Evaluating the Impact of Coaching Through the Transition to Residency

Abigail Ford Winkel, MD, MHPE[1], Barbara Porter, MD, MPH[1], Magdalena Robak Scheer, MD[1], Marc Triola, MD[1], Jillian Pecoriello, MD[1], Abraham Zachary Cheloff, MD[1], and Colleen Gillespie, PhD[1]

[1]New York University Grossman School of Medicine, New York, NY, USA

ABSTRACT

BACKGROUND: Coaching has been proposed to support the transition to residency. Clarifying its impact will help define its value and best use.

OBJECTIVE: To explore the experiences of residents working with coaches through the residency transition.

DESIGN: A cohort comparison survey compared experiences of a coached resident cohort with coaches to the prior, uncoached cohort.

PARTICIPANTS: Post-graduate year (PGY)-2 residents in internal medicine, obstetrics and gynecology, emergency medicine, and pathology at a single academic center.

INTERVENTIONS: Faculty trained as coaches had semi-structured meetings with graduating medical students and residents throughout the PGY-1 year.

MAIN MEASURES: An online anonymous survey assessed effects of coaching on measures of self-directed learning, professional development, program support and impact of coaching using existing scales (2-item Maslach Burnout Inventory, Brief Resilient Coping Scale, 2-item Connor-Davidson Resilience Scale, Stanford Professional Fulfillment Inventory), and novel measures adapted for this survey. Bivariate analyses (*t*-tests and chi-square tests) compared cohort responses. MANOVA assessed the effects of coaching, burnout and their interactions on the survey domains.

KEY RESULTS: Of 156 PGY2 residents, 86 (55%) completed the survey. More residents in the "un-coached" cohort reported burnout (69%) than the "coached" cohort (51%). Burnout was significantly and negatively associated ($F=3.97$ (df 7, 75); $p<.001$) with the learning and professional development outcomes, while being coached was significantly and positively associated with those outcomes ($F=5.54$ (df 9, 75); $p<.001$). Significant interaction effects were found for goal-setting attitudes, professional fulfillment, and perceived program career support such that the positive differences in these outcomes between coached and un-coached residents were greater among burned out residents. Coached residents reported a positive impact of coaching across many domains.

CONCLUSIONS: Residents experiencing coaching reported better professional fulfillment and development outcomes, with more pronounced differences in trainees experiencing burnout. Coaching is a promising tool to support a fraught professional transition.

Received February 5, 2024
Accepted June 10, 2024
Published online: 26 June 2024

KEY WORDS: coaching; transition to residency; graduate medical education; professional development

J Gen Intern Med
DOI: 10.1007/s11606-024-08865-w

INTRODUCTION

Coaching is increasingly recognized as a strategy for helping to improve the transition from medical school to residency. Educational coaches use questioning and active listening in a challenging but encouraging environment to facilitate self-directed learning by increasing learners' sense of self-awareness and personal responsibility.[1] Coaching in medical education aims to develop growth-oriented, lifelong learners; promote professional identity formation; and support wellness and resilience.[2–4] The outcomes data for the role of coaching on learning skills is limited but promising, showing increased adaptability and receptivity to feedback in medical students.[5,6] Coaching programs for physicians in training and practice show consistent positive outcomes on well-being. A review of interventions reported decreased emotional exhaustion and burnout, and increased emotional well-being, self-compassion, and professional fulfillment.[7] Less is known about the influence of coaching to address the problems of the residency transition.

Medical school graduates entering residency struggle with an abrupt shift in learning climate and responsibility, and educational supports are needed to ensure a smooth trajectory for learners who have varying individual needs.[8] Transition to residency bootcamps and new resident orientation programs aim to provide graduating medical students with skills and knowledge they will need when residency begins. While improved skills will undoubtedly prepare new doctors for their duties, the best preparation for residency requires attending to broader developmental needs beyond skills development.[9] It is difficult to simulate many of the greatest challenges of residency, which relate to the immersive nature of the increase in responsibility for patients, learning based on individual experiences and managing work-life integration with a demanding schedule.[10] Thus, much of the work of adapting to residency: learning how to learn as a resident and self-directing growth based on individual needs can only take place once the trainee has entered the environment of

graduate medical education (GME). Coaching is an appealing tool to increase self-awareness and support self-directed learning for doctors once they are immersed in the context of residency.

Resident coaching focuses on identifying learning goals and crafting an individualized approach to the inflexible, standardized experience of residency. Medical education faculty trained in coaching skills find these skills applicable to a range of challenges in their work with students and trainees.[11,12] Faculty and residents experiencing coaching through the transition to residency suggested that coaching works in this context by creating an explicit curriculum around which to scaffold the resident's individual professional growth.[13] Graduating medical students and new residents working with coaches set goals across a broad range of academic, clinical, and personal domains, and demonstrate improvement in goal-setting ability when they have a coach's support.[14] However, beyond goal setting, the effect of coaching through this transition remains unclear. Clarifying how coaching influences residents' development can help in defining its value in GME and understanding how this tool can best be used to improve resident training.

This study aims to investigate the effects of coaching on residents' self-directed learning, resilience, career development, professional fulfillment, and perception of program support by comparing the experiences of junior residents who received coaching with a prior cohort of residents who did not. To address the limitations of this cohort design, our analysis sought to control for potential differences between the two cohorts unrelated to coaching, including demographics, coping as an individual trait of the residents, and burnout as an important feature of the clinical environment as both cohorts were involved in the early years of the COVID pandemic.[15] The study also examined resident's perceptions of the impact of coaching.

Methods

Participants. Post-graduate year (PGY)-2 residents who had participated in coaching through the transition to residency were surveyed as were the prior cohort of residents (at the same point in training, half-way through PGY2) who had not been coached. Participants came from a single, urban academic center in four residency programs (obstetrics and gynecology, internal medicine, emergency medicine, pathology) and participated in coaching sessions from residency match day through their first year of residency (2021–2022). This occurred through the New York University (NYU) Transition to Residency Advantage (TRA) program, a program supported by the American Medical Association's Reimagining Residency initiative. Residents worked with medical educators who served a range of teaching roles and had been selected to serve as graduate medical education (GME) bridge coaches. GME bridge coaches participated in a faculty development program that included didactic sessions, interactive discussions and role plays for skills practice, and a group objective coaching skills evaluation. A robust description of the faculty development program is published elsewhere.[11] In each program, different faculty were assigned the role of coach: some were mentors, some associate residency program directors, and others core faculty without other roles in program operations. For students graduating from NYU, a "warm educational handoff" took place where the student led a meeting reviewing selected elements of their academic portfolio and undergraduate medical education (UME) experience with their UME advisor and their GME bridge coach. All new residents, regardless of their medical school, had meetings with the NYU GME bridge coach as a group prior to residency orientation to orient them to coaching and begin reflecting on their experience and learning goals. Coaching continued through quarterly meetings throughout the intern year that used a semi-structured approach, with reflection exercises timed to each quarterly meeting that focused on identifying priorities, responding to feedback, setting goals, strengths-based coaching, and visioning exercises. Coaches worked autonomously to determine the format and content based on their program setting and individual trainee needs, deviating from coaching guides when indicated based on trainees' agendas, using both 1:1 and group coaching, and using both in-person and virtual formats. Navigator, a web-based application that supported communication, scheduling and goal setting for the coaching program tracked goals and meetings. All residents in these programs took part in the coaching program, but participation in its evaluation was voluntary.

Study Design. We used a post-test only cohort comparison design to assess the potential impact of the TRA Program, comparing self-reported outcomes of the cohort of PGY-2 residents who had participated in the Transition to Residency Advantage Program Coaching (TRA cohort) with those of the prior cohort (pre-TRA cohort). We surveyed both cohorts at the same point in training (midway through their PGY-2) to assess outcomes related to coaching (e.g., goal setting and self-directed learning, current resilience, professional fulfillment, career development, program supportiveness) as well as potential confounding variables. Individual characteristics (including gender, under-representation in medicine, medical school, and coping tendencies) were included to ensure such characteristics were equally distributed across the two cohorts. Burnout was analyzed as a situational characteristic because the clinical work environment was impacted by the COVID pandemic for both cohorts: The "uncoached" cohort were interns during the first wave of the pandemic and the "coached" cohort were interns through the Delta and Omicron variant spikes, all of

which strongly impacted training in a hard-hit metropolitan area. The survey was anonymous in order to protect residents. This study was approved by the NYU Grossman School of Medicine Institutional Review Board (s19-0165).

Data Collection and Instruments. Survey items used existing scales where relevant, adapted items from the literature when needed, and created new items to assess specific domains (see Appendix A). Residents' background characteristics included gender, self-report of being underrepresented in medicine, and whether or not they attended NYU medical school at. The survey assessed residents' coping tendencies (4-item Brief Resilient Coping Scale designed to assess coping as a stable individual trait) and their degree of burnout (2-item Maslach Burnout Inventory) based on the past year.[16,17] These variables were included to assess potential confounding differences between the two cohorts.

Anticipated outcomes of coaching included the following:

- Two factors developed for this study representing attitudes toward goal setting informed by the exploration of goal-setting by Li et al[18] (5-item, agreement Likert scale with ten statements about the difficulty of goal-setting, competing priorities, and comfort in skills of setting goals).
- Mean of four Master Adaptive Learner habits adapted from prior work[19] in this area (5-item, agreement Likert scale with four statements about acknowledging when they don't know something, identifying gaps, prioritizing gaps, and liking to see improvement).
- Current (past two weeks) resilience (2-item Connor-Davison Resilience Scale[20]).
- Professional fulfillment (mean of 6-item scale from Stanford Professional Fulfillment Index.[21] including items about feeling happy, worthwhile at work, finding work satisfying and meaningful)
- Career self-efficacy (mean of four items using a five-item agreement Likert scale around confidence and satisfaction with career progression).
- Quality and satisfaction of mentoring (mean of two items from the Residency C-Change Survey[22]).
- Program support for work/life balance (5-point agreement Likert scale; Residency C-Change Survey[22]).
- Program support for career development (5-point agreement Likert scale; Residency C-Change Survey[22]).

In addition, in order to provide a descriptive sense of the quality of coaching, we asked residents in the coached cohort to describe how close they felt to their coaches (not so close, pretty close, close, or very close) and to rate the impact of coaching on a 4-point Likert scale across 14 domains (e.g., clinical decision-making, professionalism, scholarship, career choice, personal fulfillment, professional fulfillment, work/life balance, clinical skills development, incorporating goals into lifelong learning and development, being a self-directed learner.)

Procedures. The survey was fielded with the pre-TRA PGY2 residents in the four participating programs from November 2021 to January 2022 and with the TRA Cohort of PGY2 residents (the coached cohort) the following year during the same period. Methods of recruitment were the same across the two administrations: Residency programs set aside approximately 20 min for the evaluator to introduce the survey, provide the elements of informed consent verbally and via a written information sheet, and answer questions and then the residents were left to complete the anonymous survey if they chose to do so. Up to six reminder emails were sent to all residents after this initial scheduled session to provide additional opportunities to complete the survey.

Data analysis. Characteristics were compared between the pre-TRA and TRA cohorts using t-tests for mean differences and chi-square tests to compare distributions. Since a significantly greater proportion of residents in the pre-TRA cohort of survey respondents reported meeting criteria for being burned out (feeling emotionally exhausted or depersonalization once a week or more in the past year) than the TRA Cohort (69% vs 52%), we incorporated this variable into our MANOVA analysis. A 2-factor MANOVA (cohort: Pre-TRA vs TRA and burnout: Not burned vs burned out in the past year) was conducted with the nine dependent variables described above.

RESULTS

Across the four training programs analyzed, 42 (54%) of 78 residents without coaching and 44 (56%) of 78 residents who participated in coaching completed the survey (Table 1). An average of 3.2 meetings per resident were recorded in the Navigator app for the coached cohort. The cohorts did not differ significantly in terms of gender, URiM status, local medical school, mean coping score, or mean burnout score (Table 2). However, more residents in the pre-TRA cohort ($N=29$, 69%) reported burnout symptoms more than once a week in the past year than in the TRA cohort ($N=23$, 52%), so this factor was then included in the subsequent analyses.

MANOVA results found that the main effects of cohort and burnout were significant (Table 3) as was the interaction of burnout and cohort (Fig. 1). In terms of cohort effects, the coached cohort had significantly greater mean scores in domains representing resilience, professional fulfillment, career self-efficacy, perceived mentoring quality, and perceived program support for work/life balance and career. In general, coached residents more commonly somewhat agreed with positive statements for these items while

Table 1 Representation of Residents and Residency Programs

Program	Pre-TRA cohort (not coached)			TRA cohort (coached)		
	N of residents	*N* completed survey	Response rate (%)	*N* of residents	*N* completed survey	Response rate (%)
Internal medicine	44	23	52%	44	26	59%
Emergency medicine	18	9	50%	18	10	56%
Obstetrics/gynecology	10	7	70%	10	5	50%
Pathology	6	3	50%	6	3	50%
TOTAL	**78**	**42**	**54%**	**78**	**44**	**56%**

Table 2 Background Characteristics of Cohorts

Variables	Pre-TRA cohort (not coached) (*N* = 42)	TRA cohort (coached) (*N* = 44)	Significance
Demographics	***n* (%)**	***n* (%)**	**Chi-square**
Female	21 (49%)	21 (48)%	*p* = .33 (*Chi Sq* = 2.239)
Identify as underrepresented in medicine	6 (14%)	6 (13%)	*p* = .99 (*Chi Sq* = .552)
Attended same medical school as residency	11(26%)	13 (30%)	*p* = .39 (*Chi Sq* = 1.05)
Burnout	***n* (%)**	***n* (%)**	**Chi-square**
Maslach-Burnout Inventory-2 meeting criteria for burnout (emotionally exhausted or experience depersonalization once a week or more)	29 (69%)	23 (52%)	*p* = .011 *(Chi Sq = 3.53)*
Burnout and coping	**Mean (SD)**	**Mean (SD)**	***t*-Test**
Maslach-Burnout Inventory-2 total score	7.00 (3.25)	6.69 (2.44)	*p* = .31 (*t-test* = .503)
Coping (Brief Resilience Coping Scale)	15.94 (2.27)	15.40 (2.31)	*p* = .28 (*t-test* = 1.039)

Table 3 MANOVA Results for Main Effect of Coaching

Dependent variables	Pre-TRA cohort (not coached) (*N* = 42) Mean (SD)	TRA cohort (coached) (*N* = 44) Mean (SD)	Significance
Goal setting too hard	3.36 (.92)	3.21 (.93)	*p* = .93 (*F* = .007)
Don't know how to set goals	2.98 (1.08)	2.79 (.89)	*p* = .90 (*F* = .02)
Master Adaptive Learner habits	3.59 (.55)	3.44 (.44)	*p* = .21 (*F* = 1.633)
Resilience (current)	**6.03 (1.08)**	**7.07 (1.04)**	***p* = .01 (*F* = 8.844)**
Professional fulfillment	**2.99 (1.09)**	**3.13 (.95)**	***p* = .05 (*F* = 2.459)**
Career self-efficacy	**3.43 (.99)**	**3.88 (.75)**	***p* = .02 (*F* = 3.556)**
Mentoring quality/amount	**2.95 (1.15)**	**3.36 (1.28)**	***p* = .03 (*F* = 2.947)**
Program support for work/life balance	**2.90 (1.10)**	**3.25 (1.08)**	***p* = .05 (*F* = 2.555)**
Program support for career	**2.79 (1.23)**	**3.53 (.88)**	***P* < .001 (*F* = 11.721)**
Cohort main effect: Wilk's Lambda *F* = 3.97 (df 7, 75); *p* < .001			

Significant differences are **bolded**

the uncoached cohort averages were more in the somewhat disagree/neutral range. Overall, residents from both cohorts reported usually or almost always engaging in the Master Adaptive Learner habits (means from 3 to 4 on a 4-point scale). Exploring the main effect of burnout, burned-out residents had more negative attitudes toward goal setting and lower mean scores in professional fulfillment, career self-efficacy, mentoring quality, and program support (Table 4). Significant interaction effects were found for goal setting attitudes, professional fulfillment, and career support: differences favoring the coached cohort were greatest for residents that were burned out; that is, coaching appears to make more of an impact for residents who were burned out (Fig. 1).

Figure 2 provides a snap shot of the coached residents' views on degree to which their coaches had a positive influence across a range of areas. Overall, residents felt, on average, that their coach had between "some" and a "moderate" positive influence on them (means between 2 and 3 on a 5-point scale from 0

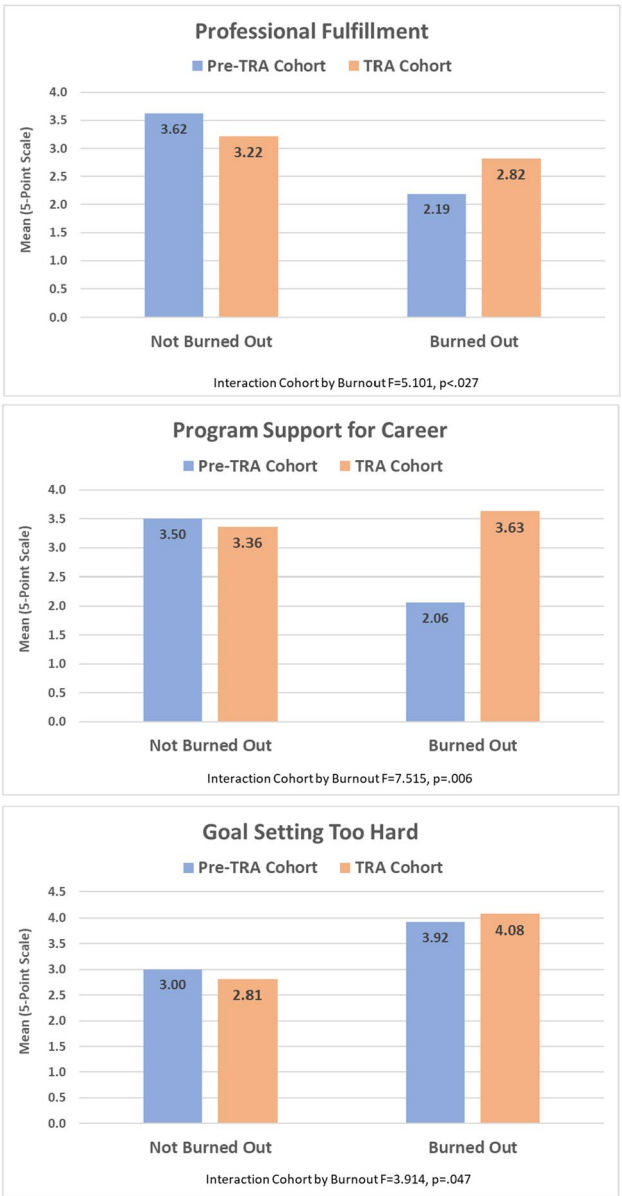

Figure 1 Interaction effects between the impact of burnout and impact of coaching on outcomes. When considering the interaction between the effect of burnout and the effect of coaching, significant interactions were found in goal setting attitudes ($F = 1.963$, $p = .050$), professional fulfillment ($F = 5.10$, $p = .027$), and career support ($F = 7.95$, $p = .006$). The effect of coaching was more pronounced for residents who met criteria for burnout.

to 4). Residents reported more influence in domains similar to self-reported outcome areas of professional development, career preparation/planning, and personal fulfillment but also in the areas of incorporating goals and being a self-directed learner.

DISCUSSION

Residents coached through the transition to residency reported improved professional fulfillment, resilience, career self-efficacy, perceived mentoring quality, and perceived program support as PGY-2 s compared to a prior cohort who had not been coached. While less burnout was observed than a prior un-coached cohort, this may have been impacted by the COVID-19 pandemic, so this difference was explored as an interaction effect rather than an outcome of coaching alone. Not surprisingly, residents with burnout had more negative learning and professional development outcomes. However, for those residents, coaching had an even more pronounced positive impact on goal setting attitudes, professional fulfillment, and career support. Coached residents reported that their coaches had "some to a moderate" influence in a number of areas that aligned with these outcomes. Our data support the role for coaching in helping trainees navigate the challenging transition from medical school to residency.

This pattern of effects suggests coaching may benefit residents by providing structured time for goal-setting and promoting lifelong learning. This is consistent with the potential role for coaching as a scaffold for individualized professional development proposed in a prior qualitative study of coaches and trainees[13] and seen in other research on the influence of coaching on residents.[23] Alongside other studies of coaching in graduate medical education, there is a growing body of evidence that coaching can improve resident well-being. Our results suggest coaching may be particularly effective in residents struggling with burnout.[24,25] Especially given the impact of the COVID-19 pandemic on the clinical environment, we considered burnout more likely to reflect situational work-related demands and stressors than the people being coached, so burnout was not used as an outcome of the study. While coaching may help residents cope with burnout, may help them find fulfillment in their work, and may help individualize professional development, it may not directly reduce burnout. Although there is evidence that coaching can be used to build specific competencies through direct observation and feedback, we did not address this outcome in our work. Performance-based coaching relies on direct observation and the TRA model takes place in quarterly meetings over the course of a year, remote from clinical encounters. This approach uses reflection on clinical experiences and feedback to guide goal-setting and planning. Assessing the relationship between coaching and attainment of specific patient care–related skills is more relevant in coaching programs more directly linked to observation and feedback[26–29].

The limitations of the cohort research design require us to be careful in our claims about the role of coaching in being responsible for differences observed. The survey was underpowered to perform sub-analysis based on those who remained at the same institution from medical school, who might have had a different transition experience. We did explore whether perceptions of coaching differed based on medical school and found no consistent pattern. However, differences unrelated to participating in the TRA program

Table 4 MANOVA Results for Main Effect of Burnout

Dependent variables	Not burned out ($N=34$) Mean (SD)	Burned out ($N=52$) Mean (SD)	Significance
Goal setting too hard	**2.91 (.81)**	**4.03 (.63)**	**$p<.001$ ($F=31.581$)**
Don't know how to set goals	**2.65 (.91)**	**3.37 (.99)**	**$p=.004$ ($F=8.838$)**
Master adaptive learner habits	3.52 (.52)	3.52 (.47)	$p=.77$ ($F=.108$)
Resilience (current)	**6.88 (1.69)**	**6.81 (1.59)**	**$p=.01$ ($F=8.844$)**
Professional fulfillment	**3.40 (.84)**	**2.39 (1.02)**	**$p=.05$ ($F=2.459$)**
Career self-efficacy	**3.95 (.66)**	**3.04 (1.03)**	**$p=.02$ ($F=3.556$)**
Mentoring quality/amount	**3.51 (.92)**	**2.42 (1.08)**	**$p=.03$ ($F=2.947$)**
Program support for work/life balance	**3.40 (.90)**	**2.40 (1.16)**	**$p=.05$ ($F=2.555$)**
Program support for career	**3.44 (.99)**	**2.56 (1.19)**	**$P<.001$ ($F=11.721$)**
Cohort Main Effect: Wilk's Lambda $F=5.54$ (df 9, 75); $p<.001$			

Significant differences are **bolded**

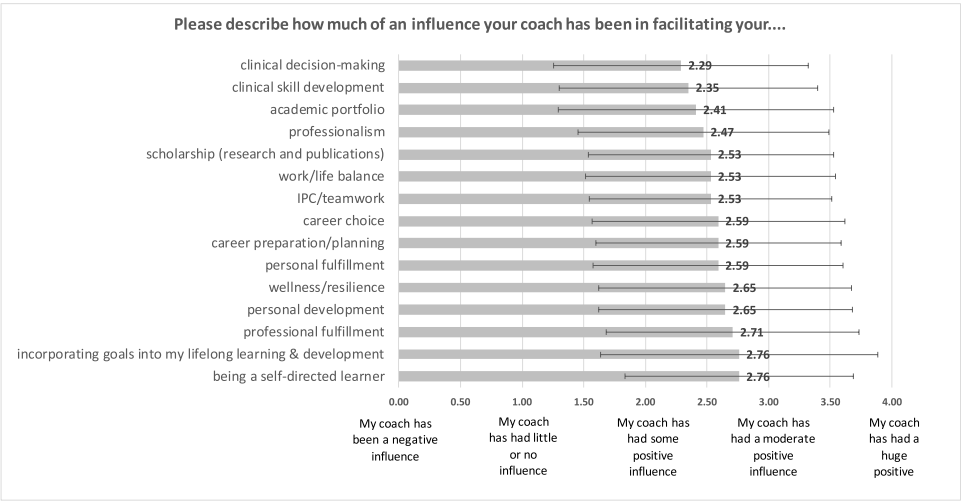

Figure 2 Coached residents' perceptions of the influence of coaching. Residents indicated how much of an influence their coach had on fifteen key areas using a 5-point scale (0 = My coach has been a negative influence; 1 = My coach has had little or no influence; 2 = My coach had some positive influence; 3 = My coach has had a moderate positive influence; 4 = My coach has had a huge positive influence).

could be driving our findings especially given our small sample size and response rate and outside influences. As stated earlier, we conceptualized burnout as a potential confounding variable and our results suggest that coaching is more effective in some areas for burned out residents—however, our design does not truly support this causal inference and it may be that those that were burned out engaged more strongly in coaching or that being burned out is a surrogate for some other un-measured influence or even that the direction of causality is opposite what we propose: that it is coaching itself that reduces burnout.

Overall rates of Master Adaptive Learning measures were high in both cohorts, so the lack of significance between the cohorts may be due to a ceiling effect rather than evidence that coaching does not impact these attributes. While the modest response to the survey and small sample size opens the possibility of selection bias, a similar proportion of each cohort responded to the survey, suggesting a similar sample of residents between the two cohorts analyzed. The power of the study was limited based on the available respondents. The insights suggested in this research must be explored in further studies. Studies exploring the relationship between coaching and development of specific professional skills and competencies will further clarify the value of coaching. This study suggests that coaching may help residents navigate their early residency in ways that provide space for lifelong learning, promote resilience and fulfillment, and lead residents to feel mentored and supported. Coaching through other transitions may show similar benefits and should be explored in transitions to senior roles of GME training or practice after residency.

Supplementary Information *The online version contains supplementary material available at https://doi.org/10.1007/s11606-024-08865-w.*

Corresponding Author: *Abigail Ford Winkel, MD, MHPE; New York University Grossman School of Medicine, New York, NY, USA (e-mail: abigail.winkel@nyulangone.org).*

Author Contribution *There are no other contributors to mention here.*

Funding *This research was supported by a Reimagining Residency grant from the American Medical Association.*

Data Availability *The data that support the findings of this study are available on request from the corresponding author.*

Declarations:

Conflict of Interest: *The authors declare no competing interests.*

REFERENCES

1. **van Nieuwerburgh C, Barr M.** Coaching in education. The SAGE handbook of coaching. 2017:505–20.
2. **Deiorio NM, Carney PA, Kahl LE, Bonura EM, Juve AM.** Coaching: a new model for academic and career achievement. Med Educ Online. 2016;21(1):33480.
3. **Lovell B.** What do we know about coaching in medical education? A literature review. Med Educ. 2018;52(4):376-90.
4. **Wolff M, Hammoud M, Santen S, Deiorio N, Fix M.** Coaching in undergraduate medical education: a national survey. Med Educ Online. 2020;25(1):1699765.
5. **Bakke BM, Sheu L, Hauer KE.** Fostering a feedback mindset: a qualitative exploration of medical students' feedback experiences with longitudinal coaches. Acad Med. 2020;95(7):1057-1065.
6. **Guseh SH, Chen XP, Johnson NR.** Can enriching emotional intelligence improve medical students' proactivity and adaptability during OB/GYN clerkships? Int J Med Educ. 2015;6:208-212.
7. **Boet S, Etherington C, Dion PM, et al.** Impact of coaching on physician wellness: a systematic review. PLoS One. 2023;18(2):e0281406.
8. **O'Brien BC.** What to do about the transition to residency? Exploring problems and solutions from three perspectives. Acad Med. 2018;93(5):681-4.
9. **Kassam A, Nickell L, Pethrick H, Mountjoy M, Topps M, Lorenzetti DL.** Facilitating learner-centered transition to residency: a scoping review of programs aimed at intrinsic competencies. Teach Learn Med. 2020;33(1):10-20.
10. **Chang LY, Eliasz KL, Cacciatore DT, Winkel AF.** The transition from medical student to resident: a qualitative study of new residents' perspectives. Acad Med. 2020;95(9):1421-7.
11. **Winkel AF, Gillespie C, Park A, et al.** Bridging the gap from student to doctor: developing coaches for the transition to residency. Med Educ Online. 2023;28(1):2145103.
12. **Wolff M, Deiorio NM, Miller Juve A, et al.** Beyond advising and mentoring: competencies for coaching in medical education. Med Teach. 2021;43(10):1210-3.
13. **Park A, Gillespie C, Triola M, Buckvar-Keltz L, Greene RE, Winkel AF.** Scaffolding the transition to residency: a qualitative study of coach and resident perspectives. Acad Med. 2023;10–97.
14. **Winkel AF, Chang LY, McGlone P, Gillespie C, Triola M.** SMARTer goalsetting: a pilot innovation for coaches during the transition to residency. Acad Med. 2023;98(5):585–589.
15. **Maslach C.** Job burnout: new directions in research and intervention. Curr Dir Psychol Sci 2003;12, 189–192. https://doi.org/10.1111/1467-8721.01258.
16. **Sinclair VG, Wallston KA.** The development and psychometric evaluation of the Brief Resilient Coping Scale. Assessment. 2004;11(1):94-101. https://doi.org/10.1177/1073191103258144.
17. **West CP, Dyrbye LN, Sloan JA, Shanafelt TD.** Single item measures of emotional exhaustion and depersonalization are useful for assessing burnout in medical professionals. J Gen Intern Med. 2009;24(12):1318-21.
18. **Li ST, Paterniti DA, West DC.** Successful self-directed lifelong learning in medicine: a conceptual model derived from qualitative analysis of a national survey of pediatric residents. Acad Med. 2010;85(7):1229–36.
19. **Stringer JK, Gruppen LD, Ryan MS, Ginzburg SB, Cutrer WB, Wolff M, Santen SA.** Measuring the master adaptive learner: development and internal structure validity evidence for a new instrument. Med Sci Educ. 2022;32(1):183-193. https://doi.org/10.1007/s40670-021-01491-9.
20. **Connor KM, Davidson JR.** Development of a new resilience scale: the Connor-Davidson Resilience Scale (CD-RISC). Depress Anxiety. 2003;18(2):76-82.
21. **Trockel M, Bohman B, Lesure E, Hamidi MS, Welle D, Roberts L, Shanafelt T.** A brief instrument to assess both burnout and professional fulfillment in physicians: reliability and validity, including correlation with self-reported medical errors, in a sample of resident and practicing physicians. Acad Psychiatry. 2018;42(1):11-24.
22. **Pololi LH, et al.** Assessing the culture of residency using the C-Change Resident Survey: validity evidence in 34 US residency programs. J Gen Intern Med. 2017;32:783–789.
23. **Palamara K, Kauffman C, Stone VE, Bazari H, Donelan K.** Promoting success: a professional development coaching program for interns in medicine. J Grad Med Educ. 2015;7(4):630-7.
24. **Fainstad T, Syed A, Thibodeau PS, Vinaithirthan V, Jones CD, Thurmon K, Mann A.** Better together: a novel online physician group coaching program to reduce burnout in trainees: a longitudinal analysis. Acad Med. 2023;98(11S):S201-2.
25. **Palamara K, Kauffman C, Chang Y, Barreto EA, Yu L, Bazari H, Donelan K.** Professional development coaching for residents: results of a 3-year positive psychology coaching intervention. J Gen Intern Med. 2018;33:1842-4.
26. **MacKenzie C, Chan TM, Mondoux S.** Clinical improvement interventions for residents and practicing physicians: a scoping review of coaching and mentoring for practice improvement. AEM Educ Train. 2019;3(4):353-64.
27. **Stringer S, Brown C, Davis M, Wolff M.** The key to success in transitions in residency: application of coaching to improve feedback. West J Emerg Med: Integr Emerg Care Popul Health. 2023;24(3.1).
28. **Graddy R, Reynolds SS, Wright SM.** Coaching residents in the ambulatory setting: faculty direct observation and resident reflection. J Grad Med Educ. 2018;10(4):449-54.
29. **Sasnal M, Miller-Kuhlmann R, Merrell SB, Beres S, Kipp L, Lee S, Threlkeld Z, Nassar AK, Gold CA.** Feasibility and acceptability of virtually coaching residents on communication skills: a pilot study. BMC Med Educ. 2021;21:1-9.

Prior presentations *None.*