Full Length Research Paper

Achievement goals of medical students and physicians

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In achievement settings, the types of motivation individuals develop are crucial to their success and to the ways in which they respond to challenges. Considering the competitive nature of medical education and the high stakes of medical practice, it is important to know what types of motivation (conceptualized here as achievement goals) medical students and physicians adopt and how these may differ depending on the nuances of their achievement settings. This is a cross-sectional survey study of medical students (N=200) and practicing physicians (N=202). The online questionnaire included measures of achievement goals (performance approach, performance avoidance, mastery approach, mastery avoidance) and background characteristics. Multivariate analysis of variance was used to examine differences in achievement goals of medical students and physicians. Education/career stage, medical specialty, and practice type were used as factors in the analyses. Despite the differences in achievement settings, striking similarities in the achievement goals among medical students and physicians were observed in this study. Both students and physicians were most likely to endorse mastery approach goals (the most adaptive type of motivation) and least likely to endorse performance avoidance goals (the least adaptive type of motivation). Significant differences were observed in mastery approach goals of students and physicians, depending on education/career stage. With respect to medical specialty, although distinct patterns in achievement goals emerged in the student and physician data, the observed differences were not statistically significant. Academic physicians had higher levels of performance goals than community-based physicians. Medical students and physicians thus self-reported themselves as highly mastery approach-oriented; nevertheless, our findings suggest that these goals are more prone to fluctuations than other achievement goals, depending on the stage of one's education/career. The results largely show that medical students and physicians endorse achievement goals that are beneficial for lifelong learning, well-being, and success.

Key words: Motivation, achievement goals, medical students, physicians.

INTRODUCTION

Medical student populations tend to be homogeneous with regard to high levels of academic achievement and motivation, as selection processes favour those who excel and are highly competitive (Dodd and McColl,

2013; ten Cate et al., 2011). This high level of competition continues in training: failures during training may jeopardize one's graduation from medical school or securing a postgraduate (residency) placement. The pressures of being a practicing physician can be analogous to medical school and residency training, although the stakes shift. Failures in clinical practice have consequences not only for one's own career as a physician but also for patients; the stakes are literally "life or death". Furthermore, the practice of medicine is dynamic and calls for a mindset of lifelong learning in response to medical advances and patients' evolving health care needs. In achievement settings such as these, the types of motivation and implicit goals that individuals develop are crucial to their success and to the ways in which they respond to challenges. Therefore, it is important to know what types of motivation medical students and physicians adopt and how those may differ according to their achievement settings.

One well-established motivation theory that is argued to be relevant to health professions is achievement goal theory (AGT); (Cook and Artino, 2016; Elliot and Hulleman, 2017). Achievement goal theorists have posited that individuals' motivation takes shape through implicit goals that vary with regard to two dimensions: performance vs. mastery and approach vs. avoidance (Elliot and Hulleman, 2017, for a historically based overview). When fully crossed, these dimensions produce four distinct achievement goals (Elliot and McGregor, 2001; Elliot and Hulleman, 2017). *Performance approach* goals reflect the motivation to outperform others and demonstrate one's competence, whereas *performance avoidance* goals reflect the motivation to avoid looking incompetent relative to others. *Mastery approach* goals reflect the motivation to improve one's performance and gain new knowledge or skills, whereas *mastery avoidance* goals reflect the motivation to avoid incompetence (that is, students striving to attain the required knowledge/skills and professionals striving to maintain the acquired knowledge/skills). Mastery approach goals have been shown to promote interest, satisfaction, engagement, use of deep learning strategies, and self-directed learning, all of which are important attributes for physician lifelong learning. Performance approach goals, although linked to high achievement, are generally regarded as less adaptive because these goals can relate to undesirable outcomes such as cheating, self-handicapping, and surface learning (Elliot and Hulleman, 2017; Kaplan and Maehr, 2007). Avoidance goals are considered maladaptive as they are associated with low performance and poor psychological well-being and coping (Elliot and Hulleman, 2017; Kaplan and Maehr, 2007, for reviews of findings).

Published research indicates that in undergraduate student populations, mastery approach and both types of avoidance goals largely tend to decrease as students advance in their studies, whereas performance approach goals remain relatively stable (Fryer and Elliot, 2007; Corker et al., 2013). The decline in mastery approach goals is regarded as a negative trend because these goals are important for students' engagement and self-directed learning (Corker et al., 2013). The declines in avoidance goals suggest that students become less concerned about seeming incompetent (performance avoidance) or failing to develop their competence (mastery avoidance) as they progress in their studies. The declines in avoidance goals are speculated to be due to increases in self-efficacy as students become more comfortable with the expectations of the school environment (Corker et al., 2013; Elliot and McGregor, 2001).

Compared to general student populations, different patterns of achievement goals have been reported in professional education programs. For example, a longitudinal study conducted with learners in a teacher education program reported a relative stability of mastery (approach and avoidance) goals between pre-service education and two years in professional practice, whereas performance (approach and avoidance) goals appeared to decline (Daniels, 2015). A study with health professions students in the Netherlands reported a relative stability of both mastery and performance goals over the course of six semesters, with students being on average more mastery- than performance-oriented (Kool et al., 2016). In this latter study, however, mastery and performance goals were not examined along the approach-avoidance dimension. Research examining achievement goals along the career trajectory in adult populations is still sparse, though one line of evidence indicates that people in late adulthood are more likely than young adults to pursue mastery avoidance goals and strive toward maintenance and prevention of skill loss and decline in performance (Kooij et al., 2011; Senko and Freund, 2015).

To date, there does not appear to be any published research that examines the levels of achievement goals of physicians who are at various career stages such as early, mid- or late-career. In addition to these stages of professional practice, medical school is also marked by distinct stages. For example, in many North American medical school structures, which are typically four years in duration, the first two years are more heavily weighted toward pre-clinical classroom-based learning, whereas learning in clinical settings predominates in the last two years. Therefore, each distinct stage of medical school and stage of professional career may represent a slightly nuanced achievement setting and, hence, warrants investigation.

The examination of achievement goals in medical students and physicians would not be complete without a consideration of medical specialties, which vary with respect to duration of postgraduate training, the competitiveness of getting into residency programs and securing a position after graduation, and work-life

balance, among other factors. Furthermore, depending on the type of practice settings (academic vs. community-based) in which physicians practice, the amount of time physicians spend on patient care, teaching, and research activities varies. Namely, community-based physicians are more likely to spend more time on patient care, whereas physicians who work in academic medical centres are more likely to be involved in teaching and research activities. To the best of our knowledge, no research has yet been conducted to compare achievement goals of students aspiring to certain medical specialties and physicians practicing in those specialties and in different practice settings. As such, the contribution of the research presented herein stands to highlight the achievement goals of medical students and practicing physicians in an unprecedented fashion by looking at education/career stage, medical specialty, and practice type. Specifically, the following research questions guided the study:

i) Are there differences in achievement goals of medical students and physicians based on education/career stage, medical specialty, and practice type?
ii) Are there differences in achievement goals between medical students and physicians?

The answers to these questions are important as we strive to understand the types of achievement motivation that medical students and physicians develop and draw upon in high-stakes, high-stress settings.

METHODS

Study design and procedures

This was a cross-sectional study. Using an online questionnaire, quantitative data from medical students at a large university in Canada were collected in February-March 2017; three reminders were sent to those students who had initially agreed to participate in the study (267 out of 640 medical students agreed to participate). Data from physicians were collected between November 2016 and April 2017. The link to the physician questionnaire was circulated using mailing lists and word of mouth (e.g., announcements made at national and local professional gatherings/events and online forums). Participation in the study was voluntarily and participants could choose not to respond to a question if they did not feel comfortable. Ethics approval was obtained from the institution's Human Research Ethics Board prior to data collection.

Measures

Background characteristics

All participants (students and physicians) were asked to indicate their gender and age. Students were asked to indicate their year in the medical program (years 1, 2, 3, 4) and if known, their preferred specialty choice. Physicians were asked to indicate their specialty and how many years they had been in practice by selecting one of the following response options: 'I am a resident', '5 or less', '6-10', '11-15', '16-20', '21-25', and '26 or more'. Physicians also were asked about their current practice type by selecting one of the two options: 'I consider myself an academic practitioner' or 'I consider myself a community-based practitioner'. Finally, physicians were asked if they were involved in clinical teaching (yes/no).

Achievement goals

Achievement Goals Instrument in a Work Domain (Baranik et al., 2007), which had been initially validated with introductory psychology students who held jobs, was used in the present study. To better reflect the nature of the medical profession, minor changes were made in item wording. Specifically, the words 'coworkers', 'projects', and 'job' were changed to 'others in my program/at work', 'tasks', and 'program/work' in the student and physician questionnaires, respectively. Using a seven-point Likert-type scale (1–not at all true of me; 7–yes, very true of me), students and physicians were asked to indicate the extent to which each statement was true of them in relation to their medical program and work, respectively. In total, 16 statements were used to measure performance approach (e.g., "I prefer to work on tasks where I can show my competence to others"; α=0.73/0.80 in student/physician data), performance avoidance (e.g., "I prefer to avoid situations in my program/at work where I might perform poorly"; α=0.83/0.82), mastery approach (e.g., "I enjoy difficult tasks in my program/at work where I will learn new skills"; α=0.72/0.82), and mastery avoidance (e.g., "In my program/at work, I focus on not doing worse than I have personally done in the past"; α=0.50/0.40) goals. The reliability levels, with the exception of that of mastery avoidance goals, were deemed acceptable (Schmitt, 1996). In terms of mastery avoidance goals, it is worth noting that SPSS did not indicate that deletion of any of mastery avoidance items would increase internal consistency. Considering the four mastery avoidance items captured conceptually distinct aspects of mastery avoidance goals (that is, content validity; DeVellis, 2012), all items were retained. With the score range of 4-28 (midpoint =16) on each achievement goal, higher scores were indicative of greater endorsement of those achievement goals.

Participants

Two hundred undergraduate medical students completed the online questionnaire; amongst whom five student participants chose not to disclose their gender and age. Overall, 58% of student participants were female and 93% were under 30 years of age. With respect to the year in the program, 23% of participating students were in year 1, 30% in year 2, 21% in year 3, and 26% in year 4. One hundred and thirty students (65%) indicated their preferred specialty choice: of these, 37% indicated family medicine (FM) and 63% indicated non-FM specialties (13% internal medicine and related specialties, 10% pediatrics, 11% surgery, and 29% other specialties).

Two hundred and two physicians participated in the study; two physician participants chose not to disclose their gender and age, five participants did not indicate their specialty, and three participants did not specify their practice type. Overall, 66% of physician participants were female and 77% were under 50 years of age. Almost 40% of the physicians in this study had been in practice for more than 10 years. Among the respondents, 49% were FM physicians and 51% were in non-FM specialties (15% internal medicine and related specialties, 7% pediatrics, 14% surgery, and 16% other specialties). With respect to practice type, 52% of the physicians in this study considered themselves community-based practitioners, whereas 48% considered themselves academic practitioners. Of the community-based practitioners, the majority (75%) were FM physicians, whereas the majority of the academic practitioners (78%) were non-FM specialists. The majority of the physicians in this study (91%) reported being involved in clinical

Table 1. Students' achievement goals by year in program and specialty choice: means and SDs.

Variables	Overall (n=200)	Year in Program (n=200)				Specialty Choice (n=130)	
		Y1 (n=46)	Y2 (n=60)	Y3 (n=42)	Y4 (n=52)	FM (n=48)	Non-FM Specialty (n=82)
Performance Approach	16.3 (4.51)	16.8 (3.80)	15.0 (5.00)	16.8 (4.84)	17.0 (3.99)	16.2 (4.45)	17.2 (4.94)
Performance Avoidance	13.7 (4.40)	14.3 (3.87)	12.9 (4.71)	13.9 (4.17)	13.8 (4.65)	14.4 (4.19)	13.4 (4.78)
Mastery Approach	22.0 (3.00)	**21.5 (2.68)**	**21.8 (2.99)**	**21.9 (2.84)**	**22.7 (3.32)**	21.3 (3.23)	22.5 (3.08)
Mastery Avoidance	16.5 (3.60)	**17.0 (3.79)**	**16.1 (3.48)**	**17.4 (3.64)**	**15.9 (3.46)**	17.3 (3.80)	16.2 (3.43)

SD – standard deviations are shown in parentheses next to corresponding means; FM – family medicine. Mastery Approach by Year in Program: p=0.032. Mastery Avoidance by Year in Program: p=0.047. No pair-wise comparisons were significant when Bonferroni correction was applied.

teaching, including teaching medical students.

Analyses

All analyses were conducted in SPSS 24.0. Means and standard deviations (SD) of the achievement goals were computed by year in the program and specialty choice for students and by years in practice, specialty, and practice type for physicians. First, we examined differences in achievement goals separately for medical students and physicians. To do this, multivariate analysis of variance (MANOVA) was used to test for the overall mean differences in the four achievement goals within medical students and physicians. Following this, year in the program and specialty choice were entered as factors in the student data. Years in practice, specialty (FM vs. non-FM specialties), and practice type (academic vs. community-based) were entered as factors in the physician data. Second, to compare achievement goals between medical students and physicians, we performed independent-samples t-tests. The overall significance level was set at 0.05, with Bonferroni corrections used for pair-wise multiple comparisons. Cohen's d was used as a measure of the standardized difference between two means (effect size), with d values of <0.5, $0.5 – 0.8$, and >0.8 representing small, moderate, and large effect sizes, respectively (Cohen, 1992).

RESULTS

Students' achievement goals

Means and SDs for the achievement goals in the student data are shown in Table 1. The MANOVA results indicated significant overall mean differences in the levels of the achievement goals of medical students (Wilks' Lambda=0.01; $p<0.001$). Students endorsed performance avoidance goals the lowest and mastery approach goals the highest. Students' performance approach and mastery avoidance goals were on average at the midpoint of their respective scales (that is, 16).

Next, the interaction of the year in the program with specialty choice and the main effect of specialty (FM vs. non-FM) were non-significant in the student data (both p's>0.05). The main effect of the year in the program on achievement goals was significant (Wilks' Lambda=0.81; $p=0.01$); however, this was the case only for mastery approach ($p=0.032$) and mastery avoidance goals ($p=0.047$). Mastery approach goals showed a gradual

increase from the first to the fourth years in the program (Table 1). Mastery avoidance goals were lower in the second and the fourth years, compared to the first and the third years in the program. Noteworthy, although not statistically significant, performance (approach and avoidance) goals were the lowest in the second year. Finally, those students who indicated their choice of non-FM specialties scored higher on approach goals and lower on avoidance goals than those students who indicated FM as their choice (Table 1); however, the observed differences did not reach statistical significance.

Physicians' achievement goals

Means and SDs for the achievement goals in the physician data are shown in Table 2. The MANOVA results indicated significant mean differences in the levels of achievement goals of the physicians in this study (Wilks' Lambda=0.01; $p<0.001$). Physicians scored lowest on performance avoidance goals and highest on mastery approach goals. Performance approach and mastery avoidance goals were slightly below the midpoint of their respective scales.

Next, the interactions among years in practice, specialty (FM vs. non-FM specialties), and practice type (academic vs. community-based) were non-significant in the physician data (all p's>0.05). The main effect of years in practice on physicians' achievement goals was determined to be significant (Wilks' Lambda=0.78; $p=0.016$); however, this was the case only for mastery approach goals ($p=0.005$). Post-hoc analyses revealed a significant difference in these goals between resident physicians and those physicians who had been in practice 21-25 years ($p=0.026$; Table 2). Although not statistically significant, distinct patterns in other achievement goals emerged in the physician data. Performance approach goals remained stable during the first 15 years of practice but decreased in subsequent years. Avoidance (performance and mastery) goals were lowest at 11-15 years and at 26+ years in practice. The main effect of practice type (academic vs. community-based) on physicians' achievement goals was found to be significant (Wilks' Lambda=0.92; $p=0.009$); however,

Table 2. Physicians' achievement goals by years in practice and specialty: means and SDs.

Variables	Overall (n=202)	Years in Practice (n=202)							Specialty (n=199)		Practice Type (n=197)	
		Res (n=21)	<5 (n=67)	6-10 (n=35)	11-15 (n=27)	16-20 (n=21)	21-25 (n=8)	26+(n=23)	FM (n=96)	Non-FM Specialty (n=101)	Academic (n=97)	Community-based (n=102)
Performance Approach	15.2 (4.72)	15.2 (5.41)	15.4 (4.82)	15.5 (4.57)	15.5 (3.80)	14.4 (5.62)	13.3 (5.29)	15.1 (4.14)	14.3 (4.62)	16.0 (4.74)	**16.2 (4.69)**	**14.2 (4.59)**
Performance Avoidance	13.1 (4.51)	12.8 (5.33)	13.7 (4.04)	13.9 (4.94)	11.0 (3.79)	14.6 (4.62)	14.0 (3.74)	11.6 (3.74)	13.0 (4.38)	13.2 (4.70)	**13.7 (4.64)**	**12.8 (4.24)**
Mastery Approach	22.3 (3.26)	**23.7[a] (3.40)**	**21.9 (2.78)**	**21.2 (3.90)**	**23.4 (2.45)**	**22.1 (2.54)**	**20.4[a] (5.04)**	**23.5 (3.19)**	22.3 (3.26)	22.3 (3.28)	22.7 (2.96)	21.9 (3.46)
Mastery Avoidance	15.1 (3.69)	15.9 (3.31)	15.7 (3.69)	15.2 (4.25)	13.3 (3.35)	15.2 (3.35)	15.1 (5.00)	14.7 (3.02)	15.4 (3.66)	14.8 (3.74)	15.2 (3.65)	15.2 (3.64)

SD – standard deviations are shown in parentheses next to corresponding means; FM – family medicine. Performance Approach by Practice Type: p=0.001. Performance Avoidance by Practice Type: p=0.043. Mastery Approach by Years in Practice: p=0.005. [a] Indicates significant difference in two means (p=0.026), based on pair-wise comparisons following the omnibus test, using Bonferroni correction.

this was the case only for performance approach (p=0.001) and performance avoidance goals (p=0.043). Namely, academic practitioners endorsed performance (approach and avoidance) goals more strongly than did community-based practitioners (Table 2). The main effect of specialty (FM vs. non-FM) was non-significant (p>0.05).

Comparison of students' and physicians' achievement goals

Overall, both students and physicians in this study appeared to largely report endorsing mastery approach goals (Table 3). The only significant differences between students' and physicians' achievement goals were observed in performance approach (p=0.017) and mastery avoidance (p<0.01) goals, with effect sizes (Cohen's d) being small.

DISCUSSION

By drawing on achievement goal theory, the present study provides insights into the motivation of medical students and physicians, depending on education/career stage, medical specialty, and practice type. Despite the differences in achievement settings, we observed striking similarities in self-reported levels of achievement goals among students and physicians in this study, supporting others' finding that these populations are relatively homogenous in terms of motivation (Dodd and McColl, 2013; ten Cate et al., 2011). Both students and physicians were most likely to endorse mastery approach goals and least likely to endorse performance avoidance goals. Significant differences were observed in the achievement goals adopted by students and physicians, depending on education/career stage and practice type in case of physicians. With respect to specialty, although distinct patterns in achievement goals emerged in the student and physician data, the observed differences were not statistically significant.

Out of the four achievement goals examined in this study, medical students reported lowest endorsement of performance avoidance goals and highest endorsement of mastery approach goals, which is consistent with the results of published research with students in professional education programs (Daniels, 2015; Kool et al., 2016). However, in contrast to the published research (Corker et al., 2013; Kool et al., 2016), an upward trend in mastery approach goals among the students in the present study was observed across the four years of medical school. We speculate that these findings could be partially attributed to at least two factors that are specific to the medical school where this research was conducted: a rigorous selection process for admission and a curriculum that includes both problem- and team-based instruction and learning principles. While the former increases the likelihood of selecting highly internally motivated and committed students into the program [e.g., Woulters et al. (2016) for effects of various selection processes on student motivation and learning outcomes], the latter aims to emphasize personal mastery and group learning and de-emphasize performance, competition, and social comparison. Specifically, the problem-based learning model uses small-group learning, guided by group facilitators, to help students work through cases. Facilitators provide feedback to the group and to each individual student to help improve learning. In team-based learning, students

Table 3. Mean, SD, p-value and Cohen's *d* values of achievement goals of medical students and physicians.

Variables	Students (n=200)	Physicians (n=202)	*p*-value	Cohen's *d*
Performance Approach	16.3 (4.51)	15.2 (4.72)	0.017	0.24
Performance Avoidance	13.7 (4.40)	13.1 (4.51)	0.18	0.14
Mastery Approach	22.0 (3.00)	22.3 (3.26)	0.34	0.10
Mastery Avoidance	16.5 (3.60)	15.1 (3.69)	0.0002	0.38

SD – standard deviations are shown in parentheses.

are given more autonomy and work as a team to solve clinical problems, with an emphasis on formative feedback from peers. It is important to emphasize that in both of these learning approaches students receive formative feedback in an ongoing manner from instructors and peers, which is known to support the development of mastery goals (Pekrun et al., 2014). Furthermore, the medical school where this study was conducted has a pass/fail system. The focus is on mastering the material and demonstrating understanding and not on obtaining the highest marks.

For physicians in this study, mastery approach goals were also consistently high, which is in line with the lifelong learning mandate of the medical profession (Babenko et al., 2017; Frank et al., 2015; Hojat et al., 2009). The ever-changing and dynamic practice of medicine calls for the mindset of lifelong learning and adoption of mastery goals to effectively respond to patients' health care needs. Furthermore, the majority of physicians in the present study were involved in clinical teaching and thus, are in an important position to reinforce mastery approach goals for medical students through explicit modeling of learning in and from one's clinical practice. Medical students would benefit from repeated reminders that the acquisition of expertise is ongoing, over the course of one's career as a physician, and that learning does not stop following formal training.

Notably, however, physicians in this study who were in the first 10 years of their practice and those with 16-25 years of experience were less likely to endorse mastery approach goals and more likely to endorse performance avoidance goals. For the physicians who were in their first 10 years of practice, we speculate that the steep learning curve of early independent practice and the accompanying fear (implicit or explicit) of making a poor clinical decision could contribute to the observed higher level of endorsement of performance avoidance goals than physicians who were in practice 11-15 years. For those physicians who were 16-25 years in practice, we speculate that similar forces may be operating: these physicians are under pressure to keep up to date with treatments and guidelines that are rapidly changing, while facing the decrease in energy and cognitive flexibility that accompanies ageing. Nevertheless, in contrast to the reported decline in mastery approach goals and the increase in mastery avoidance goals in late adulthood

(Kooij et al., 2011; Senko and Freund, 2015), our findings indicate that physicians continue to be highly mastery approach-oriented over the course of their careers.

With respect to performance approach goals in the physician data, these goals remained relatively stable at various stages of physicians' career paths; however, community-based physicians endorsed performance approach goals to a lesser extent than did academic physicians. We speculate that this difference speaks to the fact that community-based physicians tend to spend more time in patient care activities, whereas academic physicians tend to be more involved in scholarly and research activities that are often competitive in nature (e.g., pursuing research funding; dissemination of research findings through publications and presentations) and thus, call for particular motivational styles.

With regard to specialty, although not statistically significant, we observed that students interested in non-FM specialties tended to be more approach-oriented and less avoidance-oriented than students interested in pursuing family medicine. Both students aspiring to the practice of family medicine and practicing family physicians were less performance approach-oriented than students interested in non-FM specialties and non-FM physicians, respectively; this may perhaps reflect a lower importance placed on competition with others in family medicine.

Study limitations and future research

This study employed a cross-sectional design, with different groups of medical students and physicians at various stages of education and career. This allowed us to examine achievement goals along the education and career continuum, spanning over 30 years. Nevertheless, we were not able to control for potential variations in the groups, something that a longitudinal design could have allowed for. Next, survey studies rely on voluntary participation. As such, it remains unknown whether achievement goals observed among the participating students and physicians are similar to those of the students and physicians, who, for whatever reasons, chose not to participate in the study. Student participants in this study came from one medical school. Although students in our medical program are largely representative

of the population of medical students in Canada, we cannot generalize our findings to other medical programs. Future studies are needed to examine achievement goals of students in other health professions programs and health care professionals (e.g., dentists, pharmacists, nurses). Finally, considering that people in late adulthood are more likely than young adults to pursue mastery avoidance goals (Kooij et al., 2011; Senko and Freund, 2015), future research could specifically examine achievement goals of older students.

Conclusions

Medical education and practice present unique challenges, while also requiring a mindset of ongoing mastery and lifelong learning. In this study, we found medical learners and practitioners to be highly mastery approach-oriented; nevertheless, our findings suggest that these goals are more prone to fluctuations than other achievement goals, depending on the stage of one's education/career. As such, mastery goals need to be nurtured and actively encouraged throughout medical studies, and support should be provided to early career physicians and those at later stages (that is, 15-25 years in practice) as they face unique challenges (e.g., perhaps assuming more leadership roles). Our research results largely show that medical students and physicians hold achievement goals that are beneficial for lifelong learning, well-being, and success. The next step is to examine if indeed mastery approach goals are beneficial for these high achievers and their patients as has been seen in other achievement settings.

CONFLICT OF INTERESTS

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