Residency Specialty Choice Trends Over 24 Years

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Abstract

Studies have shown a decrease in the match rate in general medical and primary care-focused specialties among US medical school graduates and an increase in that of subspecialties with "controllable lifestyles." We evaluated the percentage of Harvard Medical School graduates who matched into high-income controllable lifestyle, low-income controllable lifestyle, and noncontrollable lifestyle specialties from 1994 to 2017. Using linear regression, we found that the percentage of students matching into high-income and low-income controllable lifestyle specialties has increased over time, while those matching into noncontrollable lifestyle specialties – comprised largely of primary care fields – decreased. Such trends may impact the US physician workforce composition over time, with growth of residency positions into fields such as internal medicine exceeding the matriculation of U.S. medical graduates into these positions. We examine whether future policies should focus on incentivizing students to pursue such noncontrollable lifestyle specialties by highlighting controllable lifestyle elements within these fields and emphasizing alternative rewards which may attract candidates to these pursuits.

Keywords: RESIDENCY SPECIALTY CHOICE TRENDS, CONTROLLABLE LIFESTYLE, INCOME LEVEL, CAREER CHOICE

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Introduction

Career choice and the factors influencing specialty choice among graduating medical students – ranging from personality, to perceived lifestyle, to earning potential – have been the subject of multiple investigations (1-4). Recent studies have shown a decrease in the match rate in general medical and primary care-focused specialties among US medical school graduates and an increase in that of subspecialties with "controllable lifestyles" (3, 5-7). Controllable lifestyle (CL) specialties – defined as fields that provide physicians greater ability to control the total number of hours dedicated to practice and allow for personal time dedicated to family, leisure, and avocational pursuits – have been identified variably across studies but have frequently included anesthesiology, dermatology, emergency medicine, neurology, ophthalmology, otolaryngology, pathology, and psychiatry (2). In contrast, specialties with noncontrollable lifestyles (NCL) have often included primary care specialties such as internal medicine, family practice, pediatrics, surgery, and obstetrics-gynecology (2).

Evaluation of National Residency Matching Program (NRMP) data has demonstrated a 13% decline in the match rate of US seniors into general surgery residency, an NCL specialty, from 1994 to 2014 with proportional increases in the percentage of non-US internal medical graduates by 62% during this time period (5). Similarly, family medicine positions filled by US seniors have declined from 72% in 1986 to 45% in 2016 (6). The percentage of US medical graduates matching into general medicine residency programs (internal medicine, family

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medicine, and pediatrics) was noted to have decreased from 49.2% in 1987 to 44.2% in 2002 (3). Questionnaires distributed to fourth-year medical students during this time period (1998 to 2004) identified specialty lifestyle (P=0.018) and income (P=0.011) concerns as major influences on career choices (3). Up to 55% of the variability in specialty choices from 1996 to 2002 has been attributed to CL influences after controlling for income, work hours, and years of graduate medical education (P<0.001) (1).

More recent data has continued to affirm this trend. In a study from 2010 specifically examining students from highly-ranked medical schools, graduates were more likely to prefer higher-income, controllable lifestyle specialties over those with less controllable lifestyles or lower incomes (8). We sought to further explore these trends over the past 24 years and analyze the percentage of students choosing high-income CL, low-income CL, and NCL specialties at Harvard Medical School (HMS), a highly ranked, research-based institution.

Methods

HMS residency match lists were reviewed from 1994 to 2017, including a total of 3,794 graduates. Specialty choices were grouped into high-income CL, low-income CL, and NCL lifestyle specialties based on categorizations of prior studies in the field (Table 1) (1, 2). Using linear regression analysis, we sought to examine match trends over time.

Results

Over the 24 years studied, we found that the percentage of graduates matching into high-income CL specialties ranged from 11-31% with an increasing trend over time (Figure 1). Similarly, the percentage of graduates matching into low-income CL specialties ranged from 7-21% with an increasing trend over time. In contrast, the percentage of graduates entering NCL specialties ranged from 51-79% with a declining trend over time.

Table 1: Specialty Categorization Based on Lifestyle and Income

High-income, controllable lifestyle specialties	Radiology
	Anesthesia
	Otolaryngology
	Dermatology
	Ophthalmology
	PM&R
	Radiation Oncology
Low-income, controllable lifestyle specialties	Emergency Medicine
	Otolaryngology
	Pathology
	Neurology
	Psychiatry
Non-controllable lifestyle specialties	Internal Medicine
	Family Practice
	Pediatrics
	Obstetrics-Gynecology
	General Surgery
	Orthopedics
	Urology
	Vascular Surgery
	Plastic Surgery
	Oral Surgery
	Medicine-Pediatrics
	Neurosurgery

Discussion

Our observation of the increasing preference of HMS graduates for CL specialties – both high- and low-income – with a corresponding decline in the percentage of students entering NCL specialties is in keeping with prior studies. Additionally, we observed a higher rate of increase in the percentage of students matching into high-income CL than low-income CL specialties during the 24 years studied. It is believed that lifestyle influence on specialty choice may be representative of larger societal trends for individuals aged 24 through 38 years to devoting more time to life outside of work (1). Factors such as the rising level of student debt and increasing percentage of women in medicine have been suggested to influence overall specialty selection (1); both have increased during the observed time

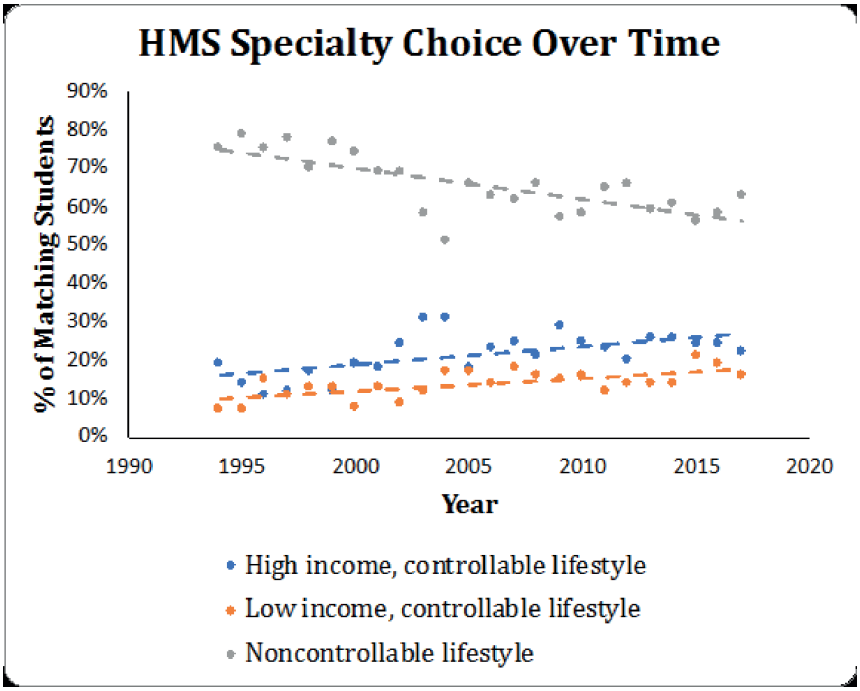

Figure 1: Percentage of Medical Students Matching into High-Income, Controllable Lifestyle, Low-Income, Controllable Lifestyle, and Non-controllable Lifestyle Specialties Over Time. Linear regression analysis was conducted on the percentage of students entering into high-income CL specialties, low-income CL specialties, and NCL specialties over time. The slopes for the linear regressions of high-income CL specialties, low-income CL specialties, and NCL specialties were 0.0047, 0.0034, and -0.0082, respectively. In addition, the R^2 values were 0.3478, 0.4466, and 0.5539, respectively.

period at HMS.

Our observation has several limitations, particularly in that it is limited to a single institution. In addition, the specialty categorizations may be subjective as defining "controllability" is not a universal standard; we used previously published classifications to provide some comparison (2). Additionally, we did not poll graduates to see which factors most strongly influenced their individual decision-making process in specialty choice – including personality, age, sex, personal life experiences, or specialty characteristics.

Despite these limitations, we believe our observations reinforce an important shift toward controllable lifestyle as an increasingly important factor in choosing a specialty among graduates from a highly-ranked medical school. This change may reflect a generation of physicians with multiple talents and hobbies that aim to balance life both inside and outside of clinical practice. This trend may present problems for NCL specialties. For example, Internal Medicine has shown a higher rate of growth in residency positions compared to the matriculation of US allopathic graduates into these residency positions in recent years (3.17% vs 2.17%) (9). Attention should be paid to strategies for recruiting medical school graduates into specialties that have exhibited down-trending rates over time.

Studies have also shown a disproportionate growth in residency positions for emergency medicine, radiology, ophthalmology, anesthesiology, and dermatology (by an average of 72 positions annually) compared to primary care (an average of 19 positions annually) from 1986 to 2016 (6). In order to meet the health needs of the communities in the US and encourage US physician graduates to enter NCL specialties that may be facing future shortages, strategies that may be advocated include passing legislation or offering targeted incentives that encourage students to enter

NCL specialties to prevent future shortages. Programs that have been instituted to provide loan forgiveness targeted at individuals pursuing primary care specialties are an example of an approach to eliminating factors such as debt burden which may influence medical school graduates away from particular specialties. Additional models have included shortening the course of training required in medical school for students interested in primary care careers. Finally, unidentified or unpopularized elements of controllability in NCL specialties should be highlighted for trainees to increase their awareness and the specialty's level of attractiveness for future US medical graduates and to ensure graduates are appropriately informed when weighing career specialty choices.

Conclusion

In conclusion, we report on the increasing percentage of HMS graduates matching into high-income and low-income CL specialties as opposed to the decreasing percentage of students matching into NCL specialties over 24 years. By making changes that allow for increased controllability in NCL specialties, we hope that future trainees will be able to select a specialty based on desired practice characteristics, academic opportunities, inspiring mentors, personality attributes, and life experiences. These changes may also help the US physician workforce attain the optimal composition necessary for the health needs of US communities.

Conflict of Interest

The authors declare no conflict of interest.

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