more likely to experience burnout. In light of these considerations, the importance of fostering community and support in the workplace cannot be understated. Yet,increasing productivity expectations, documentation requirements, and clerical burdens at work may undermine the prioritization of efforts to develop community within health care organizations (Shanafelt & Noseworthy, 2017). Further eroding the development of community may be the elimination of areas such as physicians' lounges, often viewed as "incubators" for social interactions. As physicians' lounges are eliminated, staff physicians may not necessarily have other opportunities to strengthen ties with their peers. Having a central place to casually socialize could have otherwise helped to strengthen a sense of community and camaraderie at work.

In our focus groups, the participants noted that supportive relationships were instrumentalin their training and careers. As such, there is a need for increasing formal and informal supports within the workplace (Shanafelt & Noseworthy, 2017). These may include creating protected time for physicians to meet in small groups inside or outside of work (e.g., restaurants), sponsored through funding provided by the health care organization. In addition, there should be more opportunities for physicians to celebrate the achievements of their colleagues or offer support during stressful situations (e.g., critical events, medical errors, malpractice suits). Research by the Mayo Clinic (West et al., 2015) showed that not only do these programsincrease meaning in work and reduce burnout, they are also scalable and cost-effective.

Align Values and Strengthen Culture

In our study, experiences of discrimination and perceived workplace diversity/inclusion, as well as perceived value, emerged as key predictors of burnout, career satisfaction, and mentalhealth. Specifically, women physicians who experienced discrimination at work were more likely to report high sleep impairment. Moreover, those who perceived diversity and inclusion intheir workplace to be low had a greater likelihood of reporting high anxiety symptoms.

Meanwhile, among women physicians of color, those who experienced discrimination were alsomore likely to report high disengagement with their patients and colleagues, as well as express both career and specialty choice regret. Those who perceived their value at work to be low had agreater likelihood of high work exhaustion and disengagement with their patients.

What these findings tell us is that the values and culture of the work environment matter. It is incumbent upon health care organizations to ensure that their principles, values, and culture align with their actions. To that end, physician staff should be surveyed to determine whether the

institution is living up to its mission and values (Shanafelt & Noseworthy, 2017), especially withregard to equity toward women physicians of color. Staff physicians will need a way to anonymously evaluate leaders and report concerns. Moreover, equity metrics should be monitored and reported by each department for greater transparency. There should also be an Equity Committee that reviews these metrics and provide recommendations to senior leaders. If it does not appear that the organization is meeting the expectations it has set for itself in its mission and values, then there needs to be accountability and action taken. For instance, leadership and taskforces may be empowered to put in place processes to drive change. The importance of ongoing efforts to recruit and retain physicians from diverse backgrounds cannot be understated in this matter (Wusu et al., 2019). Having a workforce that understands the experiences of patients from underserved backgrounds will enable the delivery of more effective care. As mentioned previously, physicians from underrepresented backgrounds are more likely to work in underserved communities (Marrast et al., 2014). Having diverse perspectives representedwithin health care organizations can also improve research and teaching.

Not only is it important for health care organizations to ensure that they are meeting their targets for equity, it is also pivotal for organizations to continually reassess their mission and values and ensure that their programmatic efforts are up to date (Shanafelt & Noseworthy, 2017).Health care organizations need to reflect on how their values can stay relevant and review what actions have been taken to make sure they are meeting their aspirations. Assessments need to be made to identify and address the factors that influence the culture of the organization. To that end, institutions need to allocate paid administrative time and staffing resources at adequate levels to achieve their diversity, equity and inclusion goals. As discussed previously, it may be unreasonable to expect physician staff to volunteer their time for this important issue. Rather,designated leaders need to be equipped with adequate resources to make change.

In the process of aligning values and strengthening culture, it is important for health care organizations to avoid burdening minority physicians with extra responsibilities in the name of diversity (Rodriguez et al., 2015). It is widely understood that there is a disparity among underrepresented minorities in medicine, known as the “minority tax,” rooted in the responsibilities placed on them to advance diversity efforts while simultaneously having to juggle their clinical and mentorship responsibilities and navigate issues related to racism, isolation, and equity (Rodriguez et al., 2015). Diversity effort responsibilities, for example, may encompass how many physicians from underrepresented backgrounds engage in more community activities to serve and support minority groups. In many instances, organizations mayask minorities to participate in diversity efforts more frequently than their colleagues.

Isolation, as another concern, pertains to how physicians from underrepresented backgrounds may already feel excluded or invisible within their health care organizations. Isolation is particularly pernicious because it may involve stereotypical thinking by colleagues (e.g., perceived deficiency in

skills), which becomes a barrier for collaboration (Rodriguez et al.,2015). With these in mind, strategies to overcome the minority tax may include valuing diversityefforts fairly, recognizing that this burden on minorities exists and that assigning responsibilitiesmust be done accordingly (e.g., ensuring that community activities are counted toward promotion). Another strategy includes facilitating supportive relationships and collaboration between physicians in academic pursuits or engaging in employee retention efforts.

Promote Flexibility and Work-Life Integration

Studies have shown that 45 percent of physicians work more than 50 hours per week, making it difficult for them to integrate their personal and professional lives (American MedicalAssociation, 2015). Women physicians may struggle even more with this due to cultural and societal expectations (Dyrbye et al., 2011a; Dyrbye et al., 2011b, Dyrbye et al., 2012). Even when both partners work, women physicians commonly hold the majority of household responsibilities. Research among married physicians with children has shown that women spend 8.5 more hours per week on parenting and other domestic activities (including care for elderly family members) compared to men (Jolly et al., 2014). Moreover, according to a recent study byFrank and colleagues (2019), 30.6 percent of women physicians with children reported not working full-time within six years of training, whereas only 4.6 percent of men with children reported not working full-time within that same time period. In our focus groups, we found that women physicians of color faced challenges and stress in balancing and integrating the demandsof their careers and their personal lives. For example, women physicians who had weekly call responsibilities were more likely to experience burnout. Those with dependent family members reported both high work exhaustion and disengagement with colleagues. Unsurprisingly, those who were not satisfied with work-life balance also had greater odds of high work exhaustion. The implications of dissatisfaction with work-life balance may be more severe for women physicians of color, as it was associated with high depressive symptoms among those in this keysegment of the physician workforce.

Clearly, flexibility and work-life integration are essential to the well-being of physicians.

Our focus group members described employing a variety of strategies to manage stress and achieve better work-life balance and integration, which included cultivating supportive relationships with family and friends and colleagues, focusing on their faith and spirituality, or

participating in leisure activities (e.g., exercise). Despite the steps that women physicians of color have taken to meet the demands of their profession, it is imperative to recognize that systemic changes within health care organizations should also facilitate their efforts to achieve balance and overall integration (Shanafelt & Noseworthy, 2017). For example, health care organizations should provide their physicians with the option to adjust their work effort so they can tailor their hours to meet personal and professional obligations. Health care organizations can provide flexibility in both when and how physicians work, such as letting them start earlier or later in the day, or allowing them to work longer or shorter hours during certain times of the week. This strategy can avoid the need for staff physicians to reduce their effort. In taking these steps, it is crucial for organizations to allow room for discussion and negotiation, avoiding the pressures placed on physicians such as “we have to staff the clinic” or “it is too complicated to match the schedules of support staff” (Shanafelt & Noseworthy, 2017). Finally, human resourcespolicy changes should be considered as well, which involves comprehensively examining the structure of leave benefits, coverage for life events (e.g., birth of child, death in family), and expanding the range of options that allow physicians to balance and integrate their personal and work lives.

Provide Resources to Promote Resilience and Self-Care

Over the last decade, efforts on the part of health care organizations to improve physicianwellness and well-being have relied on the dissemination of individual strategies to prevent burnout. This approach is not without limitations. For example, it delivers the message that burnout is the result of individual deficiencies that can only be remedied by strengthening one’s resilience. Furthermore, providing resilience training may be perceived as exploitive, as it may deliver the message to physicians that organizations are trying to bolster their resilience so that their workload may be increased (Shanafelt & Noseworthy, 2017). As such, organizations shouldcontinue to focus on improving their workplace environment, with special attention to supportingwomen physicians of color. That said, when complemented by interventions that target the work environment and organizational policies, providing physicians with tools for self-calibration, resources that promote self-care, and training in skills that promote self-resilience still represent valuable tools in combating physician burnout (Shanafelt & Noseworthy, 2017). Moreover, physicians who take better care of their own health are also better at counseling and engaging in screening practices with their patients. (Charon, 2001; Frank et al., 2000)

In our study, high work exhaustion was associated with career choice regret and plans forearly retirement among women physicians, as well as high sleep impairment. Among women physicians of color, not only was burnout linked to career choice regret, it was also associated with high sleep impairment and high anxiety symptoms. Most alarmingly, only among women physicians of color was burnout associated with suicidal ideation in the past year. Despite the sequelae of work exhaustion and burnout, our focus group participants noted minimal knowledgeor engagement with

workplace-provided resources, such as employee assistance programs. The women physicians of color participating in our study indicated that health care organizations would benefit from comprehensive initiatives that aligned with the specific needs of their staff physicians. Such initiatives may include a broad menu of resources that addressed work-life balance and integration, exercise and fitness, sleep habits, diet, personal financial health, relationships, hobbies, and preventive medical care (Shanafelt & Noseworthy, 2017). Other helpful strategies may involve skills training in resilience, positive psychology, mindfulness, narrative medicine, among others (Krasner et al., 2009), so long as these trainings are balancedby systemic policy changes within the health care organization.

Use Rewards and Incentives Wisely

Historically, health care organizations have connected physicians' financial compensation to their productivity (Shanafelt & Noseworthy, 2017). Such incentives can have adverse consequences, such as poor patient care and increased risk for burnout, with less time being spent on patients and more tests being ordered as physicians worked longer hours (Shanafelt & Noseworthy, 2017). Efforts to counteract these issues have included incorporating patient satisfaction and quality measures as part of physician compensation formulas, but this toomay result in physicians overworking themselves and experiencing burnout (Shanafelt & Noseworthy, 2017). These productivity reforms may also negatively affect medical education and training, as teaching faculty may not be as engaged due to financial pressures to generate revenue. Residents and students may receive less attention and time from attendings. A more effective approach would be to adhere to salary models. Rather than financial incentives, there may be alternative work benefits that would be more appealing to physician staff. For example, offering flexibility or protected time for physicians to pursue meaningful work (e.g., quality improvement projects, teaching, community outreach, research, etc.) as part of their FTE may beworthwhile considerations. Indeed, our study showed that low professional fulfillment was associated with burnout among women physicians, in addition to career and specialty choice regret. In addition, low professional fulfillment was associated with plans for early retirement among women physicians of color.

Facilitate and Fund Organizational Science

Facilitating and funding organizational science was one of the key recommendations made by Shanafelt and Noseworthy (2017). It is important for institutions to develop and invest in evidence-based efforts to address and prevent burnout. This involves starting with organizational needs assessments and working toward program development and implementationfollowed by intervention studies and randomized trials. This process represents thinking beyond employee assistance programs or committees on physician wellness and well-being. Instead, it entails expanding into creating new knowledge and evidence to reduce burnout and promote engagement. These endeavors will help develop the scientific

literature that furthers the establishment of new metrics, national benchmarks, and practice analytics.

One area of importance that was found in our study was the role of electronic health records utilization and how that related to physician burnout and well-being. In our study, we found that women physicians of color who spent over half their day on electronic health recordswere more likely to report high sleep impairment. Accordingly, it is important for health care organizations to identify, evaluate, and support best practices that address this. Another important consideration is the number of hours outside of work that physicians spend on electronic health records (i.e., “pajama time” or “date nights” with electronic health records).
Studies have shown that physicians spend nearly 30 hours per month working on electronic health records in their homes (Sinsky, 2017). Addressing these concerns entails examining the ease with which physicians can navigate electronic health records (e.g., decreasing the number ofclicks to complete basic tasks and allowing physicians to share tasks with other team members), reducing unnecessary requirements for signatures by regulators and payors, and for organization leaders to employ models of team-based care, allowing for in-room documentation support bymedical assistants with more advanced clinical training (Sinsky, 2017).

Conclusion

Over the last decade, health care systems within the US have experienced significant changes and several new and emerging challenges (Shanafelt & Noseworthy, 2017). This included increased utilization of electronic health records due to greater capital investments, which have resulted in increased clerical burdens for staff (Shanafelt, Goh, & Sinsky, 2017). A number of financial pressures have also influenced health care systems, such as increasing price competition, narrowing of insurance networks, and more patients relying on Medicare and Medicaid (Shanafelt, Goh, & Sinsky, 2017). In addition, the public reporting of quality metrics (e.g., patient satisfaction and hospital ratings) is another change to the landscape of health care systems. Inevitably, these shifts have had numerous implications for the physician workforce, such as greater productivity expectations, cost efficiency expectations in the delivery of care, andexecutive leaders who are less focused on what is happening within their organizations with regard to physician well-being (Shanafelt & Noseworthy, 2017). Perhaps one of the most important consequences in light of these changes is the growing concern of burnout among physicians (Kane, 2020).

Although addressing burnout in physicians has been described as a “moral and ethicalimperative,” there is a business case for it as well (Shanafelt, Goh, & Sinsky, 2017). And ultimately, addressing burnout is a shared responsibility (Shanafelt & Noseworthy, 2017).
Burnout among physicians has been linked to the quality of care provided to patients (Kushnir etal., 2013), patient compliance and satisfaction (Halbesleben & Rathert, 2008), and patient safety(Hall et al., 2016). Physicians experiencing distress are at risk for poor prescribing or test ordering habits, and malpractice lawsuits (Balch et al., 2016). In many cases, burnout has been

linked to physician turnover or decreased work effort. This is problematic as the costs of replacing a physician may be equal to roughly two to three times the physician's annual salary (Han et al., 2019). With such costs in mind, health care organizations must recognize that supporting their physicians can serve institutional goals.

Despite evidence to the contrary, health care organizations have continued to view burnout as an individual's problem. For years, health care organizations have relied too heavily on individual-oriented solutions (e.g., stress management workshops or resilience training) that have yet to yield the results necessary to protect the physician workforce. In contrast, what we have found in our study is that the workplace environment of health care organizations is inextricably linked to burnout, career, and mental health outcomes among women physicians of color. Therefore, what we need to begin to understand about burnout is that it is seldom the resultof individual deficiencies. Instead, burnout must be understood as one of many potential negativeoutcomes experienced by physicians who are impacted by working in health care organizations with systemic concerns and policies in serious need of change.

In order to identify the organizational changes necessary to bolster the well-being of physicians, the importance of continued research cannot be understated. Future studies should continue to identify factors associated with burnout, career, and mental health outcomes among physicians from underrepresented backgrounds. Furthermore, research should be conducted to ascertain the mechanisms or processes that mediate the link between work and family characteristics and burnout, career, and mental health outcomes. Over the last few years, there has been growing interest in the role of "moral injury" in physician well-being (Dean, Talbot, & Dean, 2019; Ford, 2019). Moral injury has been described as the "challenge of simultaneously knowing what care patients need but being unable to provide it due to constraints beyond control" and the consequence of "double binds in health care" in which physicians must choose between tending to their patients or the demands of their health care organizations. As explained by Kopacz, Ames, and Koenig (2019), "moral injury reflects the challenge of reconciling the gapbetween what happened and what should have happened, especially in highly stressful, high- stakes circumstances." In this way, moral injury may be considered a potential mediator connecting work and family experiences to burnout, career, and mental health outcomes among physicians. Moral injury may also present researchers with a perspective to identify additional sources of distress in broken health care systems (Kopacz, Ames, & Koenig, 2019; Talbot & Dean, 2019).

Overall, the *Physicians for a Healthy California Women Physicians of Color Well-Being Study* takes a crucial step toward shedding light on potential organizational changes that could prevent burnout and prevent adverse career and mental health outcomes among women physicians of color, particularly as they relate to work and family settings. Our findings point to the need for there to be greater investment in developing programmatic and policy solutions that effectively drive systemic changes encompassing both physician well-being and equity. This willtake reliable

data collection, close monitoring, transparency and accountability on the part of health organization leaders to produce change. With the strong commitment of health care organizational leaders, sustainable positive changes can be implemented to create supportive andequitable work environments for women physicians of color, enabling to thrive in the field of medicine.

CHAPTER 7: REFERENCES

American Medical Association. (2015). *How many hours are in the average physicianworkweek?*. American Medical Association. https://www.ama-assn.org/practice- management/physician-health/how-many-hours-are-average-physician-workweek

American Medical Association. (2019). Figure 20: Percentage of physicians by sex andrace/ethnicity, 2018. *Diversity in Medicine: 2019*. https://www.aamc.org/data- reports/workforce/report/diversity-medicine-facts-and-figures-2019.

Arndt, B. G., Beasley, J. W., Watkinson, M. D., Temte, J. L., Tuan, W. J., Sinsky, C. A., & Gilchrist, V. J. (2017). Tethered to the EHR: primary care physician workload assessment usingEHR event log data and time-motion observations. *Annals of Family Medicine, 15*(5), 419-426.

Association of American Medical Colleges (AAMC). (2014). *Diversity in the Physician Workforce: Facts & Figures 2014*. Washington, D. C.: Association of American MedicalColleges. Retrieved September 29, 2019 from http://www.aamcdiversityfactsandfigures.org/section-ii-current-status-of-us-physician- workforce/index.html

Association of American Medical Colleges (AAMC). (2019a, December 9). *The majority of U.S.medical students are women, new data show*. https://www.aamc.org/news-insights/press- releases/majority-us-medical-students-are-women-new-data-show

Association of American Medical Colleges (AAMC). (2019b). *2019 Update – The Complexitiesof Physician Supply and Demand: Projections from 2017 to 2032*. Washington, D. C.: Association of American Medical Colleges.

Bachman, K. H., & Freeborn, D. K. (1999). HMO physicians' use of referrals. *Social Science &Medicine, 48(*4), 547-557.

Balch, C. M., Oreskovich, M. R., Dyrbye, L. N., Colaiano, J. M., Satele, D. V., Sloan, J. A., & Shanafelt, T. D. (2011a). Personal consequences of malpractice lawsuits on American surgeons.*Journal of the American College of Surgeons, 213*(5), 657-667.

Balch, C. M., & Shanafelt, T. D. (2011b). Burnout among surgeons: whether specialty makes adifference. *Archives of Surgery*, *146*(4), 385-386.

Balch, C. M., Shanafelt, T. D., Sloan, J. A., Satele, D. V., & Freischlag, J. A. (2011c). Distressand career satisfaction among 14 surgical specialties, comparing academic and private practicesettings. *Annals of Surgery, 254*(4), 558-568.

Bellini, M. I., Graham, Y., Hayes, C., Zakeri, R., Parks, R., & Papalois, V. (2019). A woman'splace is in theatre: women's perceptions and experiences of working in surgery from the Association of Surgeons of Great Britain and Ireland women in surgery working group. *BMJ Open, 9*(1).

Berwick, D. M., Nolan, T. W., & Whittington, J. (2008). The triple aim: care, health, and cost.
Health Affairs, 27(3), 759-769.

Bodenheimer, T., & Sinsky, C. (2014). From triple to quadruple aim: care of the patient requirescare of the provider. *The Annals of Family Medicine*, *12*(6), 573-576.

Bollen, K. A. (1989). *Structural equations with latent variables*. New York, NY: Wiley.

Buchbinder, S. B., Wilson, M., Melick, C. F., & Powe, N. R. (2001). Primary care physician jobsatisfaction and turnover. *The American Journal of Managed Care, 7*(7), 701-713.

Busis, N. A., Shanafelt, T. D., Keran, C. M., Levin, K. H., Schwarz, H. B., Molano, J. R., ... &Cascino, T. L. (2017). Burnout, career satisfaction, and well-being among US neurologists in 2016. *Neurology, 88*(8), 797-808.

Butkus, R., Serchen, J., Moyer, D. V., Bornstein, S. S., & Hingle, S. T. (2018). Achieving genderequity in physician compensation and career advancement: a position paper of the American College of Physicians. *Annals of Internal Medicine, 168*(10), 721-723.

Carr, P. L., Ash, A. S., Friedman, R. H., Scaramucci, A., Barnett, R. C., Szalacha, L. E., ... & Moskowitz, M. A. (1998). Relation of family responsibilities and gender to the productivity andcareer satisfaction of medical faculty. *Annals of Internal Medicine, 129*(7), 532-538.

Cella, D., Yount, S., Rothrock, N., Gershon, R., Cook, K., Reeve, B., ... & Rose, M. (2007). ThePatient-Reported Outcomes Measurement Information System (PROMIS): progress of an NIH Roadmap cooperative group during its first two years. *Medical Care, 45*(5 Suppl 1), S3-S11.

Charon, R. (2001). Narrative medicine: A model for empathy, reflection, profession, and trust.
JAMA, 286(15), 1897-1902.

Cooke, G. P., Doust, J. A., & Steele, M. C. (2013). A survey of resilience, burnout, and toleranceof uncertainty in Australian general practice registrars. *BMC Medical Education, 13*(1), 2.

Cimiotti, J. P., Aiken, L. H., Sloane, D. M., & Wu, E. S. (2012). Nurse staffing, burnout, andhealth care–associated infection. *American Journal of Infection Control, 40*(6), 486-490.

Cooper, L. A., Roter, D. L., Johnson, R. L., Ford, D. E., Steinwachs, D. M., & Powe, N. R.(2003). Patient-centered communication, ratings of care, and concordance of patient and physician race. *Annals of Internal Medicine, 139*(11), 907-915.

Cunningham, P. J., & O'Malley, A. S. (2008). Do Reimbursement Delays Discourage MedicaidParticipation By Physicians? Simply raising fees might not be enough to entice physicians to take Medicaid patients, if they have to wait too long to receive payment for services rendered. *Health Affairs, 27*(Suppl1), w17-w28.

Cydulka, R. K., & Korte, R. (2008). Career satisfaction in emergency medicine: the ABEM Longitudinal Study of Emergency Physicians. *Annals of Emergency Medicine, 51*(6), 714-722.

Dean, W., & Simon Talbot, A. D. (2019). Reframing clinician distress: moral injury not burnout.
Federal Practitioner, 36(9), 400-402.

Dewa, C. S., Jacobs, P., Thanh, N. X., & Loong, D. (2014). An estimate of the cost of burnout onearly retirement and reduction in clinical hours of practicing physicians in Canada. *BMC Health Services Research, 14*(1), 254.

Dombeck, M. T. (2003). Work narratives: Gender and race in professional personhood. *Researchin Nursing & Health*, *26*(5), 351-365.

Dulac, T., Coyle-Shapiro, J. A., Henderson, D. J., & Wayne, S. J. (2008). Not all responses tobreach are the same: The interconnection of social exchange and psychological contract processes in organizations. *Academy of Management Journal, 51*(6), 1079-1098.

Dyrbye, L. N., Thomas, M. R., Eacker, A., Harper, W., Massie, F. S., Power, D. V., … & Shanafelt, T. D. (2007). Race, ethnicity, and medical student well-being in the United States.*Archives of Internal Medicine*, *167*(19), 2103-2109.

Dyrbye, L. N., Thomas, M. R., Massie, F. S., Power, D. V., Eacker, A., Harper, W., … & Sloan,
J. A. (2008). Burnout and suicidal ideation among US medical students. *Annals of InternalMedicine, 149*(5), 334-341.

Dyrbye, L. N., West, C. P., & Shanafelt, T. D. (2009). Defining burnout as a dichotomousvariable. *Journal of General Internal Medicine, 24*(3), 440-440.

Dyrbye, L. N., Shanafelt, T. D., Balch, C. M., Satele, D., Sloan, J., & Freischlag, J. (2011a).Relationship between work-home conflicts and burnout among American surgeons: a comparison by sex. *Archives of Surgery*, *146*(2), 211-217.

Dyrbye, L. N., West, C. P., Satele, D., Sloan, J. A., & Shanafelt, T. D. (2011b). Work/homeconflict and burnout among academic internal medicine physicians. *Archives of Internal Medicine, 171*(13), 1207-1209.

Dyrbye, L. N., Freischlag, J., Kaups, K. L., Oreskovich, M. R., Satele, D. V., Hanks, J. B., … &Shanafelt, T. D. (2012). Work-home conflicts have a substantial impact on career decisions that affect the adequacy of the surgical workforce. *Archives of Surgery, 147*(10), 933-939.

Dyrbye, L. N., Varkey, P., Boone, S. L., Satele, D. V., Sloan, J. A., & Shanafelt, T. D. (2013). Physician satisfaction and burnout at different career stages. *Mayo Clinic Proceedings, 88*(12),1358-1367

Dyrbye, L. N., Sotile, W., Boone, S., West, C. P., Tan, L., Satele, D., ... & Shanafelt, T. (2014a).A survey of US physicians and their partners regarding the impact of work–home conflict.
Journal of General Internal Medicine, 29(1), 155-161.

Dyrbye, L. N., West, C. P., Satele, D., Boone, S., Tan, L., Sloan, J., & Shanafelt, T. D. (2014b).Burnout among US medical students, residents, and early career physicians relative to the general US population. *Academic Medicine, 89*(3), 443-451.

Dyrbye, L. N., West, C. P., Richards, M. L., Ross, H. J., Satele, D., & Shanafelt, T. D. (2016). A randomized, controlled study of an online intervention to promote job satisfaction and well-beingamong physicians. *Burnout Research, 3*(3), 69-75.

Dyrbye, L. N., Shanafelt, T. D., Sinsky, C. A., Cipriano, P. F., Bhatt, J., Ommaya, A., West, C.P., & Meyers, D. (2017). *NAM Perspectives Discussion Paper: Burnout among health care professionals: A call to explore and address this underrecognized threat to safe, high-quality care*. Washington, D. C.: National Academy of Medicine. https://nam.edu/burnout-among- health-care- professionals-a-call-to-explore-and-address-this-un- derrecognized-threat-to-safe- high-quality-care.

Dyrbye, L. N., Burke, S. E., Hardeman, R. R., Herrin, J., Wittlin, N. M., Yeazel, M., ... & Satele,
D. V. (2018). Association of clinical specialty with symptoms of burnout and career choiceregret among US resident physicians. *JAMA*, *320*(11), 1114-1130.

Dyrbye, L., Herrin, J., West, C. P., Wittlin, N. M., Dovidio, J. F., Hardeman, R., ... & Van Ryn,
M. (2019). Association of racial bias with burnout among resident physicians. *JAMA NetworkOpen, 2*(7), e197457-e197457.

Eddy, R. (2005). Sleep deprivation among physicians. *British Columbia Medical Journal, 47*(4),176-180.

Enders, F., West, C. P., Dyrbye, L., Shanafelt, T. D., Satele, D., & Sloan, J. (2015). Burnout andquality of life among healthcare research faculty. *Research Management Review, 20*(2), 92-104.

Etzion, D. (2003). Annual vacation: Duration of relief from job stressors and burnout. *Anxiety,Stress, and Coping, 16*(2), 213-226.

Fnais, N., Soobiah, C., Chen, M. H., Lillie, E., Perrier, L., Tashkhandi, M., ... & Tricco, A. C.(2014). Harassment and discrimination in medical training: a systematic review and meta- analysis. *Academic Medicine, 89*(5), 817-827.

Ford, E. W. (2019). Stress, burnout, and moral injury: the state of the healthcare workforce.
Journal of Healthcare Management, 64(3), 125-127.

Frank, E., Rothenberg, R., Lewis, C., & Belodoff, B. F. (2000). Correlates of physicians' prevention-related practices: findings from the Women Physicians' Health Study. *Archives ofFamily Medicine, 9*(4), 359-367.

Frank, E., Zhao, Z., Sen, S., & Guille, C. (2019). Gender disparities in work and parental statusamong early career physicians. *JAMA Network Open, 2*(8), e198340-e198340.

Friedrichsen, M., & Milberg, A. (2006). Concerns about losing control when breaking bad newsto terminally ill patients with cancer: physicians' perspective. *Journal of Palliative Medicine, 9*(3), 673-682.

Garcia, L. C., Shanafelt, T. D., West, C. P., Sinsky, C. A., Trockel, M. T., Nedelec, L., ... & Fassiotto, M. (2020). Burnout, Depression, Career Satisfaction, and Work-Life Integration byPhysician Race/Ethnicity. *JAMA Network Open, 3*(8), e2012762-e2012762.

Glasheen, J. J., Misky, G. J., Reid, M. B., Harrison, R. A., Sharpe, B., & Auerbach, A. (2011). Career satisfaction and burnout in academic hospital medicine. *Archives of Internal Medicine,171*(8), 782-790.

Grzywacz, J. G., & Carlson, D. S. (2007). Conceptualizing work—family balance: Implicationsfor practice and research. *Advances in Developing Human Resources, 9*(4), 455-471.

Gupta, G., Schleinitz, M. D., Reinert, S. E., & McGarry, K. A. (2013). Resident physician preventive health behaviors and perspectives on primary care. *Rhode Island Medical Journal,96*(5), 43-47.

Halbesleben, J. R., & Rathert, C. (2008). Linking physician burnout and patient outcomes: exploring the dyadic relationship between physicians and patients. *Health Care ManagementReview, 33(*1), 29-39.

Hall, L. H., Johnson, J., Watt, I., Tsipa, A., & O'Connor, D. B. (2016). Healthcare staff well-being, burnout, and patient safety: a systematic review. *PloS One, 11*(7), e0159015.

Han, S., Shanafelt, T. D., Sinsky, C. A., Awad, K. M., Dyrbye, L. N., Fiscus, L. C., ... & Goh, J.(2019). Estimating the attributable cost of physician burnout in the United States. *Annals of Internal Medicine, 170*(11), 784-790.

Halbesleben, J. R., & Rathert, C. (2008). Linking physician burnout and patient outcomes: exploring the dyadic relationship between physicians and patients. *Health Care ManagementReview, 33*(1), 29-39.

Harolds, J. A., Parikh, J. R., Bluth, E. I., Dutton, S. C., & Recht, M. P. (2016). Burnout of radiologists: frequency, risk factors, and remedies: a report of the ACR Commission on HumanResources. *Journal of the American College of Radiology, 13*(4), 411-416.

Helfrich, C. D., Simonetti, J. A., Clinton, W. L., Wood, G. B., Taylor, L., Schectman, G., ... &Nelson, K. M. (2017). The association of team-specific workload and staffing with odds of burnout among VA primary care team members. *Journal of General Internal Medicine, 32*(7),760-766.

Hope, V., & Henderson, M. (2014). Medical student depression, anxiety and distress outsideNorth America: a systematic review. *Medical Education, 48*(10), 963-979.

Houkes, I., Winants, Y., Twellaar, M., & Verdonk, P. (2011). Development of burnout over timeand the causal order of the three dimensions of burnout among male and female GPs. A three- wave panel study. *BMC Public Health, 11*(1), 240.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis:Conventional criteria versus new alternatives. *Structural Equation Modeling, 6*(1), 1-55.

Jolly, S., Griffith, K. A., DeCastro, R., Stewart, A., Ubel, P., & Jagsi, R. (2014). Gender differences in time spent on parenting and domestic responsibilities by high-achieving youngphysician-researchers. *Annals of Internal Medicine, 160*(5), 344-353.

Kahn. (1990). Psychological conditions of personal engagement and disengagement at work. *TheAcademy of Management Journal, 33*, 692-724.

Kane, L. (2019). *Medscape National Physician Burnout, Depression & Suicide Report 2019*. Medscape. https://www.medscape.com/slideshow/2019-lifestyle-burnout-depression-6011056#1

Kane, L. (2020). *Mescape National Physician Burnout & Suicide Report 2020: The Generational Divide*. Medscape. https://www.medscape.com/slideshow/2020-lifestyle-burnout-6012460

Karakash, S., Solone, M., Chavez, J., & Shanafelt, T. (2019). Physician Work-Life Integration: Challenges and Strategies for Improvement. *Clinical Obstetrics and Gynecology, 62*(3), 455-465.

Kirsch, D. G. (2019, May 28). *Advancing women in academic medicine*. American Associationof Medical Colleges (AAMC). https://www.aamc.org/news-insights/advancing-women- academic-medicine

Kopacz, M. S., Ames, D., & Koenig, H. G. (2019). It's time to talk about physician burnout andmoral injury. *The Lancet Psychiatry, 6*(11), e28.

Krasner, M. S., Epstein, R. M., Beckman, H., Suchman, A. L., Chapman, B., Mooney, C. J., &Quill, T. E. (2009). Association of an educational program in mindful communication with burnout, empathy, and attitudes among primary care physicians. *JAMA, 302*(12), 1284-1293.

Kuo, I. C., Levine, R. B., Gauda, E. B., Bodurtha, J., Clements, J., Fivush, B., & Ishii, L. (2019).Identifying gender disparities and barriers to measuring the status of female faculty: the experience of a large school of medicine. *Journal of Women's Health, 28*(11), 1569-1575.

Kushnir, T., Greenberg, D., Madjar, N., Hadari, I., Yermiahu, Y., & Bachner, Y. G. (2013). Isburnout associated with referral rates among primary care physicians in community clinics?. *Family Practice*, *31*(1), 44-50.

Kushinka, S. A. (2011). Electronic Health Record Deployment Techniques. *California HealthCare Foundation.* https://www.chcf.org/publication/electronic-health-record-deployment-techniques/

LaFaver, K., Miyasaki, J. M., Keran, C. M., Rheaume, C., Gulya, L., Levin, K. H., ... & Singhal,
D. (2018). Age and sex differences in burnout, career satisfaction, and well-being in USneurologists. *Neurology, 91*(20), e1928-e1941.

Lapinski, J., Yost, M., Sexton, P., & LaBaere, R. J. (2016). Factors modifying burnout inosteopathic medical students. *Academic Psychiatry, 40*(1), 55-62.

LaVeist, T. A., & Nuru-Jeter, A. (2002). Is doctor-patient race concordance associated withgreater satisfaction with care?. *Journal of Health and Social Behavior, 43*(3), 296-306.

Lee, R. T., Seo, B., Hladkyj, S., Lovell, B. L., & Schwartzmann, L. (2013). Correlates of physician burnout across regions and specialties: a meta-analysis. *Human Resources for Health,11*(1), 48.

Leiter, M. P., Frank, E., & Matheson, T. J. (2009). Demands, values, and burnout: relevance forphysicians. *Canadian Family Physician, 55*(12), 1224-1225.

Marrast, L. M., Zallman, L., Woolhandler, S., Bor, D. H., & McCormick, D. (2014). Minority physicians' role in the care of underserved patients: diversifying the physician workforce may bekey in addressing health disparities. *JAMA Internal Medicine, 174*(2), 289-291.

Martini, S., Arfken, C. L., Churchill, A., & Balon, R. (2004). Burnout comparison amongresidents in different medical specialties. *Academic Psychiatry*, *28*(3), 240-242.

Maslach, C., & Jackson, S. E. (1981). The measurement of experienced burnout. *Journal ofOrganizational Behavior, 2*(2), 99-113.

Maslach, C., Jackson, S. E., & Leiter, M. P. (1996). *Maslach Burnout Inventory*. (3rd ed). PaloAlto, CA: Consulting Psychologists Press.

Mata, D. A., Ramos, M. A., Bansal, N., Khan, R., Guille, C., Di Angelantonio, E., & Sen, S.(2015). Prevalence of depression and depressive symptoms among resident physicians: a systematic review and meta-analysis. *JAMA, 314*(22), 2373-2383.

Meier, D. E., Back, A. L., & Morrison, R. S. (2001). The inner life of physicians and care of theseriously ill. *JAMA, 286*(23), 3007-3014.

Melnick, E. R., Sinsky, C. A., Dyrbye, L. N., Trockel, M., West, C. P., Nedelec, L., & Shanafelt,
T. (2020). Association of Perceived Electronic Health Record Usability With Patient Interactionsand Work-Life Integration Among US Physicians. *JAMA Network Open, 3*(6), e207374- e207374.

Menon, N. K., Shanafelt, T. D., Sinsky, C. A., Linzer, M., Carlasare, L., Brady, K. J., ... & Trockel, M. T. (2020). Association of physician burnout with suicidal ideation and medical errors. *JAMA Network Open, 3*(12), e2028780-e2028780.

McMurray, J. E., Linzer, M., Konrad, T. R., Douglas, J., Shugerman, R., Nelson, K., & SGIMCareer Satisfaction Study Group. (2000). The work lives of women physicians. *Journal of General Internal Medicine, 15*(6), 372-380.

McPhillips, H. A., Stanton, B., Zuckerman, B., & Stapleton, F. B. (2007). Role of a pediatric department chair: factors leading to satisfaction and burnout. *The Journal of Pediatrics, 151*(4),425-430.

Milliman, J., Czaplewski, A. J., & Ferguson, J. (2003). Workplace spirituality and employeework attitudes: An exploratory empirical assessment. *Journal of Organizational Change Management, 16*(4), 426-447.

Misra-Hebert, A. D., Kay, R., & Stoller, J. K. (2004). A review of physician turnover: rates,causes, and consequences. *American Journal of Medical Quality, 19*(2), 56-66.

Morais, A., Maia, P., Azevedo, A., Amaral, C., & Tavares, J. (2006). Stress and burnout amongPortuguese anaesthesiologists. *European Journal of Anaesthesiology, 23*(5), 433-439.

Morris, M. L., & Madsen, S. R. (2007). Advancing work—Life integration in individuals, organizations, and communities. *Advances in Developing Human Resources, 9*(4), 439-454.

Muthén, L. K., & Muthén, B. O. (2007). *Mplus user's guide* (5th ed.). Los Angeles, CA: Muthén& Muthén.

Oreskovich, M. R., Kaups, K. L., Balch, C. M., Hanks, J. B., Satele, D., Sloan, J., ... & Shanafelt,
T. D. (2012). Prevalence of alcohol use disorders among American surgeons. *Archives ofSurgery, 147*(2), 168-174.

Pagnin, D., de Queiroz, V., Carvalho, Y. T. M. S., Dutra, A. S. S., Amaral, M. B., & Queiroz, T.
T. (2014). The relation between burnout and sleep disorders in medical students. *AcademicPsychiatry, 38*(4), 438-444.

Panagopoulou, E., Montgomery, A., & Benos, A. (2006). Burnout in internal medicine physicians: Differences between residents and specialists. *European Journal of InternalMedicine, 17*(3), 195-200.

Papp, K. K., Stoller, E. P., Sage, P., Aikens, J. E., Owens, J., Avidan, A., ... & Strohl, K. P. (2004). The effects of sleep loss and fatigue on resident–physicians: a multi-institutional, mixed-method study. *Academic Medicine, 79*(5), 394-406.

Peckham, C. (2017). *Medscape Lifestyle Report 2017: Race and Ethnicity, Bias and Burnout.*Retrieved September 30, 2019 from https://www.medscape.com/features/slideshow/lifestyle/2017/overview#page9

Pereira-Lima, K., & Loureiro, S. R. (2015). Burnout, anxiety, depression, and social skills inmedical residents. *Psychology, Health & Medicine, 20*(3), 353-362.

Perlman, B., & Hartman, E. A. (1982). Burnout: Summary and future research. *HumanRelations, 35(*4), 283-305.

Perlo, J., Balik, B., Swenson, S., Kabcenell, A., Landsman, J., & Feely, D. (2017). *IHI Framework for Improving Joy in Work.* Institute for Healthcare Improvement: Cambridge, Massachusetts. http://www.ihi.org/resources/Pages/IHIWhitePapers/Framework-Improving-Joy-in-Work.aspx

Perry, B., Toffner, G., Merrick, T., & Dalton, J. (2011). An exploration of the experience of compassion fatigue in clinical oncology nurses. *Canadian Oncology Nursing Journal, 21*(2), 91-97.

The Physicians Foundation. (2018). *2018 Survey of America's Physicians: Practice Patterns andPerspectives.* Columbia, SC: The Physicians Foundation.

Pilkonis, P. A., Choi, S. W., Reise, S. P., Stover, A. M., Riley, W. T., Cella, D., & PROMIS Cooperative Group. (2011). Item banks for measuring emotional distress from the Patient- Reported Outcomes Measurement Information System (PROMIS®): depression, anxiety, andanger. *Assessment, 18*(3), 263-283.

Rao, T. S., & Indla, V. (2010). Work, family or personal life: Why not all three?. *Indian Journalof Psychiatry, 52*(4), 295.

Reid, R. J., Coleman, K., Johnson, E. A., Fishman, P. A., Hsu, C., Soman, M. P., ... & Larson, E.
B. (2010). The group health medical home at year two: cost savings, higher patient satisfaction,and less burnout for providers. *Health Affairs, 29*(5), 835-843.

Rich, B. L., Lepine, J. A., & Crawford, E. R. (2010). Job engagement: Antecedents and effectson job performance. *Academy of Management Journal, 53*(3), 617-635.

Rodríguez, J. E., Campbell, K. M., & Pololi, L. H. (2015). Addressing disparities in academicmedicine: what of the minority tax?. *BMC Medical Education, 15*(1), 1-5.

Rohland, B. M., Kruse, G. R., & Rohrer, J. E. (2004). Validation of a single-item measure of burnout against the Maslach Burnout Inventory among physicians. *Stress and Health, 20*(2), 75-79.

Rothenberger, D. A. (2017). Physician burnout and well-being: a systematic review andframework for action. *Diseases of the Colon & Rectum, 60*(6), 567-576.

Saadat, H., Bissonnette, B., Tumin, D., Thung, A., Rice, J., Barry, N. D., & Tobias, J. (2016). Time to talk about work-hour impact on anesthesiologists: The effects of sleep deprivation onProfile of Mood States and cognitive tasks. *Pediatric Anesthesia, 26*(1), 66-71.

Saleh, K. J., Quick, J. C., Conaway, M., Sime, W. E., Martin, W., Hurwitz, S., & Einhorn, T. A.(2007). The prevalence and severity of burnout among academic orthopaedic departmental leaders. *JBJS, 89*(4), 896-903.

Shanafelt, T. D., Balch, C. M., Bechamps, G. J., Russell, T., Dyrbye, L., Satele, D., ... & Freischlag, J. A. (2009a). Burnout and career satisfaction among American surgeons. *Annals ofSurgery, 250*(3), 463-471.

Shanafelt, T. D., West, C. P., Sloan, J. A., Novotny, P. J., Poland, G. A., Menaker, R., ... & Dyrbye, L. N. (2009b). Career fit and burnout among academic faculty. *Archives of InternalMedicine, 169*(10), 990-995.

Shanafelt, T. D., Balch, C. M., Bechamps, G., Russell, T., Dyrbye, L., Satele, D., ... & Freischlag, J. (2010). Burnout and medical errors among American surgeons. *Annals of Surgery,251*(6), 995-1000.

Shanafelt, T. D., Balch, C. M., Dyrbye, L., Bechamps, G., Russell, T., Satele, D., ... & Oreskovich, M. R. (2011). Special report: suicidal ideation among American surgeons. *Archivesof Surgery*, *146*(1), 54-62.

Shanafelt, T. D., Boone, S., Tan, L., Dyrbye, L. N., Sotile, W., Satele, D., ... & Oreskovich, M.
R. (2012). Burnout and satisfaction with work-life balance among US physicians relative to thegeneral US population. *Archives of Internal Medicine, 172*(18), 1377-1385.

Shanafelt, T. D., Boone, S. L., Dyrbye, L. N., Oreskovich, M. R., Tan, L., West, C. P., ... & Sotile, W. M. (2013, March). The medical marriage: a national survey of the spouses/partners ofUS physicians. *Mayo Clinic Proceedings, 88*(3), 216-225.

Shanafelt, T. D., Gradishar, W. J., Kosty, M., Satele, D., Chew, H., Horn, L., ... & Sloan, J. (2014a). Burnout and career satisfaction among US oncologists. *Journal of Clinical Oncology,32*(7), 678.

Shanafelt, T. D., Raymond, M., Kosty, M., Satele, D., Horn, L., Pippen, J., ... & Sloan, J.(2014b). Satisfaction with work-life balance and the career and retirement plans of US oncologists. *Journal of Clinical Oncology, 32*(11), 1127.

Shanafelt, T. D., Gorringe, G., Menaker, R., Storz, K. A., Reeves, D., Buskirk, S. J., ... & Swensen, S. J. (2015). Impact of organizational leadership on physician burnout and satisfaction.*Mayo Clinic Proceedings*, *90*(4), 432-440.

Shanafelt, T. D., Dyrbye, L. N., Sinsky, C., Hasan, O., Satele, D., Sloan, J., & West, C. P. (2016a). Relationship between clerical burden and characteristics of the electronic environmentwith physician burnout and professional satisfaction. *Mayo Clinic Proceedings, 91*(7), 836-848.

Shanafelt, T. D., Mungo, M., Schmitgen, J., Storz, K. A., Reeves, D., Hayes, S. N., ... & Buskirk,
S. J. (2016b). Longitudinal study evaluating the association between physician burnout andchanges in professional work effort. *Mayo Clinic Proceedings, 91*(4), 422-431.

Shanafelt, T., Goh, J., & Sinsky, C. (2017). The business case for investing in physician well-being. *JAMA Internal Medicine, 177*(12), 1826-1832.

Shanafelt, T. D., & Noseworthy, J. H. (2017). Executive leadership and physician well-being:Nine organizational strategies to promote engagement and reduce burnout. *Mayo Clinic Proceedings, 92*(1), 129-146.

Shanafelt, T. D., Sinsky, C., Dyrbye, L. N., Trockel, M., & West, C. P. (2019a). Burnout AmongPhysicians Compared With Individuals With a Professional or Doctoral Degree in a Field Outside of Medicine. *Mayo Clinic Proceedings, 94*(3), 549-551

Shanafelt, T. D., West, C. P., Sinsky, C., Trockel, M., Tutty, M., Satele, D. V., ... Dyrbye, L. N.(2019b). Changes in Burnout and Satisfaction With Work-Life Integration in Physicians and theGeneral US Working Population Between 2011 and 2017. *Mayo Clinic Proceedings, 94*(9), 1681–1694.

Shanafelt, T. D., Makowski, M. S., Wang, H., Bohman, B., Leonard, M., Harrington, R. A., ... &Trockel, M. (2020). Association of Burnout, Professional Fulfillment, and Self-care Practices of Physician Leaders With Their Independently Rated Leadership Effectiveness. *JAMA Network Open*, *3*(6), e207961-e207961.

Shirom, A., Nirel, N., & Vinokur, A. D. (2010). Work hours and caseload as predictors of physician burnout: the mediating effects by perceived workload and by autonomy. *AppliedPsychology, 59*(4), 539-565.

Sia, S. K., Sahoo, B. C., & Duari, P. (2015). Gender discrimination and work engagement:Moderating role of future time perspective. *South Asian Journal of Human Resources Management, 2*(1), 58-84.

Sikka, R., Morath, J. M., & Leape, L. (2015). The Quadruple Aim: care, health, cost andmeaning in work. *BMJ Quality & Safety*, *24*(10), 608-610.

Silver, J. K., Bean, A. C., Slocum, C., Poorman, J. A., Tenforde, A., Blauwet, C. A., ... & Osterbur, D. (2019). Physician workforce disparities and patient care: a narrative review. *HealthEquity, 3*(1), 360-377.

Sinsky, C. A. (2017). Infographic: Date Night with the EHR. NEJM Catalyst, 3(6).

Sinsky, C. A., Dyrbye, L. N., West, C. P., Satele, D., Tutty, M., & Shanafelt, T. D. (2017). Professional satisfaction and the career plans of US physicians. *Mayo Clinic Proceedings,92*(11), 1625-1635.

Sliter, M., Boyd, E., Sinclair, R., Cheung, J., & McFadden, A. (2014). Inching toward inclusiveness: Diversity climate, interpersonal conflict and well-being in women nurses. *SexRoles, 71*(1-2), 43-54.

Starmer, A. J., Frintner, M. P., & Freed, G. L. (2016). Work–life balance, burnout, andsatisfaction of early career pediatricians. *Pediatrics, 137*(4), e20153183.

Stewart, A. (2020). Women have closed med school enrollment gap; others remain. *AAFPLeader Voices Blog*. https://www.aafp.org/news/blogs/leadervoices/entry/20200228lv-diversity.html

Swensen, S., Kabcenell, A., & Shanafelt, T. (2016). Physician-organization collaboration reduces physician burnout and promotes engagement: The Mayo Clinic experience. *Journal ofHealthcare Management, 61*(2), 105-127.

Talbot. S. G., & Dean, W. (2019). Beyond burnout: The real problem facing doctors is moralinjury. *Medical Economics, 96*(10), 3.

Trockel, M., Bohman, B., Lesure, E., Hamidi, M. S., Welle, D., Roberts, L., & Shanafelt, T. (2018). A brief instrument to assess both burnout and professional fulfillment in physicians: reliability and validity, including correlation with self-reported medical errors, in a sample ofresident and practicing physicians. *Academic Psychiatry, 42*(1), 11-24.

Vela-Bueno, A., Moreno-Jiménez, B., Rodríguez-Muñoz, A., Olavarrieta-Bernardino, S., Fernández-Mendoza, J., De la Cruz-Troca, J. J., ... & Vgontzas, A. N. (2008). Insomnia andsleep quality among primary care physicians with low and high burnout levels. *Journal of Psychosomatic Research, 64*(4), 435-442.

Walker, K. O., Moreno, G., & Grumbach, K. (2012). The association among specialty, race, ethnicity, and practice location among California physicians in diverse specialties. *Journal of theNational Medical Association, 104*(1-2), 46-52.

Wallace, J. E., Lemaire, J. B., & Ghali, W. A. (2009). Physician wellness: a missing qualityindicator. *The Lancet, 374*(9702), 1714-1721.

Waisel, D. B., Lamiani, G., Sandrock, N. J., Pascucci, R., Truog, R. D., & Meyer, E. C. (2009). Anesthesiology trainees face ethical, practical, and relational

challenges in obtaining informed consent. *Anesthesiology: The Journal of the American Society of Anesthesiologists, 110*(3), 480-486.

Welp, A., Meier, L. L., & Manser, T. (2016). The interplay between teamwork, clinicians' emotional exhaustion, and clinician-rated patient safety: a longitudinal study. *Critical Care,20*(110), 1-10.

West, C. P., Dyrbye, L. N., Rabatin, J. T., Call, T. G., Davidson, J. H., Multari, A., ... & Shanafelt, T. D. (2014). Intervention to promote physician well-being, job satisfaction, andprofessionalism: a randomized clinical trial. *JAMA Internal Medicine, 174*(4), 527-533.

West, C. P., Dyrbye, L. N., Satele, D., Shanafelt, T. D. (2015). A randomized controlled trial evaluating the effect of COMPASS (COlleagues Meeting to Promote and Sustain Satisfaction) small group sessions on physician well-being, meaning, and job satisfaction. *J Gen Intern Med,30*, S89.

West, C. P. (2016). Physician Well-Being: Expanding the Triple Aim. *Journal of GeneralInternal Medicine*, *31*(5), 458.

West, C. P., Dyrbye, L. N., Erwin, P. J., & Shanafelt, T. D. (2016). Interventions to prevent and reduce physician burnout: a systematic review and meta-analysis. *The Lancet*, *388*(10057), 2272-2281.

West, C. P., Dyrbye, L. N., & Shanafelt, T. D. (2018). Physician burnout: contributors,consequences and solutions. *Journal of Internal Medicine, 283*(6), 516-529.

Whippen, D. A., & Canellos, G. P. (1991). Burnout syndrome in the practice of oncology: resultsof a random survey of 1,000 oncologists. *Journal of Clinical Oncology, 9*(10), 1916-1920.

Williams, E. S., Manwell, L. B., Konrad, T. R., & Linzer, M. (2007). The relationship of organizational culture, stress, satisfaction, and burnout with physician-reported error and suboptimal patient care: results from the MEMO study. *Health Care Management Review, 32*(3),203-212.

Wolf, M. R., & Rosenstock, J. B. (2017). Inadequate sleep and exercise associated with burnoutand depression among medical students. *Academic Psychiatry, 41*(2), 174-179.

Wong, E. Y., Bigby, J., Kleinpeter, M., Mitchell, J., Camacho, D., Dan, A., & Sarto, G. (2001).Promoting the advancement of minority women faculty in academic medicine: the National Centers of Excellence in Women's Health. *Journal of Women's Health & Gender-based Medicine, 10*(6), 541-550.

Wusu, M., Tepperberg, S., Weinberg, J., & Saper, R. (2019). Matching our mission: a strategicplan to create a diverse family medicine residency. *Family Medicine, 51*(1), 31-36.

Xu, G., Fields, S. K., Laine, C., Veloski, J. J., Barzansky, B., & Martini, C. J. (1997). The relationship between the race/ethnicity of generalist physicians and their care for underservedpopulations. *American Journal of Public Health, 87*(5), 817-822.

Yuan, K. H., & Bentler, P. M. (2000). Three likelihood-based methods for mean and covariancestructure analysis with nonnormal missing data. *Sociological Methodology, 30*(1), 165-200.

Zhang, J. Q., Riba, L., Magrini, L., Fleishman, A., Ukandu, P., Alapati, A., ... & James, T. A. (2019). Assessing burnout and professional fulfillment in breast surgery: Results from a nationalsurvey of the American Society of Breast Surgeons. *Annals of Surgical Oncology*. https://doi.org/10.1245/s10434-019-07532-3

Zhou, J., Yang, Y., Qiu, X., Yang, X., Pan, H., Ban, B., ... & Wang, W. (2016). Relationship between anxiety and burnout among Chinese physicians: a moderated mediation model. *PloSOne*, *11*(8), e0157013.