

## Brief Opinion

# Mitigating Bias in Recruitment: Attracting a Diverse, Dynamic Workforce to Sustain the Future of Radiation Oncology



Meriem Mokhtech, MD,<sup>a,\*</sup> Reshma Jagsi, MD, DPhil, FASTRO,<sup>b</sup> Raymond Mailhot Vega, MD, MPH,<sup>c</sup> Derek W. Brown, PhD,<sup>d</sup> Daniel W. Golden, MD, MHPE,<sup>e</sup> Titania Juang, PhD,<sup>d</sup> Malcolm D. Mattes, MD,<sup>f</sup> Chelsea C. Pinnix, MD, PhD,<sup>g</sup> and Suzanne B. Evans, MD, MPH<sup>a</sup>

<sup>a</sup>Department of Therapeutic Radiology, Yale School of Medicine, New Haven, Connecticut; <sup>b</sup>Department of Radiation Oncology, University of Michigan, Ann Arbor, Michigan; <sup>c</sup>Department of Radiation Oncology, University of Florida Health, Jacksonville, Florida; <sup>d</sup>Department of Radiation Medicine and Applied Sciences, UC San Diego School of Medicine, San Diego, California; <sup>e</sup>Department of Radiation and Cellular Oncology, University of Chicago Medicine, Chicago, Illinois; <sup>f</sup>Department of Radiation Oncology, Rutgers Cancer Institute of New Jersey, New Brunswick, New Jersey; <sup>g</sup>Department of Radiation Oncology, MD Anderson Cancer Center, Houston, Texas

Received April 14, 2022; accepted April 15, 2022

Sources of support: This work had no specific funding.

Disclosures: Dr. Mokhtech does not have any additional conflicts of interest to disclose. Dr. Jagsi has received grants for unrelated works from a number of sources. Dr. Jagsi has given many lectures, and has served as an expert witness. She is a former member of the Board of Directors of American Society of Clinical Oncology and cochair of American Society for Radiation Oncology's ethics committee. She has stock options as compensation for her advisory board role in Equity Quotient, a company that evaluates culture in health care companies. Dr. Mailhot Vega has a number of grants, including from the PTCOG, Conquer Cancer Foundation, and the Live Like Bella Pediatric Research Initiative. Dr. Brown receives honoraria for speaking engagements. Dr. Golden has grants from the National Institutes of Health and Radiation Oncology Institute. He is the chair of the Radiation Oncology Education Collaborative Study Group, and is involved with Rad Onc Questions LLC. Dr. Juang holds a leadership position in the American Association of Physicists in Medicine. Dr. Mattes has a number of grants, including from the Radiation Oncology Institute, New Jersey Health Foundation, and Bristol Myers Squibb Foundation. He holds a leadership position in American Society for Radiation Oncology's Committee on Health Equity, Diversity, and Inclusion. Dr. Pinnix has a research grant from Merck Inc, and holds leadership positions with the Association of Directors of Radiation Oncology Programs and Southwest Oncology Group. Dr. Evans received honoraria and travel support from Yale university.

\*Corresponding author: Meriem Mokhtech, MD; E-mail: [Meriem.mokhtech@yale.edu](mailto:Meriem.mokhtech@yale.edu)

<https://doi.org/10.1016/j.adro.2022.100977>

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## Introduction: Diversity and Excellence

Why do we need a diverse workforce? Diversity allows for improved collective intelligence,<sup>1</sup> and can include diversity of professional knowledge, interests, and perspectives. Benefits of workforce diversity include providing different perspectives, better serving patients,<sup>2,3</sup> and improving outcomes.<sup>4-6</sup> Diversity is not only about social justice, but an essential strategy for complex problem solving in clinical care, research, and teaching. However, racial, ethnic, and gender disparities in outcomes remain pervasive in the U.S. health care system.<sup>7</sup> Racial biases are integrated into algorithms used for health care decisions and money spent on patient populations.<sup>8</sup> Radiation oncology (RO) is not exempt from this problem, and remains a specialty comprised only of 28% female and 8% underrepresented minority physicians (eg, black or Hispanic).<sup>6,9</sup>

This lack of diversity in the field of RO undoubtedly limits our collective potential. In complex systems such as medicine, an individual may only perceive partial truths based on their own unique perspectives and experiences. For example, when trying to solve a clinical problem, a team of radiation oncologists will have more shared and

convergent perspectives than a diverse team including radiation, medical, and surgical oncologists. Diversity allows for the effective sharing of distinct expertise repertoires and diverging opinions that contribute to superior problem-solving outcomes. By increasing diversity in the workforce, we can help diversify our perspectives and improve our quality of care.

This manuscript focuses primarily on strategies to help mitigate unconscious bias. However, conscious bias is an entirely different matter, and represents a far greater challenge that is outside the scope of this manuscript. This manuscript is targeted to individuals interested in examining pitfalls in the recruitment and hiring process, as well as strategies to mitigate unconscious bias to expand workforce diversity.

## Understanding Cognitive Bias in Recruitment Process

Cognitive biases come in many forms, and may be best understood as heuristics (ie, rules of thumb) that make processing our world easier and more efficient. Unfortunately, this efficient thinking comes at a cost, because these cognitive biases can lead to incorrect conclusions or associations. The tendency is to assume that awareness of these cognitive biases is sufficient to mitigate their harmful effects; however, diversity training or unconscious bias training has failed to reduce levels of bias.<sup>5,10</sup> A belief that awareness is sufficient to mitigate bias will only perpetuate inequities.

Understanding why knowledge is not enough is helpful, and is a concept referred to as the GI Joe phenomenon,<sup>11,12</sup> a play on the television show that closed with the phrase “knowing is half the battle.” Biases come in 2 categories: Encapsulated and attentional.<sup>12</sup> Encapsulated biases cannot be corrected simply through conscious reflection or rational knowledge alone, because by definition, they are cognitively impenetrable. The term “cognitively impenetrable” refers to a cognitive process that is wired in and cannot be altered by changes in an agent’s beliefs, desires, or goals.<sup>13</sup> In contrast, attentional biases are cognitively penetrable; however, we often fail to attend to relevant information to make better decisions in the moment because of limited attention.

There are many examples of encapsulated biases (or, perhaps, conscious bias) in recruitment. For example, a name discrimination study found that individuals with names more common in African-American culture are significantly less likely to get called back for a job interview that applicants with Caucasian-sounding names despite identical resumes,<sup>14</sup> and this persists in an analysis done in modern times,<sup>15</sup> as well as within science.<sup>16</sup> “Lakisha and Jamal” need 8 more years of experience on their

resume to get the same interview call backs as “Greg and Emily.” Discrimination is higher at companies with decentralized versus centralized human resources.<sup>15</sup> Similar bias has been documented in medicine, with a recent publication describing black applicants’ confrontation of microaggressions, stereotype threat, tokenism, imposter syndrome, and homophily.<sup>17</sup> In RO, biases affecting those whose sex, race, ethnicity, and other characteristics are underrepresented in medicine have also been documented.<sup>18-21</sup>

In the average recruitment process, external influences play a surprisingly large role in our decision-making processes, especially when related to hiring. Unreliability in expert judgment is usually assumed to be caused by attentional biases, such as fatigue, boredom, and distraction.<sup>22,23</sup> In addition to the random noise provoked by these elements, incidental factors may also introduce systemic biases.

Incidental factors influence emotions, and emotions influence the decision-making processes. There are 3 main mechanisms thought to explain how emotions influence judgment, whether incidental or otherwise. First, emotions influence how information is processed, with happy moods inducing more heuristics and sad moods more analytical information processing. For example, subjects in happy moods are more likely to rely on stereotypes in the formation of judgments.<sup>24</sup> Emotions provide information that can be misattributed to the wrong cause if the actual one is not salient. For example, respondents interviewed on sunnier days express higher levels of overall happiness.<sup>25</sup>

The influence of incidental factors applies to medicine as well, where bias has been documented in medical school application review. Research has shown that applicants’ academic attributes are weighted more heavily on cloudier days and nonacademic attributes more heavily on sunnier days. Changes in cloud coverage can increase a candidate’s predicted probability of admission by an average of up to 12%.<sup>26</sup>

Similar biases have been documented in the resident application process. In radiology resident selection, facially attractive and nonobese applicants have a higher chance of getting interviews than their peers. Obesity and attractiveness were found to be as influential in applicant selection for interview as traditional medical school performance metrics.<sup>27</sup> Photographic score, although objectively recognized to have no value on predicting candidate performance, has been shown to have the same impact on interview invitation as American Osteopathic Association membership.<sup>28</sup> Table 1 shows examples of seemingly benign recruiting practices that may harbor bias.

Academia, medicine, and RO are not immune from bias and the influence of incidental factors on decision making. To help mitigate this bias, we must consider

newer methods for candidate selection, including holistic review, structured interviews, and a global redesign of the recruitment process.

### **Overcoming Bias in Recruitment: Achieving Holistic Candidate Review**

Many forms of bias are prevalent in the residency selection process. In RO, although resident physician numbers are increasing across the country, the number of underrepresented in medicine radiation oncologists remains stagnant.<sup>20</sup> Overreliance on 1 single metric clearly can limit diversity in RO.<sup>29</sup> Holistic candidate review can be a tool to improve health care workforce diversity. Holistic candidate review is defined by the Association of American Medical Colleges as a flexible, individualized way of assessing an applicant's capabilities by which balanced consideration is given to experiences, attributes, competencies, and academic or scholarly metrics, and how the individual might contribute value to the institution or program's mission and goals.<sup>30</sup>

In a holistic recruitment and selection process, selection criteria should be broad-based, linked to institutional mission and goals, and promote diversity and inclusion as essential to excellence. A balance of experiences, attributes, competencies, and metrics (EACMs) should be reviewed. Balanced EACMs should be applied equitably across the entire candidate pool, and used to assess applicants with the intent of creating richly diverse interview and selection pool. Performance data show that certain EACMs are linked to a likelihood of success as a resident. Screeners and reviewers should consider how each applicant might contribute to the institution or program's learning environment and practice of medicine. Furthermore, reviewers should weigh and balance the range of criteria needed to achieve the outcomes desired by the program or institution.

Barriers to implementing a holistic selection process for resident selection include insufficient knowledge on how to implement the holistic candidate review into the residency selection process and fear/concern for lowering standards for residency selection. The holistic review process allows for the selection committee to find diverse applicants with valuable skills to contribute and enhance a program. Holistic review does not ignore, but adds to academic metrics. In fact, when general surgery programs implement a holistic applicant review process, the proportion of ranked and matched female and underrepresented in medicine applicants increased, but U.S. Medical Licensing Examination step 1 scores remained unchanged.<sup>31</sup>

Rubrics can allow for the implementation of holistic candidate review with scoring tools that list important

criteria. Examples of holistic rubric categories include traditional items, such as U.S. Medical Licensing Examination step 1 score, medical school grades, research, and publications. Additional items to consider include past paid employment, persistence/grit, commitment to service, strength of character, interpersonal skills, and capacity for growth.<sup>32</sup>

For holistic applicant review to be successful, buy-in is required from department leadership. Time and commitment are also required to thoroughly review an applicant. Assessing many of the EACM criteria requires careful reading of personal statements, letters of recommendation, and curriculum vitae. Prospectively documenting recruitment goals and choosing a committed and diverse selection committee is important. Because review committees are the strongest when they themselves are diverse, institutions should value the effort these activities require, otherwise there is the risk of inadvertently overburdening certain individuals who are the only representatives of a particular group and therefore asked to serve on many selection committees (ie, minority tax).<sup>33</sup> Be sure to provide clear instructions to reviewers, and promote an environment where everyone can voice their opinions.<sup>34</sup>

In summary, a holistic review can provide a systematic approach to residency selection. The goal is to increase diversity in residency training programs with the ultimate goal to create learning environments and teams that are more effective and representative of the general population.

### **Overcoming Bias in Recruitment: Implementing Structured Interview**

A mainstay of the residency recruitment process remains, the applicant interview. Traditional unstructured interviews, where interviewers ask questions and evaluate responses at their own individual discretion, are susceptible to biases and the influence of information unrelated to the position.<sup>35</sup> Structured interviews incorporate standardized components into content and evaluation aspects of the interview process. For example, all candidates may be asked the same standardized job-focused questions (content) and evaluated on the same competency metrics with a standardized rating scale (evaluation). Structured interviews have been found to improve the reliability and validity of candidate evaluations, as well as the perception of fairness.<sup>35,36</sup> Further advantages of structured interviews in medical and dental contexts are reliable predictions of performance, including in patient care and clinical performance.<sup>37,38</sup>

A structured interview focused on job-related factors can be developed by defining competencies relevant to

successful job performance, creating standardized questions designed to assess candidates' proficiency in these competencies, and developing standardized rating scales to evaluate the level of competency demonstrated through candidate responses. The first step of identifying characteristics that lead to successful performance in residency and future practice and categorizing them into well-defined competencies can be performed in conjunction with determining EACM criteria for holistic review. These competencies can include aspects of professionalism and noncognitive skills, such as teamwork, adaptability, conscientiousness, communication, stress tolerance, work commitment, and integrity.<sup>37</sup> The Accreditation Council for Graduate Medical Education core competency domains can also serve as a starting point to determine specific competencies relevant for successful performance.<sup>39</sup>

Standardized interview questions can take the form of behavioral (examples of past behavior in work-relevant situations) or situational (responses to hypothetical job-related situations) questions to elicit responses indicative of future behavior.<sup>35,36</sup> These questions should be designed carefully to prompt responses to allow for an assessment of candidates' proficiency in the specific competencies defined in the first step. Scripting questions focused on these competencies focuses the interview process on factors relevant to job performance and limits the gathering and influence of unrelated personal information that can trigger biases. Training interviewers may be useful when beginning this process.

Interviews can be evaluated in a standardized manner through the development of rating scales. Rating scales can be developed to evaluate responses for individual questions, specific competencies, or overall suitability. Anchored rating scales, which provide descriptive examples or definitions for each score value, make understanding scoring criteria and rating candidates consistently easier for interviewers.<sup>35-37</sup> Assessing whether implementation of the interview has met the intended goals after interviews is important (eg, whether questions as scripted prompted responses providing relevant information on key competencies, if the rating scales worked as intended, or if any signs of systemic bias can still be seen in evaluations). This assessment can be used to adjust and iteratively improve the structured interview process on an annual basis.

Each program must determine, not only how to evaluate their candidates, but also how to represent themselves within the structured interview process. For instance, one might divide 20% of interviewers (or 20% of their interviews) as less evaluative. These individuals or interview sessions might focus on being of service to the candidate, per an unstructured format, and provide information, but hold less influence in the rank list process in recognition of the lesser value of this sort of interaction.

## Best Practices to Hiring and Recruitment: Lesson in Faculty Hiring from The Committee on Strategies and Tactics for Recruiting to Improve Diversity and Excellence (STRIDE)

The Committee on STRIDE initiative at the University of Michigan has compiled evidence regarding both the need to combat bias in faculty hiring processes and the skills necessary to apply evidence-based strategies to mitigate bias in the 4 stages of a search process.<sup>40</sup> STRIDE is grounded in the recognition that recruiting colleagues is one of the most important things we do, because having a diverse and excellent faculty is central to our success as an institution, and we should approach recruiting in a scholarly way. STRIDE training emphasizes that diversity and excellence go hand in hand, and research can provide insights in how to improve faculty search processes through evidence-based processes.<sup>41-48</sup>

Abundant evidence demonstrates that a diverse faculty can provide positive role models and mentors for the diverse community of learners, and socially and intellectually diverse teams make better decisions. Therefore, excellent institutions are committed to taking steps to create a diverse faculty. Unfortunately, key challenges exist. The first of these challenges are schemas based on race, ethnicity, sex, or other identities. Certain assumptions or expectations about groups influence our judgments of them (ie, stereotypes). We naturally take cognitive short-cuts, which allows for the rapid processing of information, but is susceptible to errors. Conscious bias exists at many levels of leadership. These challenges are ubiquitous. We all, regardless of the social group we belong to, perceive and treat people differently based on the social groups to which they belong.<sup>46,49-52</sup>

Unfortunately, certain pressures commonly present in faculty searches can increase the reliance on schemas, including stress from competing tasks, time pressure, ambiguity or incomplete information, and lack of critical mass. Numerous studies, often using a blinded, randomized, curriculum vitae design, whereby the only factor varied relates to the identity of the applicant, reveal an evaluation bias: Favoring or disfavoring others based on schemas held about their group.<sup>16</sup> Bias can affect many groups: Racial and ethnic minorities; women; female parents; lesbian, gay, bisexual, trans, queer/questioning, intersex, asexuality, and other sexualities; people with disabilities; immigrants; those from less prestigious institutions; and those working outside the center of a discipline.<sup>14,16,53-62</sup>

This bias habit may be able to be broken through awareness of when the bias can happen, understanding of its consequences, and use of effective strategies to reduce its impact outside of mere awareness.<sup>63</sup> Although many would argue appropriately that diversity training is less effective, effective techniques (eg, exposure limitation) can be



**Table 1** Examples of seemingly benign recruiting practices that harbor bias

Example cases	Potential biases in this approach
<p>Residency selection committee is tasked with reviewing 134 applications. Program director and associate program director screen out applicants that reported prior felony conviction, scored &lt;225 on U.S. Medical Licensing Examination step 1, attended osteopathic or foreign medical school, are already in residency and applying from another specialty, or received at least 2 passes on clerkships during M3 year. Then, ranked remaining applicants using Excel formula including numeric scores for step 1, clerkship grades, MSPE keyword, Alpha Omega Alpha Honor Medical Society status, whether applicant took year off for research, number of publications, rating of personal statement, and caliber of letter of recommendation writers from audition electives. To be objective, invite only remaining top 40 applicants from Excel spreadsheet for interviews.</p>	<p>Lack of holistic review introduces lots of biases. Standardized tests have implicit biases within them, personal statements contain bias, as well as letters of recommendation, and MSPE.<sup>68,71,72</sup> Favoring taking year off for research selects for more socioeconomically advantaged applicant. No allowance for richness of life experiences that may make candidate excellent radiation oncologist.</p>
<p>On residency interview day, residency program director interviews 20 applicants. Reviews applications and makes point to read every personal statement, review all MSPEs, and even review hobbies. During interviews, asks each applicant about something found interesting in application. Program director is avid scuba diver, and has particularly great chat with applicant who has spent many vacations scuba diving around the globe. After interview day, program director made sure all applicants were invited to optional after-interview cocktail hour at local bar and grill to meet residents and faculty. Program director finds applicant from earlier in the day, and continues discussion about scuba diving.</p>	<p>The found-interesting conversation starter is highly likely to involve discussion about traits not related to competency and qualifications to become a radiation oncologist, which left to mirror-tocracy (ie, hiring those like you) and homophily, to the exclusion of other candidates. Some applicants may not drink alcohol for religious, health, or other reasons and cocktail hour may artificially select applicants comfortable in this environment, leading to homophily.</p>
<p>Two physician-radiation oncology practice has grown busier with town’s population growth. Two physicians are men in their 50s, and decide to hire third physician. One physician calls friend from residency at academic institution to ask if any good residents graduating. Friend says: “Oh, we have a great guy finishing residency this year who you should interview.” Partners interview senior resident, and make job offer shortly thereafter.</p>	<p>Lack of larger search limits potential for diversity in group (ie, decreased diversity of perspectives), and does not ensure best candidate for the job.</p>
<p><i>Abbreviations:</i> MSPE = medical student performance evaluation</p>	

employed by blinding applicant photographs. Such strategies also include ways to develop the applicant pool, including leveraging social media, establishing relationships with promising junior faculty elsewhere, widening the pool to a broader set of institutions, and recruiting year-round at conferences and meetings. Job postings should use language known to draw diverse and excellent applicants, and should avoid narrow specifications of areas of expertise and recruit from subfields with diversity.

In RO, this might mean interviewing someone with research expertise or clinical passion for things outside disease site specific domains, such as financial toxicity, transgender issues, or health care disparities. Search committees should solicit information about candidates’ commitment to diversity, equity, and inclusion. Search committees should themselves be diverse, although care should be taken to value and recognize service in such roles so that this does not inadvertently lead to a minority tax. These committees should solicit information about candidates’ commitment to diversity, equity, and inclusion. In many situations, such intentional recruitment may require greater effort on behalf of those hiring to attract talent that previously was not represented.

Efforts are necessary to mitigate evaluation biases during the search process, including discussing and defining evaluation categories and criteria in advance, reading candidate dossiers carefully, making evidence of job-relevant qualifications central to the candidate deliberations, and delaying global evaluations and summary ranking to acknowledge uncertainty.<sup>46,51,64,65</sup> In particular, committee members should consider carefully how letters of recommendation influence their decisions, given evidence of how schemas can impact such letters.<sup>66-70</sup>

When candidates visit, the creation of an environment that elicits the best performance from all candidates is important, including attention to providing helpful information, considering accessibility and other needs, being thoughtful about environmental cues, and facilitating positive interactions. This also includes reconsidering whether a wall of portraits of individuals, all from a single demographic group, seems appropriate. Special care must be taken in situations of virtual interviews, which can expose candidates’ personal lives in ways that can activate bias. Interviews should aim to evaluate qualifications that are relevant to a faculty position, and questions about matters that are not job-relevant (eg, family status, sexual

orientation) must not be asked by the search committee. Also, such questions are often illegal. Moreover, exploring nonjob-relevant criteria will confound evaluations, and is likely to drive away the candidate.

Ultimate decisions should reflect a deliberation over prespecified criteria. Best practices involve postponing global rankings, aiming first for an unranked list of candidates the institution would be most happy to hire, because ranking cements positions before discussion takes place with an anchoring or focusing effect. Especially important is focusing, not on fit, but rather on fitting the criteria identified at the start of the search. Building a culture of search excellence is an integral step in the creation of a culture in which new faculty will thrive, succeed, and choose to remain.

Table 1

## Conclusion

Diversity is a critical consideration in the field of RO, which has been lagging behind many other specialties. Mitigating bias in recruitment can help improve the diversity of the RO workforce. Understanding cognitive biases, achieving holistic candidate review, implementing structured interviews, and re-envisioning the recruitment process can help overcome bias in recruitment. We hope this publication helps detail recruitment and hiring pitfall, and offers strategies to combat bias and expand RO workforce diversity.

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