Physician resilience: a grounded theory study of obstetrics and gynaecology residents

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OBJECTIVE Enhancing physician resilience has the promise of addressing the problem of burnout, which threatens both doctors and patients and increases in residents with each year of training. Programmes aimed at enhancing physician resilience are heterogeneous and use varied targets to measure efficacy, because there is a lack of clarity regarding this concept. A more robust understanding of how resilience is manifested could enhance efforts to create and measure it in physicians in training.

METHODS A qualitative study used grounded theory methodology to analyse semi-structured interviews with a purposive, intensity sample of obstetrics and gynaecology residents in an urban academic health centre. Longitudinal engagement through two sets of interviews 3-6 months apart allowed for variations in season and context. Thematic saturation was achieved after enrollment of 18 residents representing all 4 years of postgraduate training. A three-phase coding process used constant comparison, reflective memos and member checking to support the credibility of the analysis.

RESULTS A conceptual model for resilience as a socio-ecological phenomenon emerged. Resilience was linked to professional identity and purpose served to root the individual and provide a base of support through adversity. Connections to others inside and outside medicine were essential to support developing resilience, as was finding meaning in experiences. The surrounding personal and professional environments had strong influences on the ability of individuals to develop personal resilience.

CONCLUSIONS Physician resilience in this context emerged as a developmental phenomenon, influenced by individual response to adversity as well as surrounding culture. This suggests that both programmes teaching individual skills as well as systematic and cultural interventions could improve a physician’s capacity to thrive.
INTRODUCTION

High rates of physician burnout are alarming given their implications for the quality of life of doctors and the care of patients.1,2 Physician burnout increases medical errors and decreases quality of care.3 Burnout is associated with depression and suicide,4 and levels of burnout rise with each year of medical training.5 Interventions to decrease physician burnout have proliferated, but require stronger connections to theory and evidence.6 Burnout is an indicator of chronic stress and institutional factors that enhance the stress of the work of medicine must also be addressed. However, enhancing physician resilience has been targeted as an important part of the path forward.7,8 The phenomenon of resilience has not been well studied among physicians. A recent review of interventions to increase resilience demonstrated heterogeneous methods and measurements, which the authors conclude is a result of a lack of clarity around the concept.9

Resilience can be defined simply as 'thriving despite adversity'.10 Resilient individuals display common behaviours and have common traits across a range of circumstances.

Although a resilient person may be easily recognised, researchers argue over whether resilience is a fixed personal trait, or rather a skill that can be learned. Studied first in children who thrive in difficult environments, resilience has been observed in disparate settings and emerges as a dynamic interplay between internal and external factors.11 Given the presence of workload stress, difficult events and emotional demands, it is important to train resilient health care workers who have the long-term ability to thrive despite adversity.12,13 Although certain individuals may be predisposed towards resilience, it has been suggested that resilience develops only through engagement with adversity.14 The social factors that promote the development of resilience are presumed to be important, but are incompletely understood.14

Dunn et al.15 created a conceptual model for resilience among medical students, represented by a gas tank with inputs that raise or lower the fuel level available for coping. This model hints at the way that internal and external factors might interact within an aspiring physician, but this model may not translate to physicians in residency training. Factors germane to the training of physicians have been implicated, such as work hours, sleep deprivation, clinical working environments, time pressures, the personal challenges of working with sick, difficult patients and feeling isolated.16,17 Disengaging from responses to these challenges may be one of the reasons that physicians in training develop burnout. The medical culture that prizes service, excellence, competence, expertise and compassion may also encourage trainees to pursue extremes of self-deprivation, omnipotence and perfectionism, leading to personal distress.17 Understanding how trainees and physicians remain engaged and empathetic despite these stressors may yield insight into how physician resilience develops.

Obstetrician-gynaecologists (OBGYNs) face unique challenges as a result of the physical, emotional and intellectual demands of the work, and as a group suffer high rates of burnout.18 OBGYN residents managing these demands and performing well in the clinical environment are likely to have developed resilience. Initial analysis of these interviews suggested that resilience was strongly linked to professional identity, growing through engagement with adversity and fuelled by the resident’s values as well as connections to others.19 This study represents continued engagement with this group over time to allow for circumstantial and seasonal variations, and also observe positive adaptations to earlier adversity.13,20 The goal of the study was to create a conceptual model of resilience in the context of OBGYN residency.

METHODS

This is a qualitative study using a grounded theory to allow inductive identification of patterns through a constant comparison approach to analysis.21 The research team includes a residency programme director (AFW), two narrative medicine instructors (A-AJ and AR), a resident (AWH), and a PhD educator with expertise in qualitative methods (APS). The setting for the research is a large urban, academic medical centre.

The rationale for selecting OBGYN residents for this study was based on the principle of intensity sampling, a theoretical approach that selects those with an ‘intense but not extreme’ experience of resilience.21,22 Research suggests that resilient individuals can be identified by their behaviour and by the way they manage the demands of work in a clinical context.23 Given high rates of burnout
among OBGYN residents, participants were sampled from those residents identified by routine faculty members and peer evaluations as progressing appropriately in training. They were contacted privately by the interviewers (A-AJ and AR) and each subject was assigned a unique identifier. After obtaining informed consent, the interviewers asked participants about their experiences using a semi-structured interview guide. Interview questions were based on domains identified in studies of other populations as relevant to resilience (Appendix S1). Follow-up interview questions were informed by the analysis of the initial interviews (Appendix S2). Interviews lasted 45-60 minutes and were recorded and professionally transcribed. Each participant’s unique identifier linked the two transcripts for study participants. Recruitment continued until thematic saturation. Ultimately, 18 residents in postgraduate year (PGY) 1 through to PGY 4 (five PGY 1, six PGY 2, three PGY 3 and four PGY 4) were enrolled. A second interview with each participant took place 3-6 months later, lasting 30-60 minutes.

Interviewers de-identified the transcripts before they were shared with other members of the research team. Two coders read each transcript and assigned inductive, content-driven codes to text segments. Agreement between coders was achieved through serial discussions, and a separate, uniform codebook was created for each round of interviews. Constant comparison of the analysis with subsequent interviews led to the codes and categories in Tables 1 and 2. Memos tracked insights and explored reflexivity in the analysis. Themes were observed as ideas appeared across the codes and categories of data, which created a conceptual model in this context.

Thematic saturation was reached when researchers understood not only the concepts but also the meaning of the participants’ reflections, and occurred after 16 interviews. Two subsequent interviews were explored to confirm the analysis. The final thematic coding phase generated an explanatory framework for the relationships between the categories. Initial analysis of the first interview data is described elsewhere. Insights from that analysis informed the conceptual model of resilience that was confirmed and expanded in this analysis (Figs. 1 & 2). Member checking involved gathering all the residents together as a group after both rounds of interviews, and describing the coding and thematic analysis, the conceptual model and anonymous exemplar quotes. Residents’ reactions to the interpretation of the data supported the credibility of the analysis. The New York University School of Medicine Institutional Research Board granted ethical approval (s16-01648).

RESULTS

Four major themes emerged from the analysis. These are presented sequentially and followed by a conceptual model that describes resilience in this context.

Resilience grows along with professional identity

Growing professional identity is the core construct of resilience. Residents react to challenges by examining their own place as physicians. Understanding that obstacles are a part of the path to professional progress provides reassurance and direction. Tensions between the values of the profession and the daily struggles are threatening. A few months into training, one resident said, the ‘bright and shininess had worn off, but there was still a lot of new stuff to learn’ (PGY 1, Subject 1). The stress of the work is compounded by a demanding and complex system. Looking towards future plans is a distraction and provides an explanation for these challenges. One chief resident said, ‘I’m going to be an attending. I’ll have a nicer life … Thinking about the future is a big motivation’ (PGY 4, Subject 3). Residents find an outlet through focusing on other learners. One PGY 2 subject described ‘feeling somewhat competent’ when teaching others, which ‘feels nice for an ego that’s repetitively bruised’ (PGY 2, Subject 22). By redirecting their own struggles to teaching others, residents align with altruism, a professional value they espouse, rather than focusing on their own shortcomings.

A significant source of stress is making mistakes. When these high-achieving trainees fail to live up to their own expectations, they doubt their fitness for the profession. When they can see mistakes as part of learning, it protects their professional identity. Senior residents often express that they have learned to tolerate their mistakes this way. One chief resident described her inner monologue: “I’m a terrible doctor, I’m a bad person”, blah, blah, blah. Intellectually, it’s, “No, you made a mistake. That’s an opportunity to improve” (PGY 4, Subject 8). When they cannot see their obstacles as part of progress on a professional journey, they may
## Table 1  Major categories from initial interviews with residents

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<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Representation in model</th>
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<th>Exemplar quote</th>
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<tbody>
<tr>
<td><strong>Being a doctor</strong></td>
<td>Core construct weaving identity to engagement in work</td>
<td>Professional identity represented as the trunk of the tree</td>
<td>• Professional identity</td>
<td>“Do the right things, doing good for other people because that’s what you’re put in the world to do. A lot of justification for all the hardship that I’m going through is that.” (PGY-1, Subject 2)</td>
</tr>
<tr>
<td><strong>Background</strong></td>
<td>Genesis to pursue profession connects to positive models within family or close contacts</td>
<td>Background in family values and role models represented in the roots</td>
<td>• Family</td>
<td>“I also spent a lot of time looking up to my dad. More than anything I think that’s what pushed me and [developed] my sense of responsibility and things seriously and taking myself seriously.” (PGY-1, Subject 18)</td>
</tr>
<tr>
<td><strong>Values</strong></td>
<td>Expectations of others and self to reach the high ideals espoused by the medical profession</td>
<td>Aspirational values represented by the sun, connection to patients and the work represented by taproot</td>
<td>• Perceptions and expectations • Altruism responsibility, perfectionism, compassion</td>
<td>“In this system, you have a lot of difficulties to do just small things. You say like, oh I hate this place, I hate this place. And then, when patients say, oh thank you so much for taking good care of me, that’s worth every second I said I hate this place.” (PGY-4, Subject 3)</td>
</tr>
<tr>
<td><strong>Fuel</strong></td>
<td>Finding motivation through navigating a path forward</td>
<td>Persistence, motivation and effort represented as leaves which provide fuel</td>
<td>• Persistence • Self-directedness • Pride in growth • Planning/control • Positive attitude</td>
<td>“Blinders are motivating. I’m not a quitter. This is what I’ve committed to and there’s a light at the end of the tunnel.” (PGY-2, Subject 22)</td>
</tr>
<tr>
<td><strong>Support system</strong></td>
<td>Relationships provide significant support and also create some tensions</td>
<td>Additional supports provided by friends and colleagues represented by expanding root bed</td>
<td>• Family • Significant other • Teamwork • Mentors • Relationships</td>
<td>“As hard as residency is, we get a lot of support from each other. I’ve got your back when sh**t hits the fan.” (PGY-2, Subject 6)</td>
</tr>
<tr>
<td><strong>Attention to self</strong></td>
<td>Awareness of needs and personal challenges</td>
<td>Coping mechanisms and other ways of adapting represented as leaves of the tree</td>
<td>• Coping strategies • Reflection • ‘Normal people’ • Self-awareness</td>
<td>“When I’m walking to work, I try to be conscious of the fact that I’m gonna have to portray the kind of person I want to be for the next 12 to 14 hours or 24 hours. It’s being your ideal self all the time.” (PGY-2, Subject 20)</td>
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not demonstrate resilience. One junior resident asked if ‘there is some sort of like end of the tunnel that I can’t see’ (PGY 2, Subject 20). A graduating resident reported feeling like she must do ‘everything on a very particular schedule and never falling off of that lest you be a failure’ (PGY 4, Subject 10). As demonstrated in these two statements, burnout comes when the struggles cannot be connected to progression along a professional path.

Environment influences developing resilience

Relationships with colleagues play a particularly strong supporting role through discord and uncertainty. Residents use metaphors of teams and soldiers in trenches to describe these relationships. Within their class groups, they can admit when they feel less sure of themselves. One chief resident said:

We’re in this war. You’re in battle with these people. You know them so well. I know when one of my co-residents is upset about something even if they are trying to hide it. I will pull them aside into a private room and cry, hug, vent and scream or whatever it is. (PGY 4, Subject 14)

But acknowledging vulnerability in this way is only possible in privileged relationships. The medical culture outside of these safe places, even between members in different years of training, reinforces rigid hierarchies and discourages acknowledging weakness.

After a lifetime of academic successes, medical school graduates begin residency ‘lowest on the totem pole’ (PGY 4, Subject 14). Competitive feelings are common, as one junior resident described here. She compared herself with others. ‘I’m always wondering where do I stand compared to everybody else? How do people see me compared to X, Y and Z?’ (PGY 2, Subject 6). Feelings of mistrust and competition are amplified by a demanding work environment. Residents want to look out for each other, but fear that this may come at their own expense. After covering for a sick colleague, one resident wondered, ‘Why can’t I have this time for myself? Why can’t I just have a day? Why can’t I leave early?’ (PGY 2, Subject 6).

As residents strive towards these hyperbolic professional ideals, they fear appearing ‘weak or emotional’ (PGY 3, Subject 4) by admitting struggles or asking for help. In the privacy of the interviews, many describe positive experiences with mental health professionals. But open communication about this kind of vulnerability is uncommon. When these reflections were shared in the context of member checking in the research project, it generated feelings of relief that emerged in the follow-up interviews. One resident put it, ‘Apparently, everyone is freaking out internally just as much as I am and no one’s talking about it’ (PGY 2, Subject 22). One PGY 4 resident said, ‘You saw yourself in every response. I wasn’t number 53, but I said virtually the same thing, right?’ (PGY 4, Subject 14). In the wake of recognising the limits of others, the residents described being more willing to share their anxieties and struggles. They recognised that this was different to their

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<tbody>
<tr>
<td>Tensions</td>
<td>Experiences that challenge expectations and ideals</td>
<td>Clouds and rain represent adversity that interfere with reaching aspirations but also provide nourishment to growing resilience</td>
<td>• Values conflicts • Burnout • Mental health • Difficult clinical material • End of life</td>
<td>“Being okay with the imperfection and uncertainty is something that is a hard thing for me to do. We forget all the time that it’s okay to be imperfect and not have all the answers all the time, not to be able to do everything for everyone.” (PGY-2, Subject 5)</td>
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Table 2  Major categories emerging from 3 to 6 month follow-up interviews with residents

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<tbody>
<tr>
<td>Professional development</td>
<td>Recognizing growing competence, focusing on future plans and identifying role models help balance stresses.</td>
<td>The tree representing resilience grows within the intersection between professional and personal identities</td>
<td>• Competence • Responsibility • Learning • Growth • Identity</td>
<td>“You realize that you learned a lot and you have a new skill set and a new knowledge set that you didn’t have and now I’m like, “Oh, I could actually go out into the world and do something if I wanted to.”” So that’s kind of cool. (PGY-3, Subject 9)</td>
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<tr>
<td>Work community</td>
<td>Medical relationships provide strong social bonds but also reinforce hierarchy, competition and high expectations.</td>
<td>Circles surround the tree as it grows representing the local medical environment as well as larger societal pressures on doctors</td>
<td>• Social support • Role models • Feedback • Altruism • Normalization</td>
<td>“You’re in battle with these people. I know when one of my co-residents is upset, even if they are trying to hide it. I will pull them aside. If they need to cry, we cry. If they need a hug or vent and scream, we do that.” (PGY-4, Subject 14)</td>
</tr>
<tr>
<td>Work challenges</td>
<td>Practical issues with the demanding job as well as interpersonal conflict and personal struggles.</td>
<td>Clouds and rain represent adversity that interfere with reaching aspirations but also provide nourishment to growing resilience</td>
<td>• Complexity of case • Conflict • Mistakes • Fear • Anxiety • Imperfections • Burnout</td>
<td>“I’m human and I’m gonna make mistakes. As terrible as it feels and as dumb and stupid as I feel every time... not letting that bring me down into a host of other negative feelings.” (PGY-1, Subject 23)</td>
</tr>
<tr>
<td>Work engagement</td>
<td>Finding rewards within the work through connections to patients, teammates and positive outcomes.</td>
<td>Deepening connections to patients and the work are represented in the taproot that stabilizes the tree</td>
<td>• Fun at work • Engagement • Patients • Hope • Motivation</td>
<td>“Being able to make the decisions and take care of the patients. That has helped to motivate me to see the end. I know that I can provide good quality service to people that need it.” (PGY-2, Subject 12)</td>
</tr>
<tr>
<td>Life outside</td>
<td>Sacrifices and trade-offs exist both in and out of work as residents navigate these boundaries.</td>
<td>Circles surround the tree as it grows representing immediate family and close friends, then local community and</td>
<td>• Sacrifices/trade-offs • Personal challenges • Home life pressures • Dating • Non-medical relationships</td>
<td>“This rotation coincides with [a holiday]. During the day I can’t get much sleep because there are other obligations. So it’s just going from work to whatever I have to do.</td>
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customary way of communicating with each other, even though they endorsed being a closely knit group. As one said, ‘it’s just weird that we don’t talk to each other about it’ (PGY 3, Subject 4).

These countervailing sentiments demonstrate how the relationships among residents both offer support and discourage each other from thriving.

Table 2 (Continued)

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<tbody>
<tr>
<td>Strategies and awareness</td>
<td>Growing confidence and normalization of struggles in residency supports individualization of coping approach.</td>
<td>finally larger social forces, all of which influence individual identity</td>
<td>• Social support</td>
<td>during the day at home. (PGY-1, Subject 2)</td>
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<td></td>
<td></td>
<td></td>
<td>• Flexibility</td>
<td>“I need eight hours of sleep. I need to go for a run. I need to read a book. All of these things that I don’t know that everyone else needs but I do know that other people also are thinking [the burden of residency] might be just too much.” (PGY-2, Subject 20)</td>
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</table>

Figure 1 Conceptual model of resilience in residents. Like a tree, resilience has roots, branches and leaves and needs nourishment from its environment. The roots of resilience in this context are personal and family values, as well as connections to the medical community and role models. The plant grows upwards in the direction of professional ambitions and must deepen its roots through personal connections to patients and the work. Leaves nurture this growth based on personal characteristics such as persistence and the development and utilisation of coping skills. Storms of uncertainty and adversity shake the tree, but ultimately provide necessary nourishment, strengthening it and providing fuel for growth. (Reprinted with permission.)

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Residents must balance personal and professional selves dynamically

Finding a flexible and dynamic balance between personal and professional lives is essential. Each resident tells a different story about their individual personal identity outside of medicine. In speaking about sources of support outside of work, they often use protective language. They speak of bubbles, boundaries and balancing out negative work experiences with positive experiences in their personal lives. As one intern said, ‘You can have a really crappy day and then still go out to dinner and be a fun person with your friends and then go home and reflect on how your day was on your own time’ (PGY 1, Subject 17). One chief resident described it as ‘(an) anal retentive OCD thing, checking the boxes and seeing that I did all the things. I have a running to-do list for every day. Did you take your vitamins today? Check’ (PGY 4, Subject 14). Each resident does this accounting differently, responding to work trade-offs and sacrifices of personal time, hobbies and relationships.

Setting boundaries helps manage stress but also has a protective role for an ego under siege. One resident reminded herself, ‘You’re gonna do your best at everything, but you also have to know that this is just a part of who you are. It’s not your whole; you can’t have your whole self-worth wrapped up in this one test score or this one research project’ (PGY 2, Subject 5). They often speak with envy about ‘normal people’ who do not work in medicine, whose lives they imagine are unencumbered by these professional pressures. They speak about trying to ‘do whatever it is that makes you a person outside of residency’ (PGY 2, Subject 12). But in practice, personal lives generate their own struggles and limitations, and rigid boundaries are illusory. One resident said, ‘Personal and professional lose their black and white boundaries’ (PGY 1, Subject 2). Several senior residents describe feeling proud of the times when they had to prioritise work over home and also seeing the ways that they have individual choices in navigating this balance. Identifying the space where professional and personal identities can overlap, and making trade-offs, is important. It is through self-awareness, acceptance and making concessions that they are able to remain engaged in the work at the same time as also feeling connected to their personal identity.

Struggles distract from engaging with meaningful aspects of work

Navigating the aforementioned struggles has the potential to distract from engaging with patients and finding meaning in the work. Residents report that...
connection with patients is the *sine qua non* of finding meaning in their work. However, many of the struggles the residents describe are around basic human needs for sleep and self-esteem and acceptance, and so connecting with patients can seem less pressing. One intern said, ‘There’s not really much time. It’s not that I lack the compassion for them. I just don’t think about it. I think that might be a factor of the stress of the job and just the burden of how much there is to do’ (PGY 1, Subject 18). They describe feeling numb to the suffering around them. As residents approach the end of residency, with greater confidence in their skills and evolved professional identity, they are more likely to describe meaning in their connections with patients. One is surprised to remember that ‘interacting with patients is what actually brings me joy and professional satisfaction’ (PGY 4, Subject 8).

One resident observed a connection between resilience and empathy, describing resilience as the ability to ‘have compassion when you don’t think you could muster any up, to be able to understand other people’s needs before yours’ (PGY 2, Subject 6). If residents accept their own humanity it makes it easier to leave room for the humanity of their patients. As one resident said, ‘You learn as a doctor to realize that everyone’s coping process is different. It’s a nice reminder that applies to you and not just to the people you take care of’ (PGY 4, Subject 14). Thus, it seems that navigating the struggles to support the physician’s growth results in a closer engagement with the work. By tolerating the distance between the professional ideals and the complicated reality of medical training, the residents are able to grow even more capacity for resilience.

### Conceptual model of resilience in residents

The model for resilience emerging from these data portrays resilience as a tree (Fig. 1): the trunk represents the core construct of being a doctor. This growing professional identity is supported by connections within and outside the work and must reach towards professional ideals at the same time weathering the storms of adversity. This model continued to resonate through the follow-up interviews, with expanded acknowledgement of the environment within which the tree grows (Fig. 2). Concentric circles of personal and professional culture influence its growth. Factors within the family and work community, as well as society at large, can nourish or inhibit the growth of this capacity for resilience.

### DISCUSSION

The conceptual framework for resilience in OBGYN residents emerging from this analysis presents resilience as a capacity to connect authentically with the work that is influenced by personal and professional surroundings. Resilience is rooted in the doctor’s professional identity and grows as residents engage with adversity and finding personal meaning in their work. Fuelled by the individual’s dedication to reaching professional goals as well as personal habits, physician resilience at this stage of training requires support from the surrounding culture to develop. This model for resilience suggests both individual and collective actions may be needed to create an environment in which physicians thrive.

Many of the elements of resilience emerging from these data have been described in other populations, including the importance of positive attitude, social supports and physical activity. Some elements that are common in other resilient individuals, such as a strong spiritual base, were largely absent from this cohort.9 The novel framework for how these forces influence resilience bears resemblance to social ecological models of human development. In this model, a person grows within concentric circles representing microsystems and enlarging macrosystems within the family, community and society.27 The implication of this resemblance is that the surrounding culture within which a physician grows has a significant impact on his or her development. This research adds to our understanding of how resilience is manifested in an environment where burnout is endemic.

The simple conceptual model of the growing tree resonated with participants as well as others working in the medical community. As with all qualitative studies, this rich description may not be easily generalised to other settings, but nonetheless gives insights that can inform future investigation. The trustworthiness of the data is strengthened by the rigorous analytic process involving multiple coders as well as member checking and triangulation of the data.

The social and organisational contexts of medicine play an important role, and medical culture may create toxic counter-pressures in the effort to build a more resilient workforce.14,18 Additionally, the individual process of making meaning from
experience and tolerating the stresses of the work, and exploring conflicts that may lead to moral injury, is essential to the development of a resilient physician.\textsuperscript{11} This resonates with calls for action around burnout that recognise both individual and organisational responsibility to address this problem.\textsuperscript{6,28}

The research focuses on the experiences of a group of participants in a single urban, academic training environment in one specialty. This design allowed identification of common patterns and processes of resilience to develop, but is likely to have implicated factors and values that may not resonate across specialties and contexts.

Researchers performing the interviews were not core faculty members of the residency training programme, in order to reduce pressure on residents to participate or to answer questions in a socially desirable way. Because of the presence of the programme director of the research team, identifying details in the transcripts were removed before analysis to protect the subjects’ confidentiality. Some meanings may have been lost or obscured through this process. The background of the research team in narrative medicine informed the lens through which they explored the stories shared by the participants and the analysis.

An unanticipated outcome of the research project was the way that hearing each other’s experiences through the process of member checking allowed residents to recognise that their private struggles were similar to those of others. This had a positive impact on the residency culture and suggests that some of the toxic strains in the medical culture can be challenged in local settings by encouraging discussion of shared experiences. The importance of social connections as an important aspect of resilience in medical education has been described.\textsuperscript{14} Curricular interventions that support processing experiences and finding meaning could be beneficial to individual development. An example is narrative medicine workshops, where reflective discussions are used to open conversations about individual experiences.\textsuperscript{29,30} Community building by creating structures to support effective mentorship and retreats or other programmes to enhance camaraderie within the residency programme may also be supportive. Peer support programmes that help physicians process their experiences when patients suffer adverse outcomes are important components of a positive culture for learning. The overlapping circles of personal and professional identity remind us that residents are young adults, building lives in and out of work, and may benefit from programmatic structure that allows autonomy and flexibility through scheduling. There may also be a role for creating safe spaces and authentic opportunities for unstructured connection.\textsuperscript{14}

This conceptual model for physician resilience may help in identification of theoretically valid, evidence-based interventions to enhance resilience, and the selection of tools with which to measure those interventions. This research is needed in order to explore what can be done to enhance the ability of doctors to thrive in the modern healthcare setting. This research suggests that physician resilience develops as each person individually navigates struggles along his or her professional journey and that the surrounding culture has the potential to enhance or inhibit that process.

Contributors: AFW conceived the project, designed the study, obtained Institutional Review Board approval, coded all interviews, directed the analysis and wrote the first draft of the manuscript. AR and A-AJ each performed half of the participant interviews and coded each of the interviews. They participated in the analysis and the revisions of the manuscript. APS provided direction for the design of the study and reviewed the conduct of the interviews, as well as the ongoing coding process. APS co-directed the analysis, provided insights important to the portrayal of the results and the conclusions of the manuscript and provided important revisions to the text of the manuscript. All authors participated in drafting the work and revising it critically for important intellectual content, approved the final version to be published, and agreed to be accountable for all aspects of the work.

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REFERENCES


SUPPORTING INFORMATION

Additional Supporting Information may be found in the online version of this article:

Appendix S1. Interview guide.
Appendix S2. Follow-up interview guide.

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