Chapter 2
Epidemiology

Daria Boccher-Lattimore

Abstract In this chapter we will review what is known about the health of academic medical faculty and the related morbidities and mortalities. How are these experiences affected by gender, ethnicity, age, and cohort? What are the implications of an unwell academic faculty workforce? Other than the expected effect of impairment and performance, recent studies have shown the relationship between physician job dissatisfaction and less than optimal patient care. These results will be summarized and highlight the personal, professional, and institutional impact of faculty health.

Keywords Academic medical faculty, health status, mortality, morbidity, barriers to care

Introduction

17,596
the # of published articles with "health status" as a key subject heading
3,502
the # of published articles with "medical faculty" as a key subject heading
0
the # of published articles with "health status" and "medical faculty" as key subject headings[1]

D. Baccher-Lattimore
Assistant Professor of Clinical Sociomedical Sciences in Psychiatry, College of Physicians and Surgeons, and Mailman School of Public Health, Columbia University
Director, New York/New Jersey AIDS Education & Training Center, New York, USA
e-mail: dmb82@columbia.edu

[1] Based on Ovid Medline MeSH search for journal articles published 1950 through January 2008

T.R. Cole et al. (eds.) *Faculty Health in Academic Medicine*,

"Faculty health" is an elusive concept. While on the surface a seemingly obvious notion, defining it in an inclusive and measurable way becomes challenging. Who are medical and scientific faculty? And how do we define their health? Once one answers these questions and identifies an operational definition, the challenge becomes identifying available measures, as demonstrated in the example above. Although there is a significant amount of published literature on subjects such as stress and burnout among physicians (but not on scientists), this chapter addresses the dimensions of faculty health more broadly.

There are nearly 125,000 full-time medical faculty in the United States, including clinical specialists and generalists, and basic, behavioral, and social scientists [1]. The majority (62%) are medical doctors; a quarter of them are Ph.D. or other doctorate-level faculty; and 7% have dual degrees (M.D./Ph.D.). In order to meet the institutional missions of the academic medical center, faculty divide their time among research, teaching, and clinical duties to varying degrees. Recent changes in the environment of academic health care settings, decreasing financial security, and increasing demands on faculty have created an increasingly stressful environment for the academic medical faculty member. Stress and workplace factors have long been known to have ill effects on the workforce. However, little is known if and how the changing academic environment has impacted the health of its faculty.

The definition of health has evolved from the biomedical definition of "the absence of disease" to a multidimensional concept, which includes physical, social, mental, and spiritual well-being. Indeed, some have argued that measures of signs and symptoms of disease are not sufficient measures on health, rather functional outcomes are necessary to truly understand a population's health [2]. Yet as our conceptualization of health has expanded, the availability of adequate measures of such has lagged behind, particularly, as we seek to assess the health of a population. Our most readily available indicators of a population's health remain measures of disease and its consequences, i.e., morbidity and mortality.

Indicators of a population's health tend to come from three sources: vital statistics, surveys/self-reports, and information on health services utilization. Vital statistics provide us with counts on a population's mortality and the incidence and prevalence of some diseases. This information is often supplemented with survey data, which range from large surveys of nationally representative samples to cohort studies focusing on small well-defined populations. These surveys allow for measures of experiences of distress and functioning and their impact on quality of life. Finally, increasingly, researchers have turned to measures of health care utilization and health practices as indicators of a population's health.

This chapter will review the empirical literature on the mortality, morbidity, and health practices of academic medical faculty.

Mortality

14,008
the # of published articles with "mortality" as a key subject heading

3,502
the # of published articles with "faculty, medical," as a key subject heading
0
the # of published articles with "mortality" and "medical faculty" as key subject headings[2]

While mortality data are gathered on a regular basis, the literature is sparse on the mortality of academic medical faculty. Tens of thousands of articles address mortality and thousands are available focusing on medical faculty, yet no studies were referenced in the medical literature by both keywords, "mortality" and "faculty, medical". This is a function of the sources of mortality data and the available measures of population subgroups. Larger vital statistic databases are the primary source of mortality data. While these generally include measures of occupation, they do so with generic (often census-based) categories. These data allow for, at best, a comparison of similar occupational categories, e.g., physicians and other professionals. Further differentiation of occupational group is not possible; so, for instance, one cannot distinguish between physicians practicing in the community from those based in an academic medical center. Cohort studies are another source of cause-specific mortality data, allowing for a focused analysis of a well-defined population. However, these studies often lack external validity, i.e., have limited generalizability to groups outside of the study population. In addition, mortality data of physicians and academic medical faculty is limited by the fact that women and minorities entered this workforce relatively recently; hence, available data are insufficient for subgroup analysis.

One of the few comprehensive studies on all-cause and cause-specific mortality among physicians was conducted by Frank et al. with a proportionate analysis of data from the National Occupational Mortality Surveillance database [3]. The National Institute for Occupational Safety and Health (NIOSH) maintains this database of death certificate data with occupation information. The usual occupation of the decedent is coded according to the Bureau of the Census classification system, allowing for comparisons of mortality across similar job classifications.

The authors compared the proportion of deaths due to a specific cause in physicians with the proportion of that cause of death in lawyers and all professionals. The cause of death of physicians and other professionals over the age of 25 reported in 28 states between 1984 and 1995 were the basis of analysis. Analyses were gender- and race-specific and were limited to those with a race/ethnicity of white or black, due to small numbers of other races. However, data for women were not presented because there were relatively fewer older women in the physician population.

Nearly four million deaths were reported of men aged 18–90 years and whose race was either black or white: 204,365 white male professionals, 13,034 white male physicians; 13,558 professional black males, and 347 black male physicians.

[2] Based on Ovid Medline MeSH search for journal articles published 1950 through January 2008

Overall, white male physicians lived longer (73 years, mean age at death) than lawyers (72.3 years), other professionals (70.9 years), and men in the general population (70.3 years). A similar result was found among black males. Black male physicians lived longer (68.7 years) than other professionals (65.3 years), men in the general population (63.6 years) and lawyers (62 years). (Curiously, black male lawyers had the youngest mean age of death.) Stark, is the racial disparity in mean age of death, even among professionals. Black male physicians, while having the highest mean age at death among black males, had a younger mean age of death than all of the white male categories.

The overall finding that physicians live longer than others is not unexpected given the high socioeconomic status associated with the profession. However, this holds true even when comparing to professionals of assumed similar socioeconomic status. The reasons for this are not known, but may be attributed to better access to health care, more awareness of healthy behaviors and/or health practices. These will be examined below.

Frank et al. examined cause-specific mortality as well. Such subgroup analyses further reduced the sample size, so that cause-specific analyses concentrated on that of the white male physician populations. In general, the most common causes of death for white male physicians were similar to those in the general population: heart diseases and cancers. Elevated rates of death among white male physicians were found with accidents and suicide and drug-related causes. A similar analysis of the limited number of white female physicians shows an elevated rate of death due to drug-related deaths, suicide, and self-inflicted injuries. Black male physicians only differed from other black male professionals in a higher rate of diabetes mellitus-related deaths (but again the numbers were very small in these subgroup analyses).

In a study to determine the relationship between occupation and death from ischemic heart disease (IHD) (using the same database as Frank above), Calvert et al. (1999) found racial differences for physicians as well [4]. In white-collar occupations for black males, physicians had the highest proportionate mortality risk from IHD for all professions; while white male physicians had a significantly lower risk than their white-collar counterparts. These data further support the preliminary findings that racial differences may exist in cause-specific mortality among physicians.

Three earlier cohort studies support the conclusion that, in general, physicians experience a lower cumulative mortality than their counterparts in the general population [5–7]. Williams et al. (1971), in the earliest of these studies, reported that the expectation at the time was, in fact, that physicians would experience an elevated level of mortality than the general public due to higher levels of stress and longer working hours. Two of these cohort studies examined cause-specific mortality [5]. In a cohort study of medical school graduates from two California schools, Ullman et al. (1991) found elevated risks of suicide among one cohort and elevated risk of death by accidents in both cohorts, compared to the general US white male population [6]. In an analysis of young physician deaths reported in JAMA over an eight-year period, Sankoff et al. found an

overall favorable mortality rate of the physicians, as compared to the general population; however, an elevated risk of preventable deaths (suicide, homicide, and unintentional injuries) [7].

There are limitations to these studies, in that they were conducted on small cohorts and caution is suggested in interpreting these results beyond the population of investigation. Indeed when analyzing small cohorts it is often difficult obtain an adequate comparison group. However, the pattern of these findings, i.e., elevated risk of suicide and accidental deaths among physicians at the least warrants further investigation.

In a comprehensive systematic review of published epidemiological studies on suicide and physicians, Lindeman et al. found an elevated risk of suicidal death for male physicians ranging from a 10% increase to over triple the rate; for female physicians, the rates were more than double to over five times that of the general population [8]. When compared with other professionals, male physicians were also found to have an elevated risk of suicide ranging from 1.5 to 3.8 times and for females, 3.7 to 4.5 times.

In response to these reports, in 2002, the American Foundation for Suicide Prevention convened a workshop to develop a consensus statement on what is known about the prevention of suicide in physicians. The resultant report was published in the Journal of the American Medical Association [9]. After a review of the literature, the group identified areas of further research and recommendations for reform. The planning group recognized the need to address the culture of medicine, which, it concluded, despite the burden of these findings, was slow to prioritize the mental health needs of physicians. There were substantial barriers to seeking mental health care, including those that may ultimately impact the livelihood of the physician, i.e., licensure and privilege consequences. As a result, recommendations were made at both the individual and institutional levels to address professional attitudes and institutional policy in order to encourage physicians to seek mental health care.

Since the release of the consensus statement, further studies have confirmed the elevated risk of suicide among physicians. Schernhammer and colleagues conducted a meta-analysis of published literature on suicide in physician populations, to quantitatively assess the findings across studies [10]. They found 25 datasets on physician suicide rates from articles published between 1960 and July 2003, which met their entry criteria. Male physicians experienced an elevated risk of suicidal deaths (40% higher) than males in the general population. The effect for female physicians was more than double the risk of the general population, with the earliest studies reflecting an even higher elevation of risk for female physicians. These results not only confirm elevated risks of suicide among physicians, but highlight a significant difference by gender.

In sum, generally, physicians experience an overall advantage in mortality rates compared to other professionals and the general population. This appears to hold true for both white and black physicians, when compared to race-specific referent groups. However, the racial disparities, i.e., higher mortality rates among blacks, evident in the general population appear to be present as well. It is not clear whether

or how these disparities hold for minority female physicians. Further analysis of these differences and their underlying causes is needed.

The cause-specific analyses also point to an elevated risk of mortality due to preventable causes, particularly suicide and accidents among physicians as a whole. The absence of information on physician subgroups (gender, race, practice type, or primary affiliation for example) prevents us from understanding the differences (and/or similarities) among physicians. Indeed, the complete focus on physicians in these studies also leaves us with the larger question whether such is true of all academic medical faculty. How do these experiences in mortality relate to other faculty members, including basic, behavioral, and social scientists? These populations share some of the same academic pressures; further research regarding their experiences of mortality is needed.

Given the elevated risks of preventable mortality one needs to consider the underlying morbidities, health behaviors, and utilization of physical and mental health services of physicians.

Morbidity

5,446
the # of published articles with "morbidity" as a key subject heading
3,502
the # of published articles with "medical faculty" as a key subject heading
2
the # of published articles with "morbidity" and "medical faculty" as key subject headings[3]

Unfortunately, the literature on the larger experiences of morbidity among academic medical faculty includes a scant two studies [11, 12].

The literature documenting the morbidity of physicians and academic faculty members is dominated by that of symptom expression, and experiences of distress and burnout. Recent studies have shown that 30–60% of physicians report experiences of distress and burnout, with an increasing prevalence among younger physicians. (A fuller discussion of the experience of burnout and its consequences is found in Chapter 3.) The implications of these experiences of high levels of stress are frequent reports of health complaints and higher levels of anxiety and depression among physician populations than in the comparative general populations [13, 14].

In one of the earliest studies of its kind, Linn and colleagues (1985) conducted a survey of full-time academic and practicing clinical faculty affiliated with a Department of Medicine at a large Californian urban medical school to examine the relationship between stress, job satisfaction, and health [12]. Questions included general demographics, practice setting descriptors, and how professional time was

[3] Based on Ovid Medline MeSH search for journal articles published 1950 through January 2008

spent. Measures of job satisfaction, life satisfaction, depression, anxiety, work/social conflict, and chronic disease symptoms were the central outcomes. The 50% random sample of faculty was composed entirely of physicians. Academic faculty worked longer hours and took less vacation time than their clinical peers. Clinical faculty devoted almost all their time to direct patient care and administrative activities. Academic faculty spent nearly equal time in patient care, research, and supervising house staff, while administrative activities and teaching rounded out a work week. The obtained measures of mental health revealed that 10% had scores indicative of mild depression and 4% with scores of moderate or marked depression. These were levels comparable to those found in the general population at the time using the same scale [12]. However, 27% had anxiety scores above normal (14% mild anxiety, 13% moderate to severe anxiety) using the Rand Anxiety scale. This was twice the prevalence of depression in this population. No differences were found between the academic and clinical faculty.

Job satisfaction measures indicated that academic and clinical faculty were equally satisfied with their jobs, but derived satisfaction from different sources. For example, academic faculty were more satisfied with their collegial relationships with other disciplines, while clinical faculty were more satisfied with the manpower resources available to them. However, academic faculty reported significantly higher levels of role strain compared to the clinical faculty. Academic faculty scored higher on a scale of work/social conflict, which included items such as feeling torn between demands of work and personal life. Clinical faculty experienced more recent physical symptoms than academic faculty. It appears that the differences in the role demands are reflected in their experiences of stressors.

Schindler et al. (2006) modified the survey used by Linn to survey full-time academic physicians and basic science faculty at four US medical schools in the east, southwest, and western United States to assess whether work-related stressors negatively affected physical and mental health [15]. Academic faculty reported a greater prevalence of symptoms consistent with clinical depression than in a comparable nonpatient population. Using the Center for Epidemiology Study Depression scale, they found elevated experiences of depression symptomatology among both male and female faculty members (20% and 22%, respectively). However, when asked if they experienced “depression” in the past five years women faculty were nearly twice as likely as men to report such (21% and 11%, respectively). While this is closer to the national averages of depression diagnosis by gender [16], it is not clear whether this reflects a true experience of depression, the greater likelihood that female faculty are to report experiencing depressive episodes, or the greater likelihood that female faculty have received a diagnosis of depression. Regardless, the elevated experience of depressive symptoms (nearly double that expected for male faculty as compared to general population) warrants further attention (see Chapter 3).

Schindler et al. also found similar levels of anxiety among physicians as did Linn years earlier; 28% had anxiety scores above normal, with women reporting slightly higher rates of anxiety [15]. Younger faculty, however, reported higher levels of both depression and anxiety than did older faculty members. It is not clear

whether the prevalence of increased depressive symptomatology in the younger cohort is a reflection of a true increase or bias due to older faculty with depressive symptoms dropping out of academic life, thereby reducing prevalence in the older cohort. In addition, Schindler's cohort also scored lower on all satisfaction scales than did Linn's sample nearly 20 years earlier.

This growing level of discontent among faculty members and the elevated level of depressive symptomatology in the cohort are troublesome. High levels of depressive symptoms have also been reported in other cohorts of academic physicians. Reinhardt and colleagues in a study of physicians at one academic medical center, similarly found elevated levels of depressive symptomatology among faculty and house staff [17]. Nearly 30% reported depressive symptoms, with a higher rate among younger faculty and a slightly higher rate for women.

The Johns Hopkins Precursors Study is a prospective study of Johns Hopkins medical school graduates from the classes of 1948 to 1964. The participants completed an annual survey since the beginning of this study in 1946. These data have yielded some important results, including a study linking depression and heart disease [18]. After 40 years of follow-up the cumulative incidence of clinical depression was 12%, 132 of 1,190 responding men reporting the development of clinical depression.

Williams et al. report, on the Physician Worklife Study, a survey of clinically active primary care physicians in the United States [19]. This study investigated the impact physician, practice, and patient characteristics have on stress and job satisfaction and, in turn, on reports of general mental and physical health. The authors draw on the conceptual models of stress and coping of Lazarus and Folkman and that of stress and the work of Ivancevich and Matteson [20, 21]. The model proposes three sets of stressors (physician, practice, and patient characteristics) that result in a cognitive appraisal of stress, these antecedents and stress affect job satisfaction. Together, perceived stress job satisfaction affect perceptions of physical and mental health. Structural equation modeling was used to assess these relationships. The survey was distributed to a stratified random sample using the AMA master file as a sampling frame to insure a respondent pool with sufficient diversity in demographic and work characteristics. The sample of clinically active primary care providers was 69% male and 65% white with an average age of 47 years.

Physician and practice characteristics were found to predict job satisfaction, while practice characteristics were the only significant predictors of perceived stress. Specifically, feelings of control over workplace and administrative issues, as well as, balance of work and family life were negatively associated with perceptions of stress. As far as their outcome measures, job stress did predict job satisfaction. While job satisfaction was a significant predictor of positive mental health, perceived stress was a stronger predictor of both poorer reported physical and mental health. The authors conclude that their model confirms the proposition that the practice environment does impact physicians' perception of stress and job satisfaction and consequently physical and mental health. While the sample was limited to providers who devote most of their time to clinical care, it does provide a powerful model of how the practice environment can impact physician health.

In sum, further research is needed to understand the experiences of morbidity on the academic medical faculty as a whole and how they may be different, or the same, within subgroups. The consistent findings of elevated levels of anxiety and depressive symptomatology in combination with that of an elevated risk of mortality due to suicide, in the physician population, cannot be ignored. Indeed these findings point to the imminent need for well-designed health interventions. The work of Williams et al. [19] delineating the interpersonal and environmental factors (including the practice environment) that impact physician physical and mental health provide direction for these interventions (see Chapters 13–16).

Health Utilization and Behaviors

9,171
the # of published articles with "health behaviors" as a key subject heading
3,502
the # of published articles with "medical faculty" as a key subject heading
4
the # of published articles with "health behaviors" and "medical faculty" as key subject headings[4]

Given the intrinsic access to health services among medical faculty, one might expect an appropriate, if not high, level of service utilization. Studies have consistently reported that in fact, physicians and other academic faculty are underutilizers of formal health care and report foregoing care even when needed.

Kahn et al. in the earliest of these studies (and one of the four that surfaced in the keyword search above) assessed the health maintenance attitudes and behaviors of physician faculty at one medical school and nonphysician faculty from two neighboring colleges [22]. (The authors cite the low numbers of non-M.D. faculty at the medical school as a reason to seek faculty at neighboring institutions.) This is one of the rare studies that focused on university-based physician- and doctoral-level faculty and not the general population of physicians.

Physician faculty members were significantly less likely to report having a primary care provider (44% of M.Ds. vs. 74% of non-M.Ds.), although this difference ceased to exist in older faculty (over 50 years). The nonphysicians were more likely to report that having a health maintenance exam is important and more likely to have had a health maintenance exam in the previous two years (33% M.Ds. vs. 56% non-M.Ds.). Nearly half of the M.Ds. (45%) and 21% of the non-M.Ds. reported never seeing a physician for health maintenance. Both groups reported the need for health maintenance visits more often than they had actually received health maintenance care. The authors suggest several barriers for physicians formally seeking

[4] Based on Ovid Medline MeSH search for journal articles published 1950 through January 2008

care, among them concerns of confidentiality and the potential that some physicians may be providing their own care.

Gross et al. followed a cohort of Johns Hopkins School of Medicine graduates from 1948 through 1964 to find predictors of having a regular source of care. Overall, 34% had no regular source of care [23]. Neither age nor gender was significantly associated with having a regular source of care; however, specialty was, ranging from 46% of pathologists to 21% of psychiatrists having no regular source of care. This study was unique in that it assessed the relationship of health locus of control (beliefs that one's health is mainly influenced by internal factors, i.e., ones own actions and external factors, such as powerful others, i.e., health professionals or chance). Those scoring high in the chance domain, as well as, those scoring high in the internal domain were more likely to not have a regular source of care. They also found having a regular source of care correlated with having had six different preventive health services as recommended by USPSTF guidelines. This held true even after controlling for age, sex, and health status.

Wachtel et al., surveying a sample of Rhode Island physicians, found the overall use of formal health services to be very low; their number of office visits was a fourth of the national average. Two thirds of the respondents reported having a primary care physician; however, 12% reported that it was themselves and 30% their partner [24].

The findings in multiple studies of the lack of a source of regular care most likely point to the fact that physicians either rely on self-care or informal care mechanisms. Therefore, the number of visits or the perception of having or needing a regular source of care may be less than expected.

Given the prevalence of anxiety and depressive symptoms in the physician population, it begs the question whether underutilization of health services and self-care is true for mental health services as well. The utilization of mental health services among the general population in the United States is reportedly low. Most people in the United States with mental disorders remain untreated or undertreated. The National Comorbidity Survey-Replication was a household survey of a nationally representative sample using a fully structured diagnostic interview conducted from 2001 to 2003, to examine the prevalence of mental health morbidities and treatment received. Of respondents with a mood, impulse control, anxiety, and/or substance disorders episode within the previous 12 months, less than half (41%) received some treatment [25]. Studies on medical faculty use of mental health services are scarce; studies on student and resident utilization of mental health services show that only 22% of those expressing depressive symptoms actually seek care [26]. The same study showed concerns of confidentiality and impact on career as major barriers to seeking care.

The reliance on self-treatment is also worrisome when it comes to prescription medication. Christe et al. studied the source of care and self-prescribing behaviors of resident physicians in four internal residency programs in the United States [27]. About half indicated that they had no primary care physician or served as their own physician. In addition, respondents were asked whether they used a prescription drug during their residency and if so, how it was obtained. Of those who had taken

prescribed drugs over half (52%) admitted to self-prescribing and another 6% received prescriptions from a fellow resident. The source for prescription drugs for those who self-prescribed was most frequently reported to be the "sample cabinet" (42% of self-prescribed drugs and 36% of all meds taken).

Larger studies on physician health behavior are needed to assess how physicians obtain needed mental and physical services and what effect self-care and self-prescribing has on health outcomes.

Two surveys, the Women's Physician Health Study and the Physicians Health Study (PHS), are among the largest surveys of physician populations in this country. The Physicians Health Study (PHS) was a randomized, double-blind, placebo-controlled trial designed to test the effects of low-dose aspirin and β-carotene on cardiovascular disease and cancer among US male physicians [28]. In the early 1980s, the study enrolled male physicians between 40 and 84 years of age, who lived in the United States and who were members of the American Medical Association, without a history of myocardial infarction, stroke, or transient ischemic attack; cancer; current renal or liver disease; peptic ulcer; gout; or contraindication to or current use of either aspirin or β-carotene. The PHS has become a great source of data on a cohort of physicians and over 300 publications have been published from this survey. The cohort consisted of 22,071 physicians; their mean was age 53 years and they represented all geographic regions of the United States. However, since the focus of the study was to investigate the relationships between specific causative factors and disease outcomes, this was a relatively healthy group of physicians and the clinical data collected was specific to the diseases and causes of interest. Baseline data do provide information on health practices of this cohort: 11% were current smokers, 25% drank on a daily basis, 13–14% reported being overweight, and exercised on average 10 days/month [28].

The Women Physician's Health Study (WPHS), on the other hand, was specifically designed to assess health behaviors and counseling practices of US women physicians [29]. Conducted in the early 1990s, it was the first comprehensive survey of its kind. The sampling frame was derived from the AMA Physician master file and a stratified sample was obtained to represent medical school graduates from the four decades of 1950–1989. Frank et al. [29] in analyses of WPHS and data from the 1992 Behavioral Risk Factor Surveillance Survey (BRFSS) of the Centers for Disease Control and Prevention compared health-related behaviors of women physicians to women of high socioeconomic (SES) status and women in the general public.

Looking at seven recommended screening behaviors, the physicians received screening for the most part as frequently as those of women in the high SES group, both of which were more likely to have been completed and more recently than women of lower SES in the general population. With two exceptions, physicians were less likely to have had a recent pap test than their high SES counterparts and older women physicians were less likely to have had a recent breast exam by a clinician than their high SES counterparts, perhaps indicative of the lack of regular source of care and the reliance on self-care and informal mechanisms.

Personal Behaviors

The most frequent behaviors investigated among physician populations are alcohol and other drug use, and smoking. The prevalence of physician substance use has been of interest not only for the impact that it has on the individual engaging in the behavior, but also because of the consequences it can have on the provision of care. The issue of impairment of medical faculty is given in more detail in Chapter 3, the following is a summary of the substance use behavior as reported in the literature.

The reported substance use among medical faculty varies widely. This may be due to the sources of these data. Estimates of substance abuse are often derived from cause-specific mortality and morbidity reports (e.g., reports of cirrhosis of the liver), health care utilization (admissions to drug and alcohol treatment programs), and surveys of self-reports of alcohol/drug consumption. Each one of these, at best, offers incomplete pictures of the experience of alcohol and drug use. Finding an appropriate comparison group to assess relative frequency of substance use/abuse is also challenging. Brewster (1986) after conducting an exhaustive literature review on substance use in the physician population conclude that survey data may be in fact the best way to assess the prevalence of these behaviors [30].

Hughes et al. conducted an anonymous mail survey with a national sample of physicians selected from the AMA master file to estimate the prevalence of substance use [31]. Alcohol was the most frequently used substance (87% had consumed alcohol in the past year). Self-reported lifetime alcohol *abuse* was reported by 6% of the sample, and in past year less than 2%. This is significantly less than the estimates of alcohol abuse in the general population at the time (13–16%). However, 10% reported daily alcohol use, and 9% indicated having five or more drinks per day at least once in the past month. Minor opiates were the most frequently used prescription drugs; 8% had used minor opiates without the supervision of another physician in the past year, 4.5% in the past month. The authors suggest the pattern and reasons given for prescription drug use point to self-treatment.

Several smaller studies also report a prevalence of alcohol/substance use problems lower than that found in the general public, but there are reports of heavy alcohol use and elevated use of prescription drugs without another physician's supervision. McAuliffe reported on a survey given to a random sample of physicians from a state medical society membership roster and medical students in the same state [32]. A comparison group of pharmacists randomly selected from the state's pharmaceutical society membership list and pharmacy students in area schools was also surveyed. Respondents were asked about current (within the past year) and lifetime drinking practices, amount consumed, and qualitative self-assessment of their behaviors regarding abuse and dysfunction. Physicians and medical students reported drinking more frequently, but consumed less per drinking episode. Less than 3% of any of the groups reported having a current drinking problem. Practitioners drank more often than students, but less quantity per episode. There were more abstainers among pharmacists (4% of doctors, 5% of medical students, 10% of pharmacists, and 11% of pharmacy students).

Reinhardt (2005) in the study mentioned above of faculty and residents at one medical center in California, found that 6% had a high likelihood of harmful alcohol consumption using the AUDIT scale. Almost 5% acknowledged the use of sedatives or hypnotics without a prescription in the last 12 months [17].

Data from the WPHS reveal that women physicians drank alcohol more frequently than both high SES and nonhigh SES women (on an average 8.5, 7.2, and 6.1 days per month, respectively), but at lesser quantities [29]. Abuissa and colleagues' study of cardiologists in a large coalition of cardiology groups reported a high prevalence of regular alcohol use (72% consumed greater than or equal to one drink/week) and 50% drank daily [33]. Schindler found that older faculty had increased alcohol consumption compared to younger faculty (24% under age 45, drinking daily to several times of week compared to 45% of those over 55; 36% of males drank daily or several times a week compared to 27% of women) [15].

The reports of substance abuse or problems are low compared to that of the general public. However, the consistent findings that physicians are using alcohol more frequently than the general public or their counterparts in other professions need further investigation.

Smoking practices have been of great interest in the general population and among physicians as well. In general, physicians have lower rates of smoking than the general public and smoking has decreased among the physician population faster than in other health professions. In an analysis of National Health Interview Survey (NHIS) data, Nelson et al. reviewed trends of smoking from 1974 to 1991 among physicians, registered nurses, and practical nurses [34]. Smoking prevalence among physicians declined from 19% in the late 1970s to 3% in 1991, an average decline of 1.5% per year. For registered nurses in the same time frame the decline was from 31% to 18%. Estimates of current smoking in the general US population from the NHIS 2006 survey indicate 21% of the general US adults and 6.6% of respondents with a graduate degree [35]. The authors suggest that this decline in the smoking prevalence among health professionals is due to the increase both in the number of health professionals quitting smoking and in the number of nonsmokers entering the heath care workforce. Other studies of US physicians also report the prevalence of current smokers under 5% for both genders. In the WPHS, women physicians were less likely to smoke than both women from high SES and all women in the BRFSS; 3.7% of physicians vs. 8% of high SES women, and 25% of women not of high SES were current smokers [29].

Implications

The experiences of stress and the practice of poor health behaviors can have devastating effects on one's health and well-being. In addition, in the case of academic medical faculty the impact can reach beyond that of the individual's health to affect the provision of care to the patient, relationships with colleagues and students with whom they interact on a daily basis. The effect on the provision of care can manifest

itself in different ways. A study of internal medicine residents showed that physicians who experience burnout were more likely to self-report patient care practices and attitudes that suggested suboptimal care [36]. While physicians that engage in preventive health behaviors are more likely to encourage the same among their patients. Frank (2000) found that the most powerful predictor of a physician engaging in preventive health behavior counseling with his/her patients is in fact the physicians own preventive health practices [37]. This relationship has been shown to be true with counseling regarding exercise, seat-belt use, and smoking [38, 39].

Conclusions

In general, physicians enjoy longer lives and healthier lifestyles than their counterparts in the general population. However, several concerns arise from this review and warrant further analysis and intervention. First, as in the general population, persistent racial disparities exist in the experience of morbidity and mortality among physicians (see Chapter 8, for further discussion). Second, where academic medical faculty experience elevated rates of morbidity and mortality they are of a preventable nature, i.e., suicide and accidents. Finally, the reluctance to seek care when needed, particularly mental health services, and the reliance on self-care are troublesome.

Further research is needed on the prevalence and incidence of morbidities and cause-specific mortality in academic medicine faculty, specifically the nonphysician, female, and minority faculty members. Additional studies identifying barriers to seeking care and elucidation of both risk and protective factors are also needed. Finally, prospective studies on the experience of wellness and clarification of health practices and lifestyle choices among academic medical faculty could inform effective interventions.

We turn again to the questions with which we began this chapter, “Who are medical faculty? And how do we define their health?” Medical faculty are a diverse group of individuals working in an ever-changing and evolving environment. The elevated experiences of stress in dealing with this environment have an impact on faculty health. A comprehensive approach that addresses all aspects of health and well-being for this diverse population is needed to ensure not only the health of the faculty members themselves, but also the well-being of the students they mentor and the patients they serve. Only a “healthy faculty” will be able to successfully meet the clinical, research, and teaching missions of the academic medical center.

References

1. AAMC (2007) US Medical School Faculty Roster Report 2006 http://www.aamc.org/data/facultyroster/usmsf07/usmsf07.htm

2. Ostun, T.B. (2001) What is health? how do we measure health? *Sozial- Und Praventivmedizin* **46(2)**, 71–72.
3. Frank, E., Biola, H., and Burnett, C.A. (2000) Mortality rates and causes among US physicians *American Journal of Preventive Medicine* **19(3)**, 155–159.
4. Calvert, G.M., Merling, J.W., and Burnett, C.A. (1999) Ischemic heart disease mortality and occupation among 16- to 60-year-old males *Journal of Occupational & Environmental Medicine* **41(11)**, 960–966.
5. Williams, S.V., Munford, R.S., Colton, T., Murphy, D.A., and Poskanzer, D.C. (1971) Mortality among physicians: a cohort study *Journal of Chronic Diseases* **24**, 393–401.
6. Ullmann, D., Phillips, R.L., and Beeson, L., et al. (1991) Cause-specific mortality among physicians with differing life-styles *Journal of the American Medical Association* **265**, 2352–2359.
7. Sankoff, J.S., Hockenberry, S., Simon, L.J., and Jones, R.L. (1995) Mortality of young physicians in the United States, 1980–1988 *Academic Medicine* **70**, 242–244.
8. Lindeman, S., Laara, E., Hakko, H., and Lonnqvist, J. (1996) A systematic review on gender-specific suicide mortality in medical doctors *British Journal of Psychiatry* **168(3)**, 274–279.
9. Center, C., Davis, M., Detre, T., Ford, D.E., Hansbrough, W., and Hendin, H., et al. (2003) Confronting depression and suicide in physicians: A consensus statement *Journal of the American Medical Association* **289(23)**, 3161–3166.
10. Schernhammer, E.S., and Colditz, G.A. (2004) Suicide rates among physicians: a quantitative and gender assessment (meta-analysis) *American Journal of Psychiatry* **161(12)**, 2295–2302.
11. Vishnevskaia, E.P., and Atiakina, I.K. (1972) Data on the morbidity of the professor-instructor staff of the I. M. Sechenov First Moscow Medical Institute (Russian). *Gigiena i Sanitariia* **37(7)**, 100–102.
12. Linn, L.S., Yager, J., Cope, D., and Leake, B. (1985) Health status, job satisfaction, job stress, and life satisfaction among academic and clinical faculty *Journal of the American Medical Association* **254(19)**, 2775–2782.
13. Aasland, O.G., Olff, M., Falkum, E., Schweder, T., and Ursin, H. (1997) Health complaints and job stress in Norwegian physicians: the use of an overlapping questionnaire design *Social Science & Medicine* **45(11)**, 1615–1629.
14. Sutherland, V.J., and Cooper, C.L. (1992) Job stress, satisfaction, and mental health among general practitioners before and after introduction of new contract *BMJ* **304**, 1545–1548.
15. Schindler, B.A., Novack, D.H., Cohen, D.G., Yager, J., Wang, D., and Shaheen, N.J., et al. (2006) The impact of the changing health care environment on the health and well-being of faculty at four medical schools *Academic Medicine* **81(1)**, 27–34.
16. Blazer, D.G., Kessler, R.C., McGonagle, K.A., and Swartz, M.S. (1994) The prevalence and distribution of major depression in a national community sample: the National Comorbidity Survey *American Journal of Psychiatry* **151**, 979–986.
17. Reinhart, T., Chavez, E., Jackson, M., and Mathews, W.C. (2005) Survey of physician well-being and health behaviors at an academic medical center *Med Educ Online* (serial online) **10(6)**, http://www.med-ed-online.org
18. Ford, D.E., Mead, L.A., Chang, P.P., Cooper-Patrick, L., Wang, N.Y., and Klag, M.J. (1998) Depression is a risk factor for coronary artery disease in men: the precursors study *Archives of Internal Medicine* **158**, 1422–1426.
19. Williams, E.S., Konrad, T.R., Linzer, M., McMurray, J., Pathman, D.E., Gerrity, M., Schwartz, M.D., Scheckler, W.E., and Douglas, J. (2002) Physician, practice, and patient characteristics related to primary care physician physical and mental health: Results from the physician worklife survey *Health Services Research* **37(1)**, 121–43.
20. Lazarus, R.S., and Folkman, S. (1984) *Stress, Appraisal, and Coping* New York: Springer.
21. Ivancevich, J.M., and Matteson, M.T. (1980) *Stress and Work: A Managerial Perspective* Glenview: Scott Foresman.
22. Kahn, K.L., Goldberg, R.J., DeCosimo, D., and Dalen, J.E. (1988) Health maintenance activities of physicians and nonphysicians *Archives of Internal Medicine* **148(11)**, 2433–2436.

23. Gross, C.P., Mead, L.A., and Ford, D.E., et al. (2000) Physician, heal thyself? Regular source of care and use of preventive health services among physicians *Archives of Internal Medicine* **160**, 3209–3214.
24. Wachtel, T.J., Wilcox, V.L., Moulton, A.W., Tammaro, D., and Stein, M.D. (1995) Physicians' utilization of health care J*ournal of General Internal Medicine* **10(5)**, 261–265.
25. Wang, P.S., Lane, M., Olfson, M., Pincus, H.A., Wells, K.B., and Kessler, R.C. (2005) Twelve-month use of mental health services in the United States: Results from the national comorbidity survey replication *Archives of General Psychiatry* **62(6)**, 629–640.
26. Givens, J.L., and Tjia, J. (2002) Depressed medical students' use of mental health services and barriers to use *Academic Medicine* **77(9)**, 918–921.
27. Christie, J.D., Rosen, I.M., and Bellini, L.M., et al. (1998) Prescription drug use and self-prescription among resident physicians *Journal of the American Medical Association* **280**, 1253–1255.
28. Steering Committee of the Physicians' Health Study Research Group (1989) Final report on the aspirin component of the ongoing Physicians' Health Study *New England Journal of Medicine* **321**, 129–135.
29. Frank, E., Brogan, D.J., Mokdad, A.H., Simoes, E.J., Kahn, H.S., and Greenberg, R.S. (1998) Health-related behaviors of women physicians vs other women in the United States *Archives of Internal Medicine* **158**, 342–348.
30. Brewster, J.M. (1986) Prevalence of alcohol and other drug problems among physicians *Journal of the American Medical Association* **255**, 1913–1920.
31. Hughes, P.H., Brandenberg, N., and Baldwin, Jr., D.C., et al. (1992) Prevalence of substance use among US physicians *Journal of the American Medical Association* **267**, 2333–2339.
32. McAuliffe, W.E., Rohman, M., Breer, P., Wyshak, G., Santangelo, S., and Magnuson, E. (1991) Alcohol use and abuse in random samples of physicians and medical students *American Journal of Public Health* **81(2)**, 177–182.
33. Abuissa, H., Lavie, C., Spertus, J., and O'Keefe Jr., J. (2006) Personal health habits of American cardiologists *American Journal of Cardiology* **97(7)**, 1093–1096.
34. Nelson, D.E., Giovino, G.A., Emont, S.L., Brackbill, R., Cameron, L.L., Peddicord, J., and Mowery, P.D. (1994) Trends in cigarette smoking among US physicians and nurses *Journal of the American Medical Association* **271(16)**, 1273–1275.
35. Centers for Disease Control (2007) Cigarette Smoking Among Adults – United States, 2006 *Morbidity and Mortality Weekly Report* **56(44)**, 1157–1161.
36. Shanafelt, T.D., Bradley, K.A., Wipf, J.E., and Back, A.L. (2002) Burnout and self-reported patient care in an internal medicine residency program *Annals of Internal Medicine* **136(5)**, 358–367.
37. Frank, E., Rothenberg, R., Lewis, C., and Belodoff, B.F. (2000) Correlates of physicians' prevention-related practices *Archives of Family Medicine* **9**, 359–367.
38. Lewis, C.E., Clancy, C., Leake, B., and Schwartz, J.S. (1991) The counseling practices of internists *Annals of Internal Medicine* **114(1)**, 54–58.
39. Wells, K.B., Lewis, C.E., Leake, B., and Ware Jr., J.E. (1984) Do physicians preach what they practice? A study of physicians' health habits and counseling practices *Journal of the American Medical Association* **252**, 2846–2848.

http://www.springer.com/978-1-60327-450-0

Faculty Health in Academic Medicine
Physicians, Scientists, and the Pressures of Success
Cole, Th.; Goodrich, T.J.; Gritz, E.R. (Eds.)
2009, XVI, 248 p., Hardcover
ISBN: 978-1-60327-450-0
A product of Humana Press