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Research paper

A call to action to address diversity in public health professional preparation

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What is known on this subject
- The general population in the United States and United Kingdom is growing more diverse.
- A culturally competent public health workforce is needed to address health-related issues in diverse populations.
- Diversity must be integrated into the public health learning environment for adequate preparation of public health professionals.

What this paper adds
- A review of data describing the diversity of students in US schools and programs of public health.
- Suggested explanations for the under-representation of students of specific demographic groups.
- Potential strategies for schools, agencies, and organisations to increase the diversity of public health students.

ABSTRACT

Public health needs professionals who can manage a multitude of health issues that require inter-disciplinary approaches and a wide range of perspectives in order to be adequately addressed. Educating a diverse body of public health students will increase the likelihood that the workforce can address the inherent challenges of an increasingly diverse United States (US) population. This study analysed enrolment data from 37 schools and 29 programmes accredited in public health, to assess the level of diversity among US public health students. Findings showed that certain racial and ethnic groups were under-represented, particularly Hispanics, the fastest growing ethnic minority group in the US. The rates of acceptance for these groups have remained stagnant or decreased over the past decade. There is also substantial sex inequity in schools and programmes of public health, as females made up the majority of students. This study offers explanations for the disparities in public health student enrolment, as well as recommendations to increase the diversity of students in public health, particularly for groups that are the most likely to be under-represented, and extends these recommendations to programmes outside the US.

Keywords: diversity, education, public health, schools of public health, students

Introduction

Public health professionals must manage a multitude of health issues that require interdisciplinary approaches and a melding of different perspectives. These issues include cardiovascular diseases, cancer, obesity, diabetes, mental illness, influenza, infectious diseases, and access to healthcare, and are carved along lines of socio-economic status, culture, sex, race, and ethnicity. Although population-level measures such as life expectancy and infant mortality rates indicate that the overall health of the United States (US) population has improved (Mechanic, 2002), there are still disparities in the health status of ethnic minority populations relative to non-Hispanic whites in the US (Mechanic, 2002; The Henry J Kaiser Family Foundation, 2007). Interrelated factors such as racial discrimination, limited educational attainment, and insufficient access to economic resources predispose disadvantaged groups to poor health, and a cycle of health disparity ensues (Braveman *et al*, 2004). It is critical to address the ways in which health issues impact different segments of the population, whether the ultimate causes are social, biological or cultural.

The anticipated shifts in the demographic composition of the US that will occur in the next several decades make health disparities of particular concern (Day, 1996). The size of the black and Hispanic populations is projected to increase steeply, while the US Census Bureau projects a relative decrease in non-Hispanic whites (Day, 1996). If current patterns of disproportionate social disadvantage and poorer health in racial/ethnic minority populations continue, there will be an increase in the size of the populations in greatest need of targeted public health services. In the light of the growing diversity of the US population, it is increasingly important that the public health workforce be prepared to address the myriad health issues that impact such a population.

This discussion is applicable not only to public health professional preparation in the US, but also to the preparation of public health professionals across the globe, although the educational systems differ in such contexts. For example, in the United Kingdom (UK) few distinct public health schools or programmes exist in university settings as they do in the US. While some universities, such as the University of Glasgow, offer distinct degree programmes in public health, public health professionals are primarily trained following completion of other health-related degrees in the UK, such as nursing and medicine. Similar to the US, however, an emphasis has been placed on training healthcare providers, some of whom eventually take on roles in public health, in issues pertaining to diversity of patient populations (General Medical Council, 2003). Comparable statistics to those described above for the US suggest that the diversity of the population in the UK is also growing (Office for National Statistics, 2007), and that training a diverse workforce of healthcare professionals is critical to addressing the needs of the changing population in the UK as well (Loudon *et al*, 1999; McGee and Johnson, 2004).

This paper explains why it is critical to have a diverse public health workforce in order to bring to bear varied perspectives when addressing the health threats in at-risk populations and, further, that developing such a workforce is a particularly important and appropriate role for schools and programmes of public health and other organisations.

Need for a diverse workforce

The Institute of Medicine has emphasised the importance of cultural competence among the public health workforce in the US (Institute of Medicine, 2003). Similar ideas have been offered regarding the importance of training culturally competent health professionals outside the US as well (Robins, 1995; McGee and Johnson, 2004). A culturally competent health professional comes equipped with the knowledge, skills and attitudes necessary to address the health issues that impact different subsets of the population (Institute of Medicine, 2003). However, the public health workforce cannot become culturally competent by only studying texts and attending lectures related to ethnic diversity (Cohen *et al*, 2002).

To increase the workforce's cultural competency, improve access to health services by the underserved, and address unsolved public health issues through innovative research (Cohen *et al*, 2002), diversity must be integrated into the learning environment and reflected in the demographic characteristics of both faculties and student bodies. Peer interaction is an important component of education in public health (Chavez *et al*, 2006). Students' experience with a demographically varied group of peers will substantially increase the likelihood that they enter the workforce equipped to address health issues of populations with an array of demographic and cultural characteristics. Just as a competent and diverse public health workforce will bring a greater understanding to issues of minority health in practice (Morssink *et al*, 1996), a diverse public health student body will enhance students' understanding of the issues that affect diverse populations through educational interactions. In addition, many students will also practise public health in a global context upon graduation, where competence in cross-cultural understanding and interaction is of equal importance.

Recent demographic trends in US public health student enrolment

In the US, public health education is offered through free-standing schools of public health and also by public health programmes based within schools of medicine or other schools whose mission includes public health. For over 10 years, the Association of Schools of Public Health (ASPH) has documented the trends in applications, admissions and the graduation of students at member schools in the US, based on demographic characteristics (Association of Schools of Public Health, 2008). Similarly, the Council on Education for Public Health (CEPH) requires schools and programmes to describe and document their commitment, policies and actions to achieve a diverse student makeup, regardless of their success, to achieve accreditation (Council on Education in Public Health, 2005). We reviewed the two most recent ASPH Annual Data Reports, that is to say for 2004–2005 and 2005–2006, on 37 member schools, all of which are accredited by CEPH, and compiled enrolment data from the 29 CEPH-accredited programmes of public health reporting information for the 2004–2005 academic year. CEPH data were extracted directly from the programmes' self-study reports, by two of the study authors (DM and TK). For both free-standing schools of public health and accredited programmes, the targeted percentages of students of racial/ethnic minority groups are similar to that of the general population. To this extent, the data reflect efforts of the ASPH, CEPH and individual schools to create a diverse public health student body. However, there remains room for improvement, especially when the changing US demographic of increased representation and disproportionate needs for public health services in populations of colour are considered. Targets for the proportions of students from various subgroups would differ if based on the distribution of public health problems in the population that are affected disproportionately by such matters.

Our review of the composition of US public health students reveals a telling description of our future public health professionals; the level of diversity may not reflect that necessary to produce a workforce equipped to address the health issues of the rapidly changing US population (Association of Schools of Public Health, 2007, 2008). Table 1 illustrates the typical school of public health based on the 37 ASPH member schools reporting data for the 2005–2006 academic years, as well as data since 1995. Table 2 displays data from the CEPH self-study reports from 29 programmes reporting enrolment data from the 2004–

Table 1 Public health student body ASPH member schools, 1995–2006[a]

Year	Female (%)	White (%)	Black (%)	Hispanic (%)	Asian (%)	Native American/ Alaskan native (%)	Total minority (%)
2006	70.0	60.8	11.6	8.6	12.3	0.7	33.2
2005	70.6	60.0	11.4	9.1	12.6	0.8	33.9
2004	69.6	60.9	11.6	9.3	11.8	0.8	33.6
2003	68.5	61.7	11.3	9.3	11.7	1.0	33.3
2002	66.4	65.0	11.1	9.4	11.9	0.8	33.2
2001	68.2	65.7	11.0	9.6	13.0	0.7	34.3
2000	68.0	67.8	10.1	8.2	13.1	0.8	32.2
1999	66.8	68.0	9.4	9.4	12.5	0.7	32.0
1998	65.7	68.7	8.6	9.5	12.6	0.7	31.3
1997	65.3	68.7	8.5	10.1	12.0	0.7	31.3
1996	64.3	70.6	8.3	9.0	11.3	0.8	29.4
1995	63.8	72.2	8.1	8.8	10.0	0.8	27.8

[a] Table derived from Tables 3–11 and 3–12 of the 2005 and 2006 ASPH annual data reports

2005 academic years. Racial/ethnic minority students represent approximately 33% of the student body at schools of public health as of 2006 (see Table 1), and approximately 43% of the students at programmes of public health identified as non-white (see Table 2). However, these percentages may be misleading with respect to the representation of certain population subgroups, in particular when considering the growth of specific minority groups in the US population.

The clearest example of this is among Hispanic students. Even when one school of public health is composed entirely of Hispanic students, representing nearly one-third of all Hispanic students, Hispanic students represent approximately 8% of all students enrolled in ASPH member schools (see Table 1). When this school is not included, Hispanic students are approximately 6% of all students at schools of public health, compared with nearly 12% of the US adult population (US Census Bureau, 2005). Hispanic students are also under-represented at public health programmes, that is to say those based in other types of schools, representing 4.1% of students who enrolled in 2004–2005 (see Table 2). While the Hispanic population in the US continues to grow rapidly (US Census Bureau, 2007), enrolment of Hispanic students in our schools of public health clearly does not parallel this trend.

The overall acceptance rates for racial/ethnic minority groups and the rates for specific groups such as black and Asian applicants at schools of public health have grown over the past decade. However, the acceptance rates, in particular for Hispanic students, have decreased, and rates for American Indian/Alaskan natives have remained level (Association of Schools of Public Health, 2008). In the autumn of 2006 the acceptance rate for minority students overall was 13% lower than that of white students at schools of public health (Association of Schools of Public Health, 2008). These results are consistent with another report illustrating that minority students are admitted at lower rates than whites (Grunbach *et al*, 2003). Without knowing all of the variables that determine acceptance rates and how they can be modified, these findings suggest the need for better pipelines and larger applicant pools among under-represented groups in order to increase the absolute numbers who enter the field.

The sex distribution in schools and programmes of public health is also unbalanced. Over the past decade, females have represented a much higher proportion of applicants and accepted and enrolled students at schools of public health than have males; hence, the number of female students is growing while the proportion of male students has shrunk (see Table 1). Specifically, since 1995 the percentage of male applicants has decreased from nearly 37% to just fewer than 30% of all applicants in the autumn of 2006, and acceptance rates for females were higher than for males in the autumn of 2005, by nearly 5% (Association of Schools of Public Health, 2007, 2008). Males and females are under-represented in different disciplines; for example, health education has fewer males and biostatistics fewer females (Association of Schools of Public Health, 2008). In public health training programmes outside schools of public health, the majority of students was overwhelmingly female (see Table 2), except in a few programmes based at schools of medicine. This sex imbalance at schools and programmes of public health may reflect a broader trend in health sciences professional schools (Brown, 2006). There is some evidence that suggests a shift in the sex balance is occurring in medical education programmes in the UK as well, with the proportion of female medical students nearly tripling in the past several decades, reaching close to 70% at some schools (McManus, 1997; Carvel, 2002).

Possible explanations

The reasons for under-representation of certain groups in the public health student body are not completely clear. However, several potential explanations may be offered. A lack of knowledge and awareness about careers in public health generally, or certain specific public health disciplines, at decision-making points such as high school and college graduations is likely to contribute to the lack of diversity in the student body (Grunbach *et al*, 2003). Furthermore, some young people who are interested in healthcare fields may be lured towards more lucrative and higher status professions such as medicine and biomedical

Table 2 CEPH-accredited public health programmes reporting enrolment data for 2004–2005

	Female (%)	White (%)	Black (%)	Hispanic/ Latino (%)	Asian	Native American/ Alaskan native (%)	Other race (%)	Number of students
Mean	66.8	57.7	16.9	4.1	8.9	0.3	10.7	40.0

fields. Most US programmes attempting to educate high school and college students about health-related careers appear to focus on such fields (Grunbach *et al*, 2003). This is particularly important in the US, since medicine is not necessarily the primary route to public health education, and this may be the case in other settings as well. Finally, in the US, higher education comes at a great financial cost, particularly beyond the undergraduate level. In a field of study such as public health, where there is a scarcity of scholarships available (Smedley and Bristow, 2004), the costs associated with degree programmes in the US may be prohibitive for many prospective students. This will apply disproportionately to potential students in racial/ethnic minority populations, because the average income levels of these populations are lower (DeNavas-Walt *et al*, 2006).

A call to action

Our review indicates that some ethnic minority students are under-represented in the public health student body, and that the representation of ethnic groups such as Hispanics, which are growing rapidly in the US population, is not mirroring changes in the general population. While a dearth of minority representation has been evident for over a decade in particular disciplines within a field of public health such as epidemiology (Schoenbach *et al*, 1994), the importance of addressing this problem has only increased over time. The ethnic minority groups experiencing the most rapid growth in the general population in the US are also those affected at disproportionate rates by numerous health issues, making their under-representation among public health students a greater concern. Furthermore, male students are also under-represented in public health schools and programmes, raising concerns about the sex balance within the field. Additional efforts by schools, students and organisations such as CEPH and ASPH to improve the representation of minority groups are necessary to ensure a culturally competent public health workforce. Others have noted that there is a similar need to address the growing diversity of populations in other countries outside the US, to ensure the diversity and cultural competence of those delivering public health services (Loudon *et al*, 1999; McGee and Johnson, 2004). We propose five critical areas where these respective bodies can take action to ensure a diverse student body and diverse public health workforce in the future (see Table 3).

Table 3 Recommendations for increasing the diversity of students preparing for public health careers

Recommendation	Explanation
1 Empirical research exploring reasons for under-representation of specific groups of students, and strategies for improvement	Data are needed to describe characteristics beyond sex and race/ethnicity, such as sexual orientation and disability status, and the characteristics of students training in non-public health degree programmes such as medicine and nursing.
2 Tailored, targeted marketing and recruitment to minority and under-represented groups	Targeted recruitment through minority institutions (e.g. HBCUs) and organisations (e.g. minority student organisations) is needed.
3 Increase opportunities for support for under-represented students and students with limited resources	Efforts are needed to make public health professional preparation more affordable for students, particularly those who lack economic resources.
4 Expansion of public health to undergraduate programmes	Incorporating individual courses, areas of study, and degree programmes in undergraduate institutions will expose students to public health earlier.
5 Collaboration among schools and programmes, agencies, organisations and students, to make diversity in public health training a focal issue	Collaboration among all of these sectors, including those administering education, those hiring students upon graduation, and students, can aid in increasing diversity. International collaboration can help tremendously with this strategy.

1 Empirical research exploring reasons for under-representation of specific groups of students, and strategies for improvement

There are reports documenting under-represented groups in the public health student body (Grunbach *et al*, 2003), but there is little empirical research exploring the reasons for such shortages (Morssink *et al*, 1996). Faculty and students at schools and programmes of public health can take a leading role in exploring these issues through student dissertations and theses, and larger research projects by faculty. Data are also needed on student characteristics beyond race/ethnicity and sex, such as sexual orientation and disability. Furthermore, in the US and other countries, many public health professionals do not enter the workforce through public health programmes, but rather through education in nursing, medicine, and other fields. Some data suggest that, while the diversity of medical students in the UK is growing, the majority of medical trainees, some of whom go on to become public health officers, are white, and some minority groups are under-represented (Goldacre *et al*, 2001). Additional data are also necessary to examine the diversity of the public health workforce that is trained in contexts such as medicine and nursing.

2 Tailored, targeted marketing and recruitment to minority and under-represented groups

Evidence suggests that in the past decade more minority students are matriculating from baccalaureate programmes in the US (Grunbach *et al*, 2003); efforts should be increased to attract these graduates to schools and programmes of public health. Schools and organisations such as ASPH and CEPH should make concerted efforts to reach out to minority students through organisations such as Historically Black Colleges and Universities (HBCUs), the Hispanic Association of Colleges and Universities (HACU) and Tribal Colleges and Universities (TCUs). Including information about the relevance of public health to minority populations in recruitment materials may make recruitment efforts aimed at minority students more targeted and more appealing (Morssink *et al*, 1996). Tailoring recruitment materials to minority students and minority health issues through institutions such as HBCUs, the HACU, and TCUs may increase the number of applications from specific minority groups. Recruitment materials should also be tailored to bring males and females to areas of public health where they are under-represented: nutrition, biostatistics, environmental health, health behaviour, health education, and maternal and child health. Similar efforts could be extended in settings such as the UK, where minority groups such as black Caribbean students are under-represented in medical education (Goldacre *et al*, 2001), and where there is growing concern over the sex imbalance in medical schools (McManus, 1997; Carvel, 2002).

3 Increase opportunities for support for under-represented students and students with limited resources

The cost of graduate education in public health is exceedingly high, and increasing federal student loan interest rates make it difficult to justify incurring the debt necessary to complete a graduate degree in public health. According to ASPH, the average annual cost of education including tuition, fees, books and other expenses in 2004–2005 was $12 264 for in-state tuition and $18 665 for out-of-state tuition and fees, excluding cost of living, such as housing, transportation, and food. There are few scholarships available to students in public health, limiting opportunities to study public health at the graduate level for students who are unable to afford gradate-level training. There is also a lack of support for ethnic minority students in public health relative to biomedical fields (Grunbach *et al*, 2003). Increasing the number of specific minority scholarships, fellowships and assistantships available through the government and schools and programmes of public health will provide many students with a means to attend graduate school and create a more diverse student body. Faculty members should take a leading role in exploring additional opportunities for support for under-represented students at the institutional, state and federal levels.

4 Expansion of public health to undergraduate programmes

Lack of knowledge about the field of public health and career opportunities may contribute to the extant lack of diversity in the student body (Morssink *et al*, 1996). There are also relatively few US schools that offer opportunities to study public health at the undergraduate level. Undergraduate programmes represent an opportunity to expose students to careers in public health at critical points when they are deciding where their area of interest may lie. In particular, undergraduate students should be educated about the essential functions of public health, such as monitoring, surveillance and prevention, in order to raise awareness about nature and challenges of various public health career tracks.

5 Collaboration between schools and programmes, agencies, organisations and students, to make diversity in public health professional training a focal issue

The onus of increasing the diversity of the public health student body should not be placed solely on schools or organisations such as ASPH and CEPH or their counterparts in other countries. While these entities play a central role in increasing student diversity, there should also be collaboration with federal, state and local public health agencies where there are documented disparities and shortages in the public health workforce (Gebbie, 2004). Similarly, students can have a key role in efforts to increase diversity. For example, the American Public Health Association Student Assembly (APHA-SA) has approximately 7000 student members, a board consisting of 20–25 active students, and liaisons to more than 80 public health schools and programmes around the US. Student organisations such as APHA-SA represent an opportunity to use student liaisons to reach out to underrepresented groups in the public health student body. Student organisations in the US and in other countries also represent opportunities for international collaboration by such organisations to increase diversity. Examples include the Medical Student Committee of the British Medical Association, student leaders in the Canadian Public Health Association, the American Medical Student Association, National Student Nursing Association, and numerous others. A collaborative effort by schools/programmes, representatives of the workforce, and student organisations is a key factor to improving the diversity of the public health student body.

Conclusions

While active efforts by organisations such as ASPH and CEPH and schools and programmes of public health have led to some increases in the diversity of the public health student body in the US, data describing the student body at a sample of schools and programmes of public health indicate that more proactive and varied efforts are necessary to achieve this goal. Reports suggest similar patterns are visible outside the US as well. The need for a diverse, culturally competent public health student body is evident; however, there are clear shortages of specific groups in the US such as males and Hispanic students. The trends in applications, acceptances, and the proportion of the student body among minority groups and across sexes illustrate the need to recruit applicants from under-represented groups. Further exploration of the public health student body across other characteristics, including disability and sexual orientation, and among the students who train in educational settings such as nursing and medicine, is also necessary.

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CONFLICTS OF INTEREST

None.

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