Improved Matriculation of Minority Students Into Medical School Through Participation In An Internet-Based Mentorship Program, Daniel Williams, MD

INTRODUCTION

The United States can be viewed as a cultural melting pot containing diverse cultures which affect patient attitudes towards healthcare.[1] There has been consistent underrepresentation of minorities among both physicians and their physical distribution among society.[2] For example, there are 65 million people living in Health Provider Shortage Areas (HPSA), according to the U.S. Department of Health and Human Services. Currently 20% of Americans live in rural areas, but only 9% of physicians live there.[3]

Comparing 2010 U.S. Census data to medical school matriculate demographics for the same year yields a current snapshot of racial/ethnic disparities within academic medicine. Only Caucasians and American Indian or Alaskan Natives matriculate into medical school in percentages that closely reflect their representation in society at large (97% and 111.1%, respectively).[4,5] Asians (468.8%) and Native Americans or Pacific Islanders (200%) are actually overrepresented within medicine with respect to their demographics.[4,5] Latinos or Hispanics (47.2%) and Blacks or African Americans (64.3%) remain underrepresented, with the Latino group being the largest disparity.[4,5] Additionally, 24.4% of medical student applicants identifying as Latino or Hispanic actually matriculate. The 2002-2011 trends in medical school matriculates reveal that the Latino and Asian applicants are increasing, while the African American and Caucasian applicants are decreasing.[5]

Substantial discourse regarding reasons for barriers to medical careers has been discussed in the literature.[6-8] Available data suggests that minority students frequently have lower undergraduate grade point averages (GPA), Medical College Admission Test (MCAT) scores, and United States Medical Licensing Examination (USMLE) Step 1 scores.[2] Fortunately, USMLE Step 2 scores (and beyond) increase to meet national averages.

This study sought to explore a novel approach to increasing minority representation in medical school. The Medical Mastermind Community (MMC) was developed in 2008 to bridge the gaps in academic and social support for future physicians by providing scientific education, personalized career counseling, and a long-term supportive community for participants. Data was previously published that showed increased MCAT and undergraduate GPA scores and this is a follow-up study assessing matriculation of participants of the MMC.[9]

METHODS

A list of 363 colleges and universities located in counties federally-designated as Health Provider Shortage Areas and/or Medically Underserved Areas was compiled. A random, pilot sample of 5 schools was contacted and recruited for participation. All students interested in a career as a physician were invited to participate in a one-year, teleconference style mentorship program which included didactic lectures about the field of medicine, academic resources, study skills training, access to physicians and current medical students, and group discussions.

Students were provided informed consent. After one year, a survey was electronically mailed to the participants. The primary outcome measure was medical school matriculation. Additional survey components included age, gender, duration of participation in the MMC, number of failed medical school application attempts, willingness to serve medically underserved populations, and GPA and MCAT scores before and after MMC participation.

A control group of premedical students was recruited through email lists of the National Hispanic Medical Association, American Medical Association, National Hispanic Fund, U.S. Department of Health and Human Services, National Association of Advisors for the Health Professions, and multimedia campaigns in YouTube and iTunes. The survey also asked about previous participation in the Medical Mastermind Community to reduce cross-contamination. This study was approved by the institutional review board at the American Institutes for Research.

RESULTS

Table 1 shows the demographic characteristics of the 569 survey respondents. The majority (54%) was male and the average age was 24, with a range of 23-29. Caucasians were a minority at 262 (46%), followed by Latinos (154, 27%), African Americans (102, 18%), Asians (25, 4.5%), Native Americans or Pacific Islanders (15, 2.6%) and American Indians or Alaskan Natives (11, 1.9%).

Seventy-six students (16.2% were mentored by the Medical Mastermind Community. Among this group, 42 (55.3%) were male and 34 (44.7%) were female. Forty-three students were able to report changes in MCAT scores, while 32 had not yet taken the test. Seventy-nine percent of students reported increased MCAT scores. The average overall MCAT score improvement was 3.37 points, with a range of 0-10. Fifty-one students were current undergraduates, able to report GPA changes, while 25 were Postbaccalaureate. Sixty percent reported an increase in their GPA. The average GPA increase was 0.39 on a 4.0 scale (~10% increase), ranging from 0-1.5. Students that participated in more than 3 months' of mentorship by the MMC were twice as likely to matriculate into medical school (61% vs. 27%; OR=2.3) and this factor was consistent across all demographic groups (Table 2). The African American population had the best acceptance rate (66%) with an average of 2 application cycles.

DISCUSSION

There were more males than females among respondents, which was opposite of the trend in U.S. matriculates. The respondents had an overrepresentation of minorities in all categories, which is likely a reflection of the often minority-serving organizations used to recruit the students. The previously presented increased MCAT and GPA scores appeared to have a congruent effect on the acceptance rates of minorities into medical school. While there exists

no firm data on the true number of premedical students that never follow through with application to medical school, these mentorship methods appear robust enough to increase competitiveness in such a way as to warrant more research and application.

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