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An Expanded Conceptual Framework of Medical Students' Primary Care Career Choice

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Abstract

In many countries, the number of graduating medical students pursuing a primary care career does not meet demand. These countries face primary care physician shortages. Students' career choices have been widely studied, yet many aspects of this process remain unclear. Conceptual models are useful to plan research and educational interventions in such complex systems.

The authors developed a framework of primary care career choice in undergraduate medical education, which expands on previously published models. They used a group-based, iterative approach to find the best way to represent the vast array of influences identified in previous studies, including in a recent systematic review of the literature on interventions to increase the proportion of students choosing a primary care career. In their framework, students enter medical school with their personal characteristics and initial interest in primary care. They complete a process of career decision making, which is subject to multiple interacting influences, both within and outside medical school, throughout their medical education. These influences are stratified into four systems—microsystem, mesosystem, exosystem, and macrosystem—which represent different levels of interaction with students' career choices.

This expanded framework provides an updated model to help understand the multiple factors that influence medical students' career choices. It offers a guide for the development of new interventions to increase the proportion of students choosing primary care careers and for further research to better understand the variety of processes involved in this decision.

The number of graduating medical students choosing to pursue a career in primary care is insufficient to meet the demand in many countries. As a result, many health systems are facing a shortage of primary care physicians. The causes of these shortages are multifactorial and include the aging and retirement of the current workforce,[1] income gaps between primary care and specialist physicians,[2,3] population growth and aging,[4] and more physicians choosing part-time work.[3] In our recent systematic review of the international literature on the impact of medical education interventions on primary care career choice, we found that some curricular interventions, such as longitudinal programs, are more likely to influence students' specialty choices than others.[5] Multiple opinions currently exist about which aspects of medical education, besides the formal curriculum, have the greatest impact on primary care career choice. Some argue that medical school policies and student recruitment strategies (e.g., targeting students with particular characteristics) are the most important aspects.[6] Others suggest that it is the lack of attractiveness of the working conditions of primary care physicians that predominantly deters students.[7,8] Still others think that more aspects of primary care should be taught in the curriculum[9,10] or that non-primary-care specialties draw students away from primary care during clinical experiences.[11] Given these diverse perspectives, researchers and curriculum planners may have trouble deciding where to focus their efforts.

Medical students' career choices are influenced by a number of complex factors that extend beyond the formal curriculum. Conceptual frameworks can represent such complex systems and illustrate how their different components interact.[12] Such frameworks can be helpful, then, in analyzing career choice processes and in identifying new targets for interventions in this domain. However, although the field of primary care career choice research has developed rapidly over the last two decades, and a large number of studies have been conducted, conceptual frameworks or models have not been used widely, despite published recommendations.[13,14]

The literature on interventions influencing primary care career choice that we identified in our systematic review describes a wide array of factors that could influence this choice.[5] We aimed to map out avenues for research and educational interventions by summarizing these data in an operational framework, the elements of which could be applied to curriculum planning, evaluation, and research in a flexible way depending on the country and the context to which it is applied. In this article, we propose an expanded conceptual framework to summarize the vast array of factors influencing career choice that were identified in previous studies, and in particular in our recent systematic review, and to expand on the conceptual frameworks that have been proposed in the past. We developed this framework through a group-based approach and an iterative process inspired by participatory action research (see Figure 1).[15]

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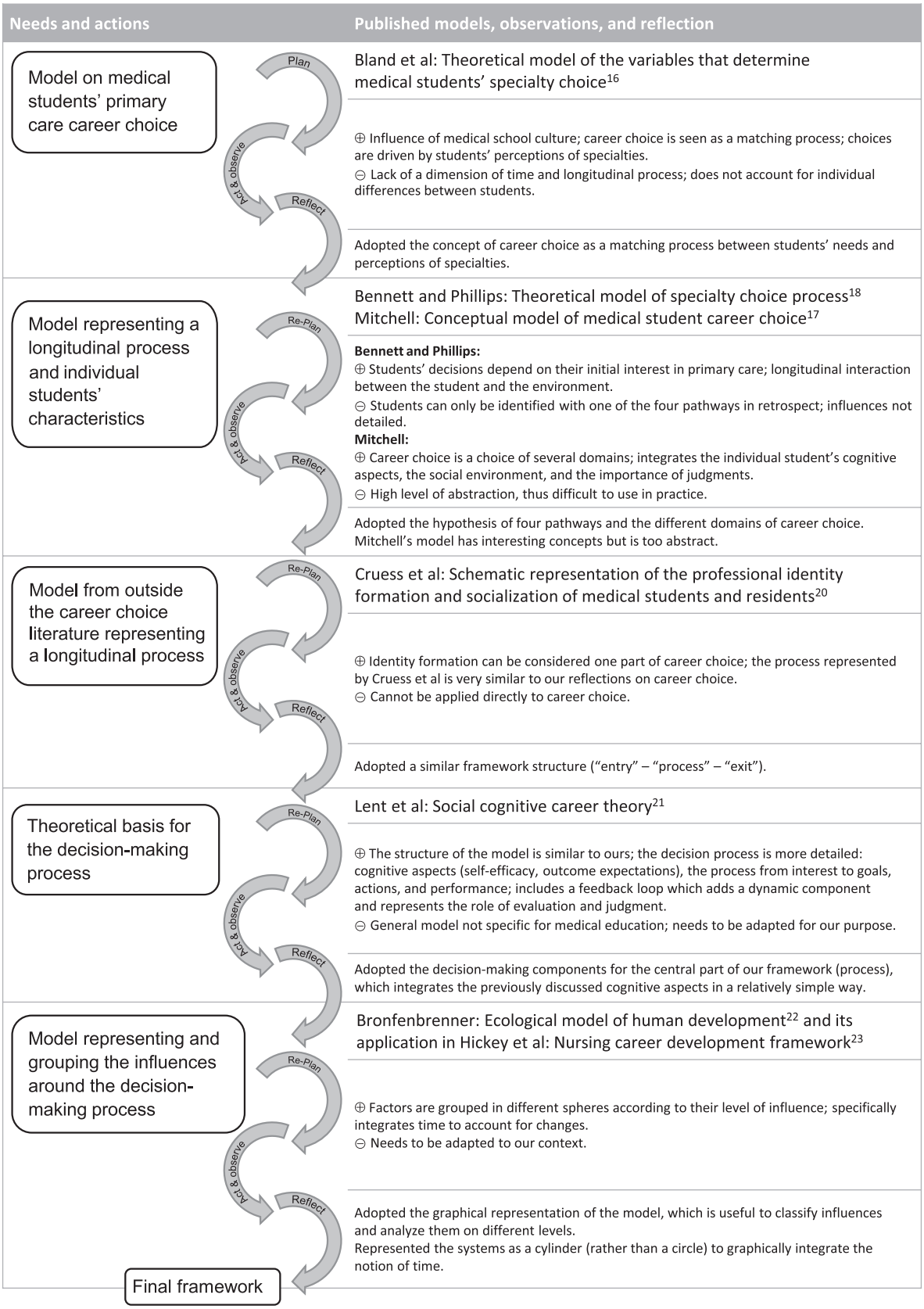

Figure 1 Process used to develop an expanded conceptual framework of medical students' primary care career choice, based on previously published models. The authors used a group-based approach and an iterative process inspired by participatory action research to develop this framework.[15]

Conceptual Models of Medical Students' Career Choice

In 1995, Bland and colleagues[16] proposed a model of primary care career choice, based on a systematic review of the North American literature. In their model, specialty selection is based on a matching process between the student's needs and her perception of the characteristics of the specialty. Her choice is determined by her values and shaped by her medical school experiences and the institutional culture. Twenty years earlier, Mitchell[17] proposed a conceptual model of career choice that integrated the student's cognitive functioning and explained interactions between individual students and the environment. Mitchell's model was based on a comprehensive review of specialty choice studies published from 1960 to 1972, and it represented an attempt to depict some of the processes behind specialty choice, drawing on more general theories from the behavioral sciences. More recently, Bennett and Phillips[18] suggested a different model, in which career choice is a longitudinal and dynamic process. Their model hypothesizes that students fit into one of four distinct groups, depending on their interest in primary care at matriculation—primary care committed, primary care positive, undecided, and non-primary-care committed. At graduation, students fit into one of two groups depending on their choice of a primary care versus a non-primary-care specialty. This model posits that every medical student's pathway from matriculation to graduation can be traced within these groups. Their decision-making process is influenced by several factors, such as personal characteristics, predisposition, curriculum, and the health care environment.

Other Models That Can Be Applied to Medical Students' Career Choice

Bandura's[19] social cognitive theory states that learning occurs through interactions with others and the environment, and it has been used as the basis for models that can be applied to career choice. For example, in 2015, Cruess and colleagues[20] published a schematic representation of the professional identity formation of medical students. Identity formation can be considered an inherent part of career choice, and many of its principles can be applied to primary care career choice decisions. In this model, students enter medical school with their existing personal identities, shaped by their personal characteristics and experiences. During medical education, they go through a process of socialization through which they become professionals; this is dynamic and is affected by multiple factors within and outside the educational system. Lent and colleagues'[21] social cognitive career theory provides a more generic framework of career choice. It conceptualizes the processes through which people form interests, make choices, and achieve various levels of success. It focuses on the interaction between an individual's cognitive characteristics (e.g., self-efficacy and outcome expectations) and the environment. Choices are not static; they are modified by ensuing performance outcomes (i.e., a feedback loop).

Medical students' career choices also can be viewed from a developmental perspective. For example, Bronfenbrenner's[22] ecological model of human development originally described the impact of the environment on a child's development, but it recently has been used as the basis for a framework for nurses' career choices.[23] This model considers the entire ecological system surrounding the student, which is composed of four socially organized subsystems that guide human growth—the microsystem representing activities and relationships immediately influencing the student; the mesosystem representing interactions between the components of the microsystem; the exosystem of events and activities that indirectly affect the student by directly influencing components of the microsystem; and the macrosystem which includes the overriding culture, values, and policies that influence the other systems. This model explicitly includes change over time within the chronosystem.

We found that none of these existing frameworks alone was sufficient to represent current knowledge about the variety of influences on primary care career choice—they do not take a broad approach regarding influencing factors,[17,18] they exclude the dimension of time and longitudinal evolution,[16] or they lack specificity for the medical education context.[21,22] Therefore, we developed an expanded conceptual framework of primary care career choice in undergraduate medical education, based on these existing models.

An Expanded Conceptual Framework of Medical Students' Primary Care Career Choice

Our framework consists of two parts—the central part and the outer part (see Figure 2). The central part represents students' career choice pathways from the beginning of their medical education to graduation. The outer part is composed of the different levels of influence and their interactions. The dimension of time is also represented, reflecting changes in students' choices along with changes in the influencing factors.

The central part: Students' pathways through medical education

The central part is divided into three components—students' preexisting characteristics, the decision-making process during medical school, and career choice at graduation. Students' preexisting characteristics and values can influence their career choices. These characteristics include, among others, students' societal orientation, interest in a varied scope of practice, rural background, gender, and socioeconomic status.[24–26] These characteristics also influence students' perceptions of different specialties and of the medical profession and condition students' initial interest. As in the Bennett and Phillips model,[18] we hypothesize that students can fit into groups according to their initial interest in primary care versus that in other specialties.

Depending on the local context, students participate in a selection process, based on academic and/or nonacademic criteria (i.e., entrance exam, admissions interview, student criteria, or performance-based selection before or during the first years of medical school). Students then complete a complex career choice process, starting with their initial specialty of interest and ending with their choice at graduation. During this process, they continuously match their personal interests with their perceived characteristics of different specialties.[21] Students' preexisting characteristics influence their cognitive determinants of self-efficacy and outcome expectations. Self-efficacy refers to students' confidence

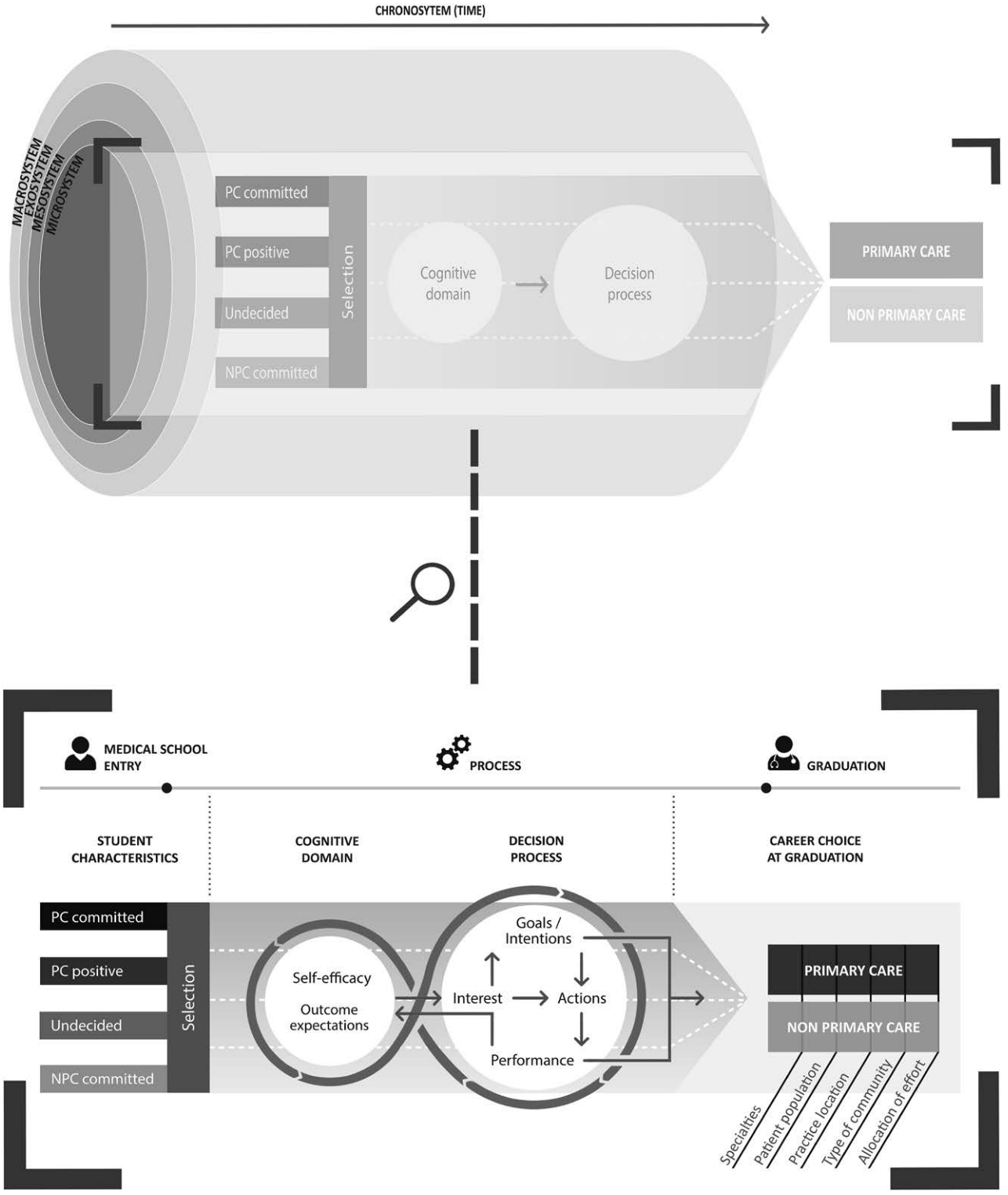

Figure 2 An expanded conceptual framework of medical students' primary care career choice. Students enter the process of decision making with their personal characteristics and initial interest in primary care, and they emerge at graduation with a choice for their future career (depicted in the central part of the framework). This process is influenced by various factors, which are grouped into hierarchical systems (depicted in the outer part of the framework as concentric circles). The lower part of the figure is a detailed representation of students' career choice process. Preexisting personal characteristics influence students' initial interest in primary care; based on this interest, students fit into one of four distinct groups—primary care (PC) committed, primary care positive, undecided, and non-primary-care (NPC) committed. During this process, students may change career paths, and then they make a career choice at graduation regarding their postgraduate training.

in their ability to complete the tasks necessary to enter a given career. Outcome expectations encompass students' beliefs about the consequences of a certain behavior or choice. Expected outcomes can be physical (e.g., financial reward), social (e.g., status or role in society), or self-evaluative (e.g., self-satisfaction). These cognitive domains in turn define students' interests (i.e., it is likely that students will be interested in a specialty in which they view themselves as efficacious and in which they expect positive outcomes).

Students' interest in a specialty leads to career intentions or goals, which in turn increases the likelihood of them taking certain actions to achieve those goals (e.g., choosing a primary care elective or investing time to study in a certain domain). Students' actions influence their performance outcomes, such as success on examinations or positive feedback from teachers, which reinforces or causes students to revise their cognitive variables (i.e., a feedback loop). This dynamic process repeats itself over the course of medical education. At graduation, students make a decision concerning their postgraduate training and career choice.

In accordance with Mitchell's conceptual model,[17] career choice in our framework comprises not only a decision about specialty but also decisions about other domains, such as type of practice (e.g., hospital vs. private practice), practice location (e.g., choice of a particular city or region), type of community (e.g., urban vs. rural), and allocation of professional effort (e.g., number of duty hours or night shifts).

The outer part: The systems of influence

The factors that influence students' career choices are represented concentrically around the central part of our framework, based on Bronfenbrenner's[22] ecological model of human development and its application in the nursing career development framework (see Figure 2).[23] The main elements of the outer part of our framework are presented in Chart 1.

The student is positioned in the center and surrounded by a hierarchical system of influences. The microsystem directly affects the student (e.g., interactions with clinical teachers or the formal curriculum determining exam topics). The mesosystem represents interactions between the components of the microsystem—the events happening in one microsystem can affect what happens in another[27] (e.g., experiences within students' families can influence their experiences at medical school). The exosystem contains indirect influences on the student (e.g., the health care system will influence students' practice opportunities, in hospital wards, or in private practices). The overriding values and culture of society form the macrosystem (e.g., governmental support for primary care), which may influence medical school mission areas, faculty compositions, and the curricula, and thus play an important role in promoting primary care to students.[28,29] Time (the chronosystem) is represented by the cylindrical shape of the model, reflecting the possibility of change in the environment over time (e.g., a change in policies, the health care system, or the curriculum).

This outer system of influences affects the central part in several ways. It can modify students' self-efficacy and outcome expectations. For example, positive role models may foster students' feelings of self-efficacy to enter primary care, and readily available information on different specialties may influence their outcome expectations. The outer system also can foster students' advancement from interest to choice. For example, career counseling may help students achieve their goals through targeted actions, such as completing primary care electives.

Chart 1

Factors That Influence Medical Students' Primary Care Career Choices Across the Different Levels of the Hierarchical Structure Surrounding Them[a]

Microsystem	Mesosystem	Exosystem	Macrosystem
Physicians	*Interactions between the components of the microsystem*	Faculty board	Government
Faculty teachers		Faculty mission statements	Societal needs
Physical environment		Faculty relationships	Policies
Neighborhood		Faculty resources	Medical school culture
Practice location		Curriculum requirements	Accreditation requirements
Evaluation system		Health system	Traditions
Role models		Physician shortages	Social norms and values
Formal curriculum		Resource allocation	Life course options
Career counseling		Financial rewards	
Family		Job opportunities	
Friends		Internet	
Peers		Social and other media	

[a]This hierarchical structure is based on Bronfenbrenner's[22] ecological theory of human development.

Next Steps

Our framework of primary care career choice in undergraduate medical education provides an expanded visualization of this decision process in relation to students' individual assets and the complex interconnected systems of factors influencing their decisions. It offers an updated perspective on primary care career choice while integrating concepts and findings from the past. While helping to define the factors that encourage primary care career choice, our framework also can help define those actions that will keep away the students who are not fit for this career. In addition, through its collaborative development, our framework integrates perspectives from primary care, medical education, research, and medical practice to offer a visual summary of the variety of factors identified in the literature that could affect career choices.

Implications for research

Our framework offers a useful structure to guide the rapidly growing number of studies in this domain. A next step could be to identify highly researched as opposed to underresearched areas of our framework. For example, a recent review of family medicine research identified the need for greater methodological breadth,[30] calling for studies asking "how and why" interventions work, instead of focusing only on "whether" they work. Our framework may encourage researchers to more thoroughly investigate the mechanisms and processes behind educational interventions. However, it needs to be tested and

challenged, which represents another next step. In addition, the stability of students' primary care career choices between matriculation and graduation varies across studies, probably reflecting different local contexts.[31,32] Most studies are limited to measuring career preferences at matriculation and career choice at graduation, but they do not study the dynamics of the process in between. Also, many of these studies use cross-sectional designs, which are unable to capture change over time. We therefore need cohort studies with repeated measures that analyze these processes and put them in a broader context.

We suggest the following examples of research questions for future studies based on our framework: (1) How do students' choices evolve over time? (2) When and why do changes in career choice take place? (3) Is there a relationship between the dynamics of career choice over time, student characteristics, and medical school characteristics? (4) How do the systems of influence change and interact over time?

Qualitative methods may be particularly suited to study these processes, which are complex, dynamic, and multifactorial.[33] For example, qualitative researchers could examine how learning experiences influence different parts of students' decision-making process. Because not all students are suited for primary care practice, our model also could be used to identify the factors that help students find the right career track according to their personal characteristics and aspirations.

Implications for medical education

In our recent literature review, we suggested that longitudinal programs were needed to increase the number of students choosing a primary care career.[5] Our framework helps to integrate the notion of change over time and the stages of the choice process into such longitudinal programs. Learning activities may have different effects depending on where they are in the curriculum.

For existing primary care curricula, our framework may be used to analyze current teaching activities and other modifiable factors in the context of student development. The impact of changes in the wider system of influencing factors can be followed and analyzed over time and across levels (e.g., studying the impact of policy changes on the components of the exo- and microsystems).

Limitations of the framework

Our framework's main weakness is that it is conceptual and has not yet been tested in a practical context. Although its parts are based on previously published models, several hypotheses await confirmation, and some parts are derived from broader models of career choice that have not been previously applied to the medical education context. In addition, our framework is limited to undergraduate medical education. We chose to focus on this period because our main goal was to develop a tool for analysis, planning, and research in the context of teaching primary care at medical schools. Yet, in many countries, career choice is not fixed and can change during postgraduate education.[34] We expect that a similar process to the one we described during undergraduate education takes place during postgraduate education; thus, our framework could be applied to explore career choice after graduation as well. Next, most of the literature on which our framework is based comes from the United States. Thus, some influences that are important in other countries may not be represented. Finally, as we included only MD-degree-granting (allopathic) medical schools in our review of the literature, our framework may not fit other teaching contexts, such as DO-degree-granting (osteopathic) schools.

Conclusion

Research on primary care career choice and the role of medical education in such decisions needs a stronger conceptual basis, which focuses more on the processes of this decision rather than only on the outcomes. Such research should continue to include student characteristics while also considering the systems of influence within the medical school as well as those beyond the immediate educational context. Our framework is a result of a collaborative effort between those in primary care and in medical education. It provides a conceptual basis for future research and for educational interventions aimed at fostering medical students' primary care career choice.

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References

1 Petterson SM, Liaw WR, Tran C, Bazemore AW. Estimating the residency expansion required to avoid projected primary care physician shortages by 2035. Ann Fam Med. 2015;13:107–114.

2 Matson C, Davis A, Epling J, et al; ADFM Education Transformation Committee. Influencing student specialty choice: The 4 pillars for primary care physician workforce development. Ann Fam Med. 2015;13:494–495.
3 Bodenheimer T, Pham HH. Primary care: Current problems and proposed solutions. Health Aff (Millwood). 2010;29:799–805.
4 Petterson SM, Liaw WR, Phillips RL Jr, Rabin DL, Meyers DS, Bazemore AW. Projecting US primary care physician workforce needs: 2010–2025. Ann Fam Med. 2012;10:503–509.
5 Pfarrwaller E, Sommer J, Chung C, et al. Impact of interventions to increase the proportion of medical students choosing a primary care career: A systematic review. J Gen Intern Med. 2015;30:1349–1358.
6 Wakeford R. Fire the Medical Schools Council if you want more GPs. BMJ. 2014;349:g6245.
7 Chater G, Brewster O, Dambha H. Why we don't want to be GPs: The student perspective. BMJ. 2014;349:g6971.
8 Majeed A. The NHS, not medical schools, is responsible for the crisis in GP recruitment. BMJ. 2014;349:g6967.
9 Deutsch T, Hönigschmid P, Wippermann U, Frese T, Sandholzer H. Don't select medical students—Convince them. CMAJ. 2011;183:2017.
10 Calvert B, Williams H, Rosenthal J. GP careers: Changing student perspectives. Br J Gen Pract. 2014;64:201–202.
11 Munro NM. Making careers in general practice more attractive. BMJ. 2014;349:g6962.
12 Bordage G. Conceptual frameworks to illuminate and magnify. Med Educ. 2009;43:312–319.
13 Meurer LN, Bland CJ, Maldonado G. The state of the literature on primary care specialty choice: Where do we go from here? Acad Med. 1996;71:68–77.
14 Ringsted C, Hodges B, Scherpbier A. "The research compass": An introduction to research in medical education: AMEE guide no. 56. Med Teach. 2011;33:695–709.
15 Kemmis S, McTaggart R. Participatory action research: Communicative action and the public sphere. In: Denzin NK, Lincoln YS, eds. The Sage Handbook of Qualitative Research. 3rd ed. Thousand Oaks, CA: Sage Publications Ltd.; 2005:559–603.
16 Bland CJ, Meurer LN, Maldonado G. Determinants of primary care specialty choice: A non-statistical meta-analysis of the literature. Acad Med. 1995;70:620–641.
17 Mitchell WD. Medical student career choice: A conceptualization. Soc Sci Med. 1975;9:641–653.
18 Bennett KL, Phillips JP. Finding, recruiting, and sustaining the future primary care physician workforce: A new theoretical model of specialty choice process. Acad Med. 2010;85(10 suppl):S81–S88.
19 Bandura A. Social Foundations of Thought and Action: A Social Cognitive Theory. Englewood Cliffs, NJ: Prentice Hall; 1986.
20 Cruess RL, Cruess SR, Boudreau JD, Snell L, Steinert Y. A schematic representation of the professional identity formation and socialization of medical students and residents: A guide for medical educators. Acad Med. 2015;90:718–725.
21 Lent RW, Brown SD, Hackett G. Toward a unifying social cognitive theory of career and academic interest, choice, and performance. J Vocat Behav. 1994;45:79–122.
22 Bronfenbrenner U. Toward an experimental ecology of human development. Am Psychol. 1977;32:513–531.
23 Hickey N, Sumsion J, Harrison L. Why nursing? Applying a socio-ecological framework to study career choices of double degree nursing students and graduates. J Adv Nurs. 2013;69:1714–1724.
24 Querido SJ, Vergouw D, Wigersma L, Batenburg RS, De Rond ME, Ten Cate OT. Dynamics of career choice among students in undergraduate medical courses. A BEME systematic review: BEME guide no. 33. Med Teach. 2016;38:18–29.
25 Senf JH, Campos-Outcalt D, Kutob R. Factors related to the choice of family medicine: A reassessment and literature review. J Am Board Fam Pract. 2003;16:502–512.
26 Wright B, Scott I, Woloschuk W, Brenneis F, Bradley J. Career choice of new medical students at three Canadian universities: Family medicine versus specialty medicine. CMAJ. 2004;170:1920–1924.
27 Bronfenbrenner U. Ecology of the family as a context for human-development—Research perspectives. Dev Psychol. 1986;22:723–742.
28 Tandjung R, Djalali S, Hasler S, Scherz N, Rosemann T, Markun S. Acceptance of interventions to promote primary care: What do physicians prioritize? BMC Fam Pract. 2015;16:178.
29 Hafferty FW. Beyond curriculum reform: Confronting medicine's hidden curriculum. Acad Med. 1998;73:403–407.
30 Webster F, Krueger P, MacDonald H, et al. A scoping review of medical education research in family medicine. BMC Med Educ. 2015;15:79.
31 Scott I, Gowans M, Wright B, Brenneis F. Stability of medical student career interest: A prospective study. Acad Med. 2012;87:1260–1267.
32 Compton MT, Frank E, Elon L, Carrera J. Changes in U.S. medical students' specialty interests over the course of medical school. J Gen Intern Med. 2008;23:1095–1100.
33 Scott I, Wright B, Brenneis F, Brett-Maclean P, McCaffrey L. Why would I choose a career in family medicine? Reflections of medical students at 3 universities. Can Fam Physician. 2007;53:1956–1957.
34 Buddeberg-Fischer B, Klaghofer R, Abel T, Buddeberg C. Swiss residents' speciality choices—Impact of gender, personality traits, career motivation and life goals. BMC Health Serv Res. 2006;6:137.