





ORIGINAL CONTRIBUTION

“Not just a checkbox”: A qualitative study of the resident scholarly experience

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Abstract

Objectives: Scholarship is a requirement of residency training; however, the scholarly productivity of trainees is highly variable. The purpose of this study was to explore the perspectives of residents who have been highly productive in scholarship.

Methods: We performed a qualitative study using a constructivist–interpretivist paradigm and conducted semistructured interviews at seven Accreditation Council for Graduate Medical Education–accredited emergency medicine residency programs in the United States. We included sites of diverse locations and training formats (PGY-1 to -4 vs. PGY-1 to -3). Program leadership identified residents with high levels of scholarly productivity at their institutions. We used purposive sampling to seek out residents with diversity in gender and PGY level. Two researchers independently performed a thematic analysis of interview transcripts. Discrepancies were resolved through in-depth discussion and negotiated consensus.

Results: We invited 14 residents and all consented to be interviewed. Residents felt scholarship enhanced their knowledge and skills, grew collaborative networks, and provided personal fulfillment and external rewards. Scholarship positively impacted their careers by focusing their professional interests and informing career decisions. Participants identified individual and institutional facilitators of success including personal prior knowledge and skills, project management skills, mindset, protected time, mentorship, and leadership support. Challenges to conducting scholarship included lack of time, expertise, and resources. Participants acknowledged that participating in scholarly activities was hard work and recommended that residents seek out quality mentorship, work on projects that they are passionate, start early, and be persistent in their efforts. Participants' advice to faculty supporting resident scholarship included recommendations to allow resident autonomy of projects, provide scholarly opportunities, and be responsive to trainee needs.

Conclusions: Participants in this study highlighted benefits of participating in scholarly activity as well as challenges and strategies for success. These results can inform residencies seeking to enhance the scholarly experience of trainees.

INTRODUCTION

The Accreditation Council for Graduate Medical Education (ACGME) requires all residents to complete a scholarly project as part of their residency training experience.¹ These scholarly projects are broadly defined, and can encompass original peer-reviewed basic science or clinical outcomes research, quality improvement projects, conference presentations, textbook chapters, and non-peer-reviewed projects such as online publications and podcasts. How residency programs satisfy this ACGME requirement is highly variable.²⁻⁵ Producing scholarship within residency provides numerous potential benefits to residents including exposure to research methods and the practicalities around how research is conducted, a heightened ability to critically appraise the medical literature relevant to their clinical practice, and opportunities to receive mentorship and more deeply explore an area of interest.^{4,6} Participation in scholarly activity is associated with increased satisfaction with residency training, and several studies have documented that a majority of residents agree that it should be a residency requirement.^{7,8} Despite these benefits, a 2013 study of family medicine trainees demonstrates substantial uncertainty about the applicability of research experience and multiple structural and cognitive barriers that also act to limit resident engagement in scholarly activity.⁹

Numerous strategies for increasing resident scholarly activity exist. These include longitudinal research curricula spanning the entirety of residency, dedicated research blocks, or curricula that can be adapted to either format.¹⁰⁻¹⁵ Scholarly tracks for residents have also become increasingly popular in emergency medicine (EM) residencies as a way to stimulate interest in a specific scholarly niche, marshal mentorship, and foster opportunities for scholarship.¹⁶⁻¹⁸ Two recent systematic reviews demonstrate that no single educational intervention produces a significant increase in resident publications.^{19,20} These authors conclude that a culture with emphasis on research is likely the most important factor in increasing resident research engagement and productivity.^{19,20} Obstacles to scholarly activity have also been explored. Major barriers identified by both residents and faculty include stimulating interest in research, resident and faculty time, mentoring/oversight, funding/support, and lack of research skills.^{20,21}

Most of the previous work around resident scholarship focused on increasing the overall production of scholarship within residency programs and especially stimulating interest in those residents who do not have previous interest in scholarship. However, there is little research examining those residents who have been highly scholarly productive and what factors, characteristics, or support led to them being so productive. One study within internal medicine suggested that protected time, technical resources, establishing a research curriculum, mentor matching, funding, and encouragement may be beneficial to resident scholarly success.⁷ Additionally, the impact of conducting scholarly work on residents' career decisions and training experience is unclear. It is important to understand facilitators, barriers, and impact of the conduction of scholarly activity so that we may best support trainees in their endeavors. As such, we sought to explore the experiences of EM residents with substantial scholarly productivity during their training, seeking to understand the strategies and facilitators for their

success, the challenges they faced, and their perceptions of how conducting scholarly work impacted their training experiences.

METHODS

Study design

We conducted semistructured interviews with EM residents and recent graduates who were identified by faculty as having been highly scholarly productive during residency to better understand their perceptions of these experiences. More specifically, we were interested in how they perceived the value of participating in scholarship as well as the facilitators and barriers to scholarly productivity. We performed a thematic qualitative analysis of those interviews using a constructivist-interpretivist paradigm.²²⁻²⁴ This study was "certified exempt" by the institutional review board of the David Geffen School of Medicine at UCLA.

Study setting and participants

Any resident or recent graduate (less than 2 years out of residency) at one of the seven participating institutions who was identified by their program leadership as being scholarly productive was eligible to participate. The lead author at each site submitted a list of potential subjects that met the inclusion criteria to the first author. The first author then purposively invited potential subjects to participate, seeking diversity of representation in terms of gender, training level, institution, region, and residency format (3-year vs. 4-year program length).

Instrument development

We reviewed the literature and did not identify a suitable existing interview guide that could be used for this study. Therefore, our team of education researchers with extensive residency program leadership and research experience developed a new instrument informed by our literature review to maximize content validity. We utilized open-ended questions to maximize the depth of response and ensure capture of unanticipated responses. We read the interview guide aloud among the study investigators and piloted with a small sample of residents to ensure clarity. We made minor revisions to the script based on this feedback. The final version is available in Appendix S1. We did not make any additional changes to the interview guide during data collection.

Study protocol

We invited participants via email. We conducted semistructured interviews using the Zoom video conferencing platform (Zoom Video

Communications, Inc.). Two members of the study team (JJ and MB) conducted the interviews. JJ is an associate residency director and experienced qualitative researcher with advanced training in education research methods including qualitative research. MB is a medical education fellow with advanced training in qualitative methods. During the interviews JJ and MB conducted real-time member checking to ensure understanding of the intended meaning.²⁵ All interviews were recorded and transcribed verbatim. The interviewers reviewed the transcripts for accuracy and deidentified them prior to analysis. The interviewers met weekly to discuss the interview process and preliminary findings. We uploaded all interview transcripts into Dedoose, a collaborative qualitative analysis software platform. We collected data between October and December 2021.

Data analysis

Three researchers, the two interviewers (JJ and MB) and a third analyst (MG) experienced in qualitative methods, independently reviewed the data and performed a thematic analysis. The researchers performed both open and axial coding, examining data line by line to identify recurring concepts and assign codes, specifically seeking narratives that offered opportunities to broaden, challenge, or disconfirm our evolving themes.^{22,23} Following this review, the three researchers met to establish a final coding scheme. This final coding scheme was then reapplied to all data independently by JJ and MG. Overall agreement between the two analysts was 88% (3499 codes agreed upon/3965 codes applied). The researchers subsequently further refined the codes into themes. After 10 interviews, the subsequent four interviews yielded no additional insights or counterexamples. At that point, we felt that our sample was sufficient for the study purpose; however, we analyzed the remaining four interviews to ensure diversity of representation and to confirm that no important themes were missed.²⁶

Reflexivity

We remained cognizant that the author group including the three investigators involved in the interviewing, data coding, and analysis (JJ, MB, and MG) largely hail from academic institutions. Additionally, both JJ and MB completed 2-year medical education fellowships. All three investigators involved in the qualitative analysis hold educational leadership roles in their department. JJ and MB actively mentor residents and medical students in scholarship. These commonalities might have yielded homogenous author opinions about the data and analysis. To address this, we used a negative case analysis when we identified outlier data, allowed adjustments of discordant hypotheses as needed, and focused our analysis on what participants actually said rather than implied meanings during coding.²² To enhance the trustworthiness of our analysis, we used memos to record theoretical and reflective thoughts, and these were subsequently discussed during group meetings.^{22,23}

RESULTS

We invited a total of 14 subjects and all agreed to participate. The median age of participants was 32 years (range 28–40 years). Nine participants (64%) were female. Eight participants (57%) had advanced degrees and six (43%) completed a dedicated research elective during their residency training experience. Participants included a mix of current and graduated residents who had gone on to secure a mix of community and academic positions. We report participant demographics in Table 1. The vast majority (13/14) of participants had participated in scholarly work prior to residency. Participants described a range of different scholarly work that they completed during their residency (Table 2).

We identified five general concepts from our participant interviews: (1) motivations for scholarship, (2) value of scholarship, (3) barriers to conducting scholarship, (4) facilitators of scholarly work, and (5) proposed strategies for success. Overall, participants had a positive experience with scholarship. Interestingly, while some entered residency with an intention to perform scholarship, others changed perspectives to become more engaged in scholarship as time went on. As one participant stated “Initially ... it was just to

TABLE 1 Participant demographics (total $n = 14$)

Age (years), median (range)	32 (28–40)
Female gender	9 (64)
Region	
Midwest	4 (29)
Northeast	4 (29)
South	0 (0)
West	6 (43)
Residency format	
PGY-1 to -3	6 (43)
PGY-1 to -4	8 (57)
Current PGY level	
PGY-3	1 (7)
PGY-4	4 (29)
<1 year post-residency graduation	8 (57)
1–2 years post-residency graduation	1 (7)
Immediate postresidency job type	
Community practice	4 (29)
Fellowship	9 (64)
Part-time community/part-time academic	1 (7)
Advanced degree ^a	
Any	8 (57)
Masters	7 (50)
JD	1 (7)
PhD	1 (7)
Completed research elective during residency	6 (43)

Note: Data are reported as median (range) or n (%).

^aA single participant may hold more than one advanced degree.

TABLE 2 Scholarship completed by participants during residency (total $n = 14$)

Type of scholarship	n (%)
Peer-reviewed publications	13 (93)
Textbook chapters	8 (57)
National lectures	4 (29)
Local/regional abstract presentations	11 (79)
National abstract presentations	9 (64)
Digital scholarship	6 (57)

meet the requirements for graduation, but after working on a few projects, I was like 'hey, you know, I actually like this'" (Participant 1).

Motivations for scholarship

Participants identified three main motivations for pursuing scholarship: personal interest, preparation for their future career, and a desire to make an impact. One participant noted "I really found topics that I was interested in ... Had I not, I would have never spent this much amount of time doing a scholarly activity" (Participant 1). Another participant highlighted the impact on preparing for a future career as follows "I like research and that is going to be my niche, so if I'm going to be successful at that, I have to learn how to drive my own collaborative projects" (Participant 4). Beyond motivations focused on themselves, participants also highlighted the importance of making a broader impact. They desired to make a difference and influence the field or future trainees, to leave a mark that would persist after they were gone. As one person aptly put, "... and then you create something that lasts beyond your tenure here" (Participant 13).

Value of scholarship

Participants identified several benefits of scholarship, which included personal fulfillment, advancement of knowledge and skills, developing important relationships, impact on their future career, and external rewards.

Personal fulfillment

Participants reported a sense of personal fulfillment from completing scholarly work. Some commented on the enjoyment they felt in helping others and addressing challenges. Others found satisfaction in having a lasting impact or contributing to the knowledge of the field. For example, one participant noted their appreciation of "how it can actually make an impact in [resident] education and ultimately trickle down to how we care for patients. I think that's been one of my biggest like things I've been so proud of just because I'm like this truly can make a difference" (Participant 1). For some, participating

in scholarship "provided balance" and was a way to offset some of the challenges they faced in their clinical work. For many this sense of personal fulfillment and having a nonclinical endeavor as part of their work positively contributed to their overall well-being.

Advancing knowledge and skills

Participants felt that their involvement in scholarship enhanced their knowledge of both research and clinical medicine as well as generating an increased appreciation of scholarship. By understanding research, they felt they were better able to apply evidence to the clinical practice and felt that they provided higher quality care to their patients in doing so. This knowledge also increased their confidence in their skills as a scholar and clinician. It also gave them an appreciation for the scholarly process and those who are conducting scholarly work. One participant noted that it gave them "the appreciation of how [research] is necessary in the world of medicine and how even if you're not the one doing it, you definitely have to have an understanding for it, to know what's going on and how to apply it your patients in the most up to date, appropriate way possible" (Participant 5).

Developing important relationships

Participants noted that the formation of meaningful relationships with others was an additional benefit from participating in scholarship. From these relationships flowed opportunities, guidance, and support. For some, participating in scholarship help them become "closer" to their mentors and faculty, which they felt increased the value of the relationship. Many also found value in networking and building connections and collaborations that helped them not only achieve their residency goals, but also served as valuable resources for the future, spurring additional work and opportunities. One participant reported that "building a community ... has been really helpful and fruitful ... Now I'm trying to pivot into other fields of research that are doing [this type of work] and it all started because of relationships with public health and these other groups on campus" (Participant 7). Another participant commented, "It helped me meet people that allowed this fellowship to be a thing" (Participant 11).

Impact on future career

Participants noted that conducting scholarship had a significant impact on their career, focusing their professional interests and informing their career decisions. One participant remarked that scholarship, "... really helped me to find my niche" (Participant 12). While some participants went on to pursue academic careers, others noted that their participation in scholarship steered them in different directions, including community practice. As one person put it, "going through the process of my specific projects, really helped me decide where I wanted to end up being ... and that was out in the community" (Participant 1).

Participants also noted that their participation in scholarship often served as a springboard or “jumping off point” to other opportunities and scholarly work. Participants used their opportunities in residency as stepping stones to more impactful work and noted that participation in scholarship during residency often “opened doors” that might not have otherwise been open, furthering their career progression. Additionally, the experience broadened their perspective as to what was possible in their careers. As one participant described:

I think if you would have asked me six or seven years ago, I would never have thought that that would potentially be a career path for me, I would have thought that you're crazy, so I think scholarship in residency just allowed me to think outside the box about what a career would look like that isn't like traditional academic emergency medicine (Participant 7).

External rewards

Finally, participants noted external rewards for their scholarly work. Some commented on receiving outside recognition for their efforts, opportunities to travel and present at national meetings, receiving awards, or being identified in their institution or department as an expert in their area of interest. Recognition also lended credibility. As one participant indicated, “it's allowed me to do a lot of things ... and then also have credibility in things I didn't have credibility in before” (Participant 11). Others noted external rewards of a tangible end-product to be able to point to as an indication of the time and effort they put in. As one participant said, “It's cool having something that you worked on for so long, being published and out there for other people to reference as well” (Participant 1).

Barriers to conducting scholarship

Participants identified three main barriers to engaging in scholarship during residency: lack of time, lack of expertise, and lack of resources. Lack of time and the multiple competing demands of clinical training in addition to any personal responsibilities was particularly challenging. One participant noted, “I think a lot of residents struggle with the time commitment aspect of it and how much time you have to dedicate outside of your [clinical] training to really hone in on that specific skill” (Participant 1). This challenge of time was further compounded by a lack of expertise which meant that it might take a resident even longer to execute a scholarly task. One participant describes this well stating, “it's tough ... I had a couple projects that weren't successful and then you know couldn't get launched off the ground and part of it was like my lack of skills in terms of statistics ... and then the time to like figure out how to learn statistics” (Participant 12). Resources remained another barrier for some, often focused on funding or the availability of research assistants. One person commented on the challenges with smaller projects, noting “if there wasn't the infrastructure for research that one could kind of plug into, that made it harder” (Participant 8).

Facilitators of scholarly work

Participants noted that facilitators of scholarship included both individual and institutional factors.

Individual factors

Individual factors included prior training and experience in research, project management skills, and mindset. Prior training and experience provided participants with foundational knowledge and skills that they could readily apply to scholarly work in residency, thus hitting the ground running. One person described this as follows, “I've had a couple careers before this ... I learned everything from the development of research ideas. I did literature reviews, I identified study designs ... I did data analysis. I learned how to code and use STATA and then I learned the entire IRB process so, when I got here, I was like, 'I know how to do this'” (Participant 13). The majority, but not all, of our participants had at least some experience with scholarship prior to residency. In addition to content knowledge and experience, our participants remarked that process-oriented project management skills such as organization, advanced planning, time management, and regular communication with team members were crucial. One participant summarized these skills by saying, “I am basically the kind of person who just is good at getting stuff done” (Participant 5). Participants commented on certain personality characteristics and mindset that they felt were helpful. They mentioned being a self starter, being determined, having a strong work ethic, maintaining a positive attitude, and not letting setbacks or failure deter them as positive attributes that helped them on their course. One participant commented, “I think, just the determination, I think, really just like sticking to it, no matter how hard it was and no matter the barriers and the challenges we faced was one of the biggest things” (Participant 1).

Institutional factors

Institutional factors included mentorship, dedicated time, and support from program leadership. The importance of mentorship was a commonality expressed by all participants. When considering facilitators of scholarship, one participant stated, “I mean the biggest one is mentorship. I think that's like number one, two, and three ... Expert mentorship is really critical” (Participant 3). Participants noted that mentors not only provided expertise, but also offered opportunities for involvement and helped streamline and simplify the process facilitating resident accomplishment. Additionally, protected time for scholarship was also valued, often in the form of a dedicated research elective, flexible scheduling, or additional time gifted from leadership. This allowed trainees to devote focus and energy to scholarship. One participant described, “I think having some elective time when there was more space to devote to scholarly projects is very helpful” (Participant 4). Participants also found that the support of program leadership was another important facilitator as this could not only enable the allotment of important resources and time, but

also provide the emotional backing to motivate them to persist and see things through to the end.

Proposed strategies for success

Our participants noted that doing scholarship was hard work and offered recommendations for both faculty mentors and future residents engaging in research.

Recommendations to faculty mentors

Key recommendations for faculty included providing opportunities for residents to become involved in scholarship, responsiveness, and promoting resident autonomy. Participants noted that being successful in scholarship was hard work and they greatly appreciated when faculty provided them with opportunities, thereby lowering the bar for entry. As one participant commented, “Even just offering [scholarly opportunities] is helpful, just letting [residents] know the opportunities” (Participant 14). Participants also wanted to remind faculty of the value difference in certain scholarly activities at varying career stages. One participant stated, “My advice would be to remember when there’s opportunities that a resident could get involved in or be an author on, how that could be disproportionately important for them” (Participant 4). Being “available and responsive” was also a strong recommendation to faculty. All the expertise in the world is not helpful if it is not communicated. One participant suggested, “Figure out some system by which you can remain accessible. So [for example] screening through emails may be a problem ... one of my mentors said, ‘You know you can text me if there’s something that requires an urgent response that I haven’t gotten back to you [about]’” (Participant 4). Participants also recommended providing residents with autonomy in their projects to allow trainees to be more deeply involved and feel a sense of ownership of the project. They believed made the experience more meaningful. As one participant described, “I think letting your resident still have that project and still let their vision come into play without kind of taking over and making it your project ... giving the resident the room to actually develop their project or their ideas ... I think that’s really important” (Participant 1). Participants also commented on the importance of balancing directive guidance with autonomy, recognizing that too much autonomy can be detrimental as well and trainees will still need assistance and advice in order to succeed.

Recommendations to residents

For future residents, participants recommended starting early, working on a project they care about, finding good mentorship and being persistent. Participants reflected that doing scholarship was hard work and recommended starting early and being persistent, particularly for larger or more complex projects. One participant stated, “[Consider] a much larger calendar view, if you start a really cool project, it might take three

years, and if you don’t start it as an intern, like too bad” (Participant 10). Another participant described their recommendation for being persistent, “... just expect to have to have continual effort to move it forward ... that it won’t get done in a month or a week, that it takes persistent effort for a period of time, usually” (Participant 8). Nearly all participants emphasized selecting projects that trainees care about. The more vested and motivated residents are, the more likely they are to enjoy the experience, put in the required effort, and achieve their desired outcomes. As one participant aptly put, “[find] something that you’re interested in, and it can make it so much easier to actually be engaged in scholarly activity at that point, because you’re passionate about the topic” (Participant 1). Mentorship was another common theme. Participants recognized that they could not succeed on their own. Seeking out quality mentorship that provided support, opportunities, and expertise was highly recommended with one participant stating, “I think mentorship was one of the biggest things; finding a good mentor who truly cared about a lot of the same things that you did and was able to encourage you on the journey was really helpful” (Participant 6).

DISCUSSION

The ACGME scholarly project requirement exists to ensure all residents gain exposure to and training in the methods and frameworks of scholarship. The quantity and quality of scholarly productivity varies greatly amongst residents, and by examining a sample of residents who were identified as high performers in this space we have gained valuable understanding into the factors which influence resident scholarly productivity.

The majority of our participants had at least some experience in scholarly work prior to residency and were motivated by personal interest, by a desire to make an impact, and in preparation for a future career. It is logical that individual motivations of a resident to be scholarly productive influence success, but the responses of our participants suggested strategies for uncovering latent motivations by relating scholarly productivity to other more widely held aspirations. Our data suggest that productive residents have been successful in connecting their scholarly project(s) to broader goals such as making an impact upon their patients and their training program or becoming more deeply expert in a specific niche within EM. While some will easily perceive the connection between scholarly activity and larger goals, others may benefit from their faculty, mentors, and program leaders highlighting these potential connections. Mentorship beyond the scope of the projects themselves and aimed at linking scholarly work to other professional goals could positively motivate residents toward a greater number and more robust projects.

The value of conducting scholarship identified by our participants, who went on to diverse careers including both academically and community oriented positions, lends evidence to the importance of supporting and potentially augmenting this experience for all trainees. Rewards of fulfillment and making an impact on the field can lead to a sense of personal achievement, which may be an important factor in combating burnout, a problem highly prevalent in

medicine.²⁷⁻³⁰ Indeed our participants noted that performing scholarly work positively contributed to their wellness. Additionally, the advancement of not only scholarly knowledge and skills, but clinical knowledge and skills as well, is an important benefit as all medical trainees are seeking to grow in this area. Understanding that scholarly work can improve clinical skills may encourage program leadership to deepen this experience for all trainees, supporting a multimodal approach to education, which can augment learning.³¹

This study also demonstrated that scholarly work impacts career planning and achievement. Our participants felt a strong sense that their scholarly work in residency informed their future career aspirations. For some, scholarly work begot more scholarly work, affording them success, recognition, and credibility and affirmed their desire to make scholarship an important part of their future career goals. This is aligned with the core tenets of social cognitive career theory.³²⁻³⁴ Importantly, though, our data also suggested that some highly productive residents concluded that a future in academic medicine was *not* their interest. We feel this is a particularly valuable finding: You do not have to *like* broccoli, but you have to try it.

Our data further supported previous evidence regarding impediments to scholarly productivity, and was informative as having come from residents who successfully transcended them.³⁵⁻³⁷ Insufficient time due to competing imperatives, lack of expertise, and a dearth of resources (such as financial limitations, lack of an institutional culture, lack of interested and qualified mentors) were identified, which echo previous studies.³⁵⁻³⁷ It was telling that the importance of institutional culture and resources (such as protected time, funding) was identified by our highly productive subjects. Programs might do well to highlight and facilitate resident access to the resources that are available and to dispel notions that scholarly productivity is hamstrung at a particular institution due to lack of particular resources. It is not surprising that the converse of these barriers (protected time, prior experience, quality mentorship, program leadership support) was identified by our participants as facilitators. Augmenting modifiable facilitators may be another way for institutions to enhance resident scholarly activity. Our participants also noted a number of individual factors that facilitate their success such as work ethic, project management skills, and mindset. And while personality traits may not be innately modifiable at this stage in life, communicating this information to trainees may help set expectations and modulate behaviors to enable success.

Our participants' reflections acknowledged the importance of qualified, invested mentors, not only as conceivers and drivers of projects, but also in providing scholarly opportunities and creating meaningful roles for residents. This is aligned with prior work highlighting the value of mentorship for scholarly success.^{32,35} Mentors may do well to lower the bar of entry into scholarly activity for trainees and then once involved empowering them to take ownership of important pieces of the project. Residents may do more and higher quality projects if their mentors support them in essential roles. In addition to securing good mentorship, our participants' advice to residents conducting scholarly work to start early and be persistent may seem like common sense, but is worthwhile communicating to residents at the beginning of their training to frame expectations. Providing education

on scholarship including expectations and advice early in their careers, for example, during intern bootcamp, may prime residents to succeed. Additionally, our findings highlight the benefit of residents working on projects that they are passionate about. By encouraging trainees to reflect and identify their interests, programs can better facilitate mentorship and projects that align with these interests.

LIMITATIONS

This study has limitations that must be considered. We interviewed a small sample of residents largely from academic institutions within a single specialty, identified based on faculty impressions of their scholarly activity. It is possible that we may have missed important information from residents not interviewed. Additionally, we did not interview residents who may have struggled to conduct scholarship during training and so this perspective is missing. Interview studies are limited by recall bias and several response biases, including acquiescence bias, courtesy bias, and social desirability bias. Despite these limitations, we believe this study provides important insights into how to be successful in scholarship during residency that may be useful to program leadership and resident trainees alike.

CONCLUSIONS

Participants in this study highlighted personal benefits of participating in scholarly activity during residency training and the influence it had on their careers. They also articulated institutional, individual, and mentor factors which caused challenges and recommended strategies for success. These results can inform residency programs seeking to enhance the scholarly experience of their trainees.

AUTHOR CONTRIBUTIONS

Jaime Jordan, Mark Curato, Jonathan S. Ilgen, Laura R. Hopson, Samuel O. Clarke, Anne K. Chipman, Adam Janicki, and Michael Gottlieb conceived and designed the study. Jaime Jordan and Max Berger acquired the data. Jaime Jordan, Max Berger, and Michael Gottlieb analyzed and interpreted the data. Jaime Jordan, Max Berger, Mark Curato, and Michael Gottlieb drafted the manuscript. All authors contributed to the critical revision of the manuscript for important intellectual content.

CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

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REFERENCES

1. ACGME program requirements for graduate medical education in emergency medicine. Accreditation Council for Graduate Medical Education. June 13, 2020. Accessed August 29, 2022. https://www.acgme.org/globalassets/pfassets/programrequirements/110_emergencymedicine_2021.pdf
2. Summers RL, Fish S, Blanda M, Terndrup T. Assessment of the "scholarly project" requirement for emergency medicine residents: report of the SAEM Research Directors' Workshop. *Acad Emerg Med*. 1999;6(11):1160-1165.
3. Levine RB, Hebert RS, Wright SM. Resident research and scholarly activity in internal medicine residency training programs. *J Gen Intern Med*. 2005;20(2):155-159.
4. Kane BG, Totten VY, Kraus CK, et al. Creating consensus: revisiting the emergency medicine resident scholarly activity requirement. *West J Emerg Med*. 2019;20(2):369-375.
5. Geyer BC, Kaji AH, Katz ED, Jones AE, Bebartta VS. A national evaluation of the scholarly activity requirement in residency programs: a survey of emergency medicine program directors. *Acad Emerg Med*. 2015;22(11):1337-1344.
6. Paxton J, Messman A, Harrison N, Malik A, Burke R, Levy P. Resident research in emergency medicine: an introduction and primer. *West J Emerg Med*. 2020;21(5):1118-1122.
7. Rivera JA, Levine RB, Wright SM. Brief report: completing a scholarly project during residency training. *J Gen Intern Med*. 2005;20(4):366-369.
8. Takahashi O, Ohde S, Jacobs JL, Tokuda Y, Omata F, Fukui T. Residents' experience of scholarly activities is associated with higher satisfaction with residency training. *J Gen Intern Med*. 2009;24(6):716-720.
9. Ledford CJ, Seehusen DA, Villagran MM, Cafferty LA, Childress MA. Resident scholarship expectations and experiences: sources of uncertainty as barriers to success. *J Grad Med Educ*. 2013;5(4):564-569.
10. Carek PJ, Dickerson LM, Diaz VA, Steyer TE. Addressing the scholarly activity requirements for residents: one Program's solution. *J Grad Med Educ*. 2011;3(3):379-382.
11. Arora V, Bell PF, Hagberg S. Cultivating change: engaging residents in research. *Int J Psychiatry Med*. 2020;55(5):376-383.
12. Panchal A, Denninghoff K, Munger B, Keim S. Scholar quest: a residency research program aligned with faculty goals. *West J Emerg Med*. 2014;15(3):299-305.
13. Standish KR, Gonzalez SC, Roy V, McGuire CM, Barnett KG, Saper RB. Resident outcomes and perspectives over 2 years of a new scholarship curriculum. *Fam Med*. 2021;53(6):461-466.
14. Kanna B, Deng C, Erickson SN, Valerio JA, Dimitrov V, Soni A. The research rotation: competency-based structured and novel approach to research training of internal medicine residents. *BMC Med Educ*. 2006;6:52.
15. Hartman N, Jordan J, Gottlieb M, Mahler SA, Cline D. A model research curriculum for emergency medicine residency: a modified Delphi consensus. *AEM Educ Train*. 2021;5(2):e10484.
16. Regan L, Stahmer S, Nyce A, et al. Scholarly tracks in emergency medicine. *Acad Emerg Med*. 2010;17(S2):S87-S94.
17. Jordan J, Hwang M, Coates WC. Academic career preparation for residents - are we on the right track? Prevalence of specialized tracks in emergency medicine training programs. *BMC Med Educ*. 2018;18(1):184.
18. Jordan J, Hwang M, Kaji A, Coates W. Scholarly tracks in emergency medicine residency programs are associated with increased choice of academic career. *West J Emerg Med*. 2018;19(3):593-599.
19. Stevenson MD, Smigielski EM, Naifeh MM, Abramson EL, Todd C, Li ST. Increasing scholarly activity productivity during residency. *Acad Med*. 2017;92(2):250-266.
20. Wood W, McCollum J, Kukreja P, et al. Graduate medical education scholarly activities initiatives: a systematic review and meta-analysis. *BMC Med Educ*. 2018;18(1):318.
21. Rothberg MB. Overcoming the obstacles to research during residency: what does it take? *JAMA*. 2012;308(21):2191-2192.
22. Ravitch SM, Carl NM. *Qualitative Research. Bridging the Conceptual, Theoretical, and Methodological*. Sage Publications; 2016.
23. Denzin NK, Lincoln YS. *The SAGE Handbook of Qualitative Research*. 5th ed. SAGE Publications; 2017.
24. Nowell LS, Norris JM, White DE, Moules NJ. Thematic analysis. *Int J Qual Meth*. 2017;16(1):160940691773384.
25. Korstjens I, Moser A. Series: practical guidance to qualitative research. Part 4: trustworthiness and publishing. *Eur J Gen Pract*. 2018;24(1):120-124.
26. Malterud K, Siersma VD, Guassora AD. Sample size in qualitative interview studies: guided by information power. *Qual Health Res*. 2015;26(13):1753-1760.
27. Rothenberger DA. Physician burnout and well-being: a systematic review and framework for action. *Dis Colon Rectum*. 2017;60:567-576.
28. Ishak WW, Lederer S, Madndili C, et al. Burnout during residency training: a literature review. *J Grad Med Educ*. 2009;1:236-242.
29. Maslach C, Jackson SE, Leiter MP, Schaufeli WB, Schwab RL. *Maslach Burnout Inventory™ (BMI)*. Mind Garden, Inc. c2022. Accessed August 29, 2022. <https://www.mindgarden.com/117-maslach-burnout-inventory>
30. Jordan J, Watcha D, Cassella C, Kaji AH, Trivedi S. Impact of a mentorship program on medical student burnout. *AEM Educ Train*. 2019;3(3):218-225.
31. Jordan J, Elder J, Uijtdehaage S, Coates WC. Dual learning in an emergency medicine clerkship improves student performance. *J Emerg Med*. 2016;50(3):471-476.
32. Jordan J, Coates WC, Gottlieb M, Soares WE 3rd, Shah KH, Love JN. The impact of a medical education research faculty development program on career development, through the lens of social cognitive career theory. *AEM Educ Train*. 2020;5(3):e10565.
33. Fouad NA. Social cognitive career theory introductory review. In: Swanson JL, Fouad NA, eds. *Career Theory and Practice: Learning through Case Studies*. 3rd ed. SAGE Publications Inc.; 2014.
34. Bakken LL, Byars-Winston A, Wang M. Viewing clinical research career development through the lens of social cognitive career theory. *Adv Health Sci Educ*. 2006;11:91-110.
35. Jordan J, Coates WC, Clarke S, et al. The uphill battle of performing education scholarship: barriers educators and education researchers face. *West J Emerg Med*. 2018;19(3):619-629.
36. Yarris LM, Juve AM, Artino AR Jr, et al. Expertise, time, money, mentoring, and reward: systematic barriers that limit education researcher productivity - proceedings from the AAMC GEA workshop. *J Grad Med Educ*. 2014;6(3):430-436.
37. Zibrowski EM, Weston WW, Goldszmidt MA. 'I don't have time': issues of fragmentation, prioritisation and motivation for education scholarship among medical faculty. *Med Educ*. 2008;42(9):872-878.

SUPPORTING INFORMATION

Additional supporting information can be found online in the Supporting Information section at the end of this article.

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