

College Men's Health: An Overview and a Call to Action

Will H. Courtenay, PhD, LCSW

Abstract. For men of college age, the risks of disease, injury, and death are far greater than for women of the same age group, yet college men's health concerns receive little attention from health professionals. In this multidisciplinary overview, the author discusses college men's health risks, men's failure to adopt health-promoting behaviors, their propensity to engage in risky behaviors, their beliefs about manhood, their attitudes concerning their own vulnerability, and their limited knowledge about health. Men's socialization as boys is discussed to provide a framework for understanding why many college men have adopted unhealthy lifestyles. How masculinity and stereotypes about manhood influence the health services provided for men are outlined. The importance of providing gender-specific health behavior interventions and programs is stressed, and implications for future research are offered.

Key Words: gender, health, health promotion, men, risk behavior, susceptibility

Men in the United States, on average, die 7 years younger than women and have higher death rates for all 15 leading causes of death.¹ Men's age-adjusted death rate for heart disease, for example, is 2 times higher than women's, and men's death rate for cancer is 2½ times higher than women's.¹ Men are also more likely than women to suffer severe chronic conditions and fatal diseases² and to suffer them at an earlier age. Nearly 3 out of 4 persons who die from heart attacks before age 65 are men.³ Furthermore, men's health shows few signs of improving—their cancer death rates have increased more

than 20% over the past 35 years; the rates for women have remained unchanged during the same period.⁴

Disease, injury, and death rates specifically for college students are unavailable. A general profile of college men's health can only be inferred from the risks for this approximate age group. Among 15- to 24-year-olds nationally, more than 3 out of every 4 deaths each year are men.¹ Among adolescents, boys are more likely than girls to be hospitalized for injuries.⁵ Fatal injuries account for more than 80% of all deaths among 15- to 24-year-old men, and 3 men die from unintentional injuries for every 4 women who die.¹ Young men of this age are also at a greater risk than women for sexually transmitted diseases (STDs).⁶ Heart disease deaths are nearly twice as high for men as for women in this age group, and cancer deaths are 1½ times as high.¹ Most of these deaths, diseases, and injuries are preventable.

Despite the tremendous losses that these statistics represent, policy makers and health professionals alike have paid very little attention to men's health risks or to their greater risk of premature death.⁷ Although health science of this century has frequently used *males* as study subjects, research typically neglects to examine *men* and the health risks associated with their gender. The consistent, underlying presumption in medical literature is that what it means to be a man in America has no bearing on how men work, drink, drive, fight, or take risks. Regarding the health concerns of college men, in particular, little has been written other than a few articles addressing specific health issues, such as STDs,⁸ testicular cancer,⁹ and mental health.¹⁰

Even in studies that address risks more common to college men than to college women, the discussion of men's greater risks¹¹ and of the influence of men's gender is often conspicuously absent.¹² No author to date has examined the broader context of college men's health. Despite this dearth

Will H. Courtenay, a licensed clinical social worker, is a psychotherapist practicing in Berkeley and San Francisco and also serves universities and colleges as a consultant on men's health. Unpublished material referred to in this article is based on data Dr Courtenay presented in partial fulfillment of the requirements for the doctoral degree, University of California, Berkeley, June 26, 1996.

of literature, men's health was recently ranked by American College Health Association (ACHA) members as the fifth top priority for their continuing education.¹³

In this article, I provide an overview of college men's health, identify the health risks of college men, explore various explanations for men's poor health status, and recommend interventions to improve their health. Whenever possible, I refer to data from college samples. When no such data exist, I use research on adolescent males and men, in general, to identify health concerns that call for further examination.

Major Contributors to College Men's Health Risks

Failure to Adopt Health-Promoting Behavior

The gender gap in longevity has widened steadily since 1920, when women and men lived lives of equal length.¹⁴ This suggests that there is nothing natural, inevitable, or biologic about men's shorter life-span. Although a number of genetic and biologic factors may contribute to the difference, they do not explain it.¹⁵ Additional factors, such as access to care, economic status, and race, also influence health and longevity.¹⁶ Many health scientists contend that personal health behaviors are the most important of these factors—a belief supported by a wealth of data.¹⁷ An independent scientific panel established by the federal government recently evaluated thousands of research studies in cooperation with the US Public Health Service. The panel estimated that one half of all deaths in the United States could be prevented through changes in personal health practices.¹⁸

Gender is one of the most important determinants of health behavior.¹⁹ Research consistently shows that men engage in fewer health-promoting behaviors and have less healthy lifestyles than women.^{15,19–22} A review of national data and hundreds of large studies has revealed that men of all ages are more likely than women to engage in more than 30 controllable behaviors that are conclusively linked with a greater risk of disease, injury, and death: Men eat more fat and less fiber, they sleep less, and they are more often overweight than women, to cite just a few examples (W.H.C., unpublished data; 1996).

College men, specifically, engage in far fewer health-promoting behaviors than college women do.^{20,23} They consistently score lower on an index of health-protective behaviors that includes safety belt use, sleep, health information, eating habits, and exercise.^{20,24} College men are also significantly less likely to practice self-examinations for testicular cancer than college women are to practice self-examinations for breast cancer.²⁵ Furthermore, college men's health-promoting behaviors have been found to decrease over time, whereas those of college women increase.²⁰

The failure among young men, in general, to adopt health-promoting behaviors increases their risks. Although teenage males get more exposure to the sun, more than twice as many female teenagers use sunscreen regularly.

Young men also reapply sunscreen less frequently and use lower SPF protection.^{26,27} There is no evidence that these findings differ for college students. Only one poorly designed study addressed sunscreen use among college students²⁸; the researchers found that percentages of college men who used sunscreen were much lower than percentages of women. Nearly twice as many college women as men used sunscreen with SPF 15 when exposed to the sun for a least one half hour, but 6 out of 10 college men rarely used sunscreen, compared with 4 out of 10 college women. Although that study reported more sun *bathing* among the sample of college women, *exposure* to the sun is consistently found to be greater among men of all ages (W.H.C., unpublished data, 1996).²⁷ Young men's failure to protect themselves from exposure to the sun contributes to their greater risk of skin cancer, an increase among men that is higher than that from any other cancer. Two out of every 3 people who die of melanoma are men,^{29,30} yet use of sunscreen in young adulthood can lower the risk of skin cancer by as much as 80%.³¹

College men are also significantly less likely than college women to use safety belts, either as drivers or passengers.^{32–34} Wearing a safety belt is potentially the single most effective method for preventing injuries in a motor vehicle crash, reduces the risk of serious injury by as much as 52%, and reduces the risk of death by 43%.³⁵ The failure to wear safety belts has contributed to the fact that more than 3½ times more men than women 15 to 24 years of age die in automobile accidents.¹

Risk Behavior

Young men also take greater risks than women do. For example, they drive more dangerously, are more likely to tailgate and run red lights,³⁶ drive 20 miles per hour above the posted speed limit, pass in no-passing zones, or pass two cars at a time on a two-lane road.^{37,38} Nearly one third of adolescent males take risks "for fun" while driving, more than 4 times the number of women who do so.³⁷ Similar findings have been reported for college men.³⁹ Nearly 50% of the men surveyed at one university reported they had operated a vehicle while under the influence of alcohol or other drugs; 61% reported riding with someone who was under the influence; and 93% had driven above the speed limit.⁴⁰

In a thorough analysis of gender and driving risks among college students, the men received significantly higher scores than the women did for problem driving, including speeding or reckless driving, moving violations, arrests for driving under the influence, and license suspensions or revocations.⁴¹ Among college students nationally, 2 to more than 2½ times more men than women had driven after consuming five or more drinks, and 62% of the men who were frequent binge drinkers had driven after drinking.⁴²

Men also engage in riskier sexual practices.^{6,43} Among college students, men begin sexual activity earlier in their lives, have more sexual partners, and are more likely than women to have sex while under the influence of alcohol or

other drugs.^{11,34,39,44,45} College men, for example, are 2½ times more likely than women to have more than 10 sexual partners.⁴⁶ Studies of African American college students have also found riskier sexual practices among men than among women.^{47,48}

In fact, consistent gender differences among college students have been found for most health risk behaviors. Findings from research have indicated that college men are much more likely than college women to engage in risky sports, work, and travel.^{39,49} A recent study of California college students revealed that men were more likely than women to engage in 20 of 26 specific high-risk behaviors, including smoking, drug use, carrying weapons, and fighting.³⁴ Among college students in New Jersey, men are more likely than women to engage in 12 of 14 high-risk behaviors.³² National data show that more than 1 in 10 college men carries a gun, knife, or other weapon, nearly 3 times the number of women who carry weapons. Students who carry weapons are more likely to drink and are more likely to fight if they are binge drinkers.¹²

College men's risk-taking compounds the health hazards associated with their failure to adopt the health-promoting behaviors. Their dangerous driving habits compound the risks associated with their not wearing safety belts. Failure to use condoms is another example of compounded risk. Only one third to one half of sexually active college men used condoms, according to studies by Weiss and Larson²⁴ and Patrick et al.³⁴ Even among those at high risk for STDs, 3 out of 4 never or only occasionally used condoms.⁸ Another recent study found that 1 in 4 young gay or bisexual men was having unprotected anal intercourse; although the college men in that study were somewhat less likely than their noncollegiate peers to have unprotected sex, the difference was not statistically significant.⁵⁰ Failure to use condoms compounds the risks associated with college men's unsafe sexual practices.

Masculinity

Simply being male is linked to poor health behaviors and increased health risks, but so are gender and men's beliefs about "being a man." A growing body of compelling research indicates that men who adopt traditional attitudes about manhood have greater health risks than men with less traditional attitudes (W.H.C., unpublished data, 1996).⁵¹⁻⁵⁴ One of the studies among 13- to 19-year-olds revealed that alcohol use and problem drinking are strongly associated with "traditional" masculinity; this association is even stronger than the link between drinking and being male.⁵⁵

Findings from a national study of nearly 2,000 young men aged 15 to 19 years, including college men, indicated that traditional beliefs about manhood are associated with a variety of poor health behaviors, including drinking, drug use, and high-risk sexual activity.⁵⁴ For example, young men who hold traditional beliefs (eg, "a guy" should be "sure of himself" and not "act like a girl") have more sexual partners and are more likely *not* to use condoms consis-

tently, associations that hold true regardless of education level, race, and ethnicity.

Among college students, traditional attitudes about masculinity have been linked to such poor health behaviors as smoking; using alcohol and other drugs; and behaviors related to safety, diet, sleep, and sexual practices.⁵⁶ College men who rigidly adhere to traditional notions of masculinity have more anxiety and poorer health habits than their less traditionally minded peers,⁵⁷ and they have greater cardiovascular reactivity in stressful situations.⁵⁸ College men who adopt traditional attitudes about manhood also experience higher levels of depression and are more vulnerable to psychological stress and maladaptive coping patterns.^{52,53,60,61} Furthermore, these men compound their risks because they tend not to seek help from others and underuse campus professional services.^{53,60}

Concealing Vulnerability

Men further increase their risks by concealing pain and illness. Suicide provides the most extreme example. Throughout the life span, suicide rates for men are 4 to 12 times higher than for women.¹⁴ For young men, suicide rates are staggering. Although the suicide rate for the general population has remained largely unchanged since 1946, suicide rates for persons aged 15 to 24 years have increased by about 250%.⁶² Reliable data documenting suicides among college students are not available, nor are there current data to suggest that the risk of suicide differs between college and non-college men. For this approximate age group, however, suicide is the third leading cause of death, and 6 out of 7 people who commit suicide are men.¹ Despite this high risk, friends and family consistently speak of their "complete shock" when college men commit suicide.^{63(p1)} The mother of one college junior who shot himself said she had "no reason to believe" her son would do such a thing.^{64(p1)}

One explanation for people's shock at young men's suicides is that college men successfully conceal their vulnerabilities. They are less likely than college women to confide in close friends, express vulnerability, or disclose their problems to others.^{65,66} Consequently, others are often unaware when these men are in pain. A psychiatrist interviewing friends and family of a well-liked, successful student athlete who recently committed suicide reported that "no one really knew what [his] feelings were . . . he seemed to hide them."^{67(p1)}

The desire to conceal their vulnerability can influence college men's decisions not to seek care and can affect clinicians' assessments and diagnoses when men do seek help. College men are significantly less willing than college women to seek support in situations where help is needed.^{65,68,69} In a large study of midwestern students, researchers found that college men were less willing than college women to seek help for physical illnesses.⁷⁰ Consequently, among 1st-year college students in one state, more women than men had made recent medical visits, and twice as many men as women had made no medical visits in more than 1 year.⁷¹

College men's reluctance to seek help can result in serious delays in treatment. Nearly 3 out of 4 college men in one study had delayed getting help for STDs from 2 months to more than 6 months after they developed symptoms.⁸ College men in another study were more likely than college women to delay seeking psychological help.⁷² Findings in two studies of depressed college students revealed that the men were more likely than the women to rely on themselves, to withdraw socially, and to try to talk themselves out of depression.^{73,74}

College men's self-reliance and denial of pain can also contribute to others' inattention to men's health needs. Men's responses to depression, for example, foster the widespread belief that college men do not get depressed. In fact, studies of college students based on the results of psychological testing have consistently found no significant differences between men and women in *diagnosable* depression.^{61,74-77} Despite this strong evidence, survey research based on students' self-reports rather than on psychological tests typically leads to the false conclusion that depression is a "more critical" health problem for college women than for men.^{78(p261)}

Perceived Invulnerability

The vast majority of American men believe that their health is "excellent" or "very good." In spite of their higher risks, men report better health than women do, according to a Department of Health and Human Services 1992 report.⁷⁹ Men are also less likely than women to perceive themselves as being at risk for illness or injury.^{80,81} In one national study, researchers reported that more men than women perceived less risk for each of the 25 health problems examined; men's gender remained a significant predictor of low perceived risk when controlling for level of education.⁸² In other studies, men, including young men, perceived themselves as less susceptible to skin cancer than women did²⁷ and underestimated the risks associated with sun exposure.^{26,82} The one study that examined perceived skin cancer risk specifically among college students also found that men perceived less risk than women did.²⁸

Similarly, college men in a large study by Spigner et al⁸³ perceived significantly less risk associated with the use of cigarettes, alcohol, and other drugs than college women did. Other studies have consistently found that college men are more likely than college women to underestimate the risks associated with involvement in physically dangerous activities.^{39,49} In fact, college men have been found to perceive less risk than college women for a variety of health threats.^{41,70,84}

The same kinds of gender differences in perceptions have been found for driving risks and for automobile accidents.^{80,82} Young men are more likely than women to expect that no consequences, such as a citation, crash, or injury, will result from their more frequent reckless driving.³⁶ Among college students in one well-constructed study that examined 15 risky driving behaviors, men scored significantly lower than women in their perceptions of risk.⁴¹ The men believed that drinking and driving, not using a safety

belt, and not making a full stop at a stop sign were much less serious risks than women did. In fact, the author of that study concluded that college men possess a particularly lethal combination of perceptions that compound their risks—an exaggerated sense of their own driving skill and the perception of less risk associated with a variety of dangerous driving habits. These beliefs are inconsistent with the finding that men are at fault in nearly 8 out of 10 automobile accidents and 2 out of 3 injury crashes in California.⁸⁵ Although comparisons are not available, I see no reason to believe that college men are any less at fault than noncollege men, particularly given the ample evidence of college men's risky driving habits.

Men also differ from women in their perceptions of sexual health risks. Based on their involvement in various sexual behaviors, including sex under the influence of drugs and numbers of sexual partners, men of all ages nationally are much more likely than women to be at high risk for STDs and HIV.^{43,86,87} National studies indicate that 86% of all STDs occur among persons under the age of 30 years.^{6,88} On the basis of their sexual histories, 60% of men under the age of 30 are at medium to high risk for sexual infections, a percentage that is 2½ times the percentage for women.

Of particular relevance is the finding that higher education has been positively associated with greater STD risk.⁸⁷ The most recent figures (a 1997/1998 clinical review) also show that 13- to 25-year-olds are the group at highest risk for HIV.⁸⁹ Currently, 8 out of 10 persons infected with HIV are men,⁸⁹ and men represent nearly 9 out of 10 deaths attributable to HIV.¹ The prevalence of HIV infection among college students has been .2% since 1990.⁵⁰ College men who have sex with men have the highest rates of infection—from 1.3%⁵⁰ to 2.6%.⁴⁶ However, it has been noted that many heterosexual college men may also be at risk for STDs and HIV because of their high-risk sexual practices.^{46,50} Between 1990 and 1995, HIV infection increased 189% among heterosexuals, compared with 12% among men who have sex with men.⁸⁹ Among people aged 13 to 25 years, more than one third have been infected through heterosexual contacts.⁸⁹

Despite those statistics, many researchers have found that college men perceive less risk for HIV than college women do,^{47,90,91} although some researchers have found either no gender differences⁹² between men and women or have reported mixed results.⁹³ However, college men have been found to report little concern, even when their actual risks for STDs and HIV are high.^{8,44} In one study, 3 of 4 college men involved in high-risk sexual behavior believed that their risk of HIV was either low or extremely low.⁸ Their belief in their own invulnerability prevents college men from changing their behavior. With rare exceptions,⁹⁴ perceived susceptibility among college students has been linked with positive changes in risk behaviors.⁹⁴⁻⁹⁶ Unrealistic perceptions of risk, including the beliefs that only intravenous drug users, prostitutes, and men who have sex with men contract STDs and HIV—may explain why oth-

erwise knowledgeable college students continue to engage in high-risk sexual behaviors.⁹¹

Men's perceptions of invulnerability, in addition to being associated with sexual health risks, are associated with risks of many other kinds.^{97,98} In one very thorough study, perceived susceptibility to skin cancer and sun damage emerged as the strongest predictor of teenagers' use of sunscreen.²⁷ Similar studies have yet to be conducted with college students.

Perceived invulnerability is also associated with men's failure to adopt such positive health behaviors as testicular self-examinations.⁹⁹ Detected early, testicular cancer is highly curable. But about half of men with testicular cancer are not diagnosed until the cancer is in an advanced stage,¹⁰⁰ when it is fatal or disabling.¹⁰¹ Although college men are among those at highest risk for testicular cancer, researchers have found that 3 out of 4 college men did not know how to perform a self-examination,⁴⁰ and only 8% to 14% performed self-examinations regularly.⁹ Because testicular tumors grow quickly, monthly exams have been recommended¹⁰²; without self-exams or medical visits, early detection is unlikely. Perceived invulnerability can undermine college men's practice of self-exam. Fear of developing cancer, according to a recent study of college students, was among the best predictors of men's practicing testicular self-exams.²⁵

Health Knowledge

Research shows that men—including college men—are less knowledgeable than women are about health in general,¹⁰³ and about specific diseases, such as cancer,^{27,104,105} STDs,⁶ and heart disease.^{106,107} For example, researchers have consistently reported that women, including college women, know significantly more about skin cancer, sunscreen protection, and the harmful effects of sun exposure than men do.^{27,28,104} College men know significantly less about self-examinations for testicular cancer than college women know about self-examinations for breast cancer.²⁵ Most recent studies of college students' knowledge have examined risk factors for HIV and AIDS. Although gender differences were not found consistently in those studies, when differences are found, the college men were less knowledgeable than the college women.^{44,47,91,92,108}

College men have had "relatively little" experience with the healthcare system and may lack even basic health information, such as how to make an appointment. In a study at a midwestern university, more than 1 out of 5 men had a health problem that he needed to discuss with a clinician but did not know with whom to discuss it.⁴⁰ Men's ignorance about health matters can increase their risks. A lack of knowledge, for example, is a major contributor to delays in seeking care for cancer symptoms,¹⁰⁹ and health knowledge is associated with health-promoting behaviors, such as limiting exposure to sunlight and doing testicular self-examination.

A national study⁶ found that those people who were least knowledgeable about STDs—and most of them were

men—were nearly half as likely as those with more knowledge to look for signs and symptoms. Among those people at highest risk, the least knowledgeable were also the least likely to practice safer sex consistently. The men with less knowledge were less likely to feel comfortable telling their doctors they had an STD, or to have discussed risk assessment, testing, or prevention with a health professional.

One review of research concluded that knowledge is also an important determinant of positive changes in risky sexual behaviors related to AIDS,¹¹⁰ but that finding is not consistent for college students. Several studies have linked knowledge with decreased HIV risk among college students.^{47,108,111} Knowledge *alone*, however, is not necessarily sufficient to promote safer sex practices.^{45,94-96}

The Health Effects of College Men's Socialization

Men's unhealthy attitudes and behaviors are not surprising in light of their socialization. Young men and boys receive many contradictory messages about health as they are growing up. A health professional might encourage a young man to seek help when he needs it; yet analysis of research findings repeatedly show that parents, other adults, and peers all discourage boys from seeking help—and often ridicule and punish boys when they seek help (W.H.C., unpublished data, 1996).

Health education campaigns attempt to teach young men that it is wrong to be violent, yet boys and men are encouraged to use aggressive force in sports, the military, and business. Television programs are 60% more likely to portray boys rather than girls using violence, and analyses of such programs reveal that violence is most often portrayed as an *effective* means for men and boys to attain their goals.^{112,113} Boys are also encouraged to fight; 3 of 4 Americans believe that it is important for boys to have a few fist fights while they are growing up.¹¹⁴ Not surprisingly, nearly 1 in 7 college men in California surveyed in a study published in 1997 had been in a physical fight in the past year.³⁴

Young men also receive mixed messages about drinking. Health professionals encourage abstinence, yet young men grow up in a society that consistently conveys the message that drinking is part of being a man (W.H.C., unpublished data, 1966). Lemle and Mishkind¹¹⁵ examined representations of alcohol in various media and found that the material conveyed an unmistakable link between drinking and masculinity. These investigators also provided compelling evidence that "advertisers further the association between alcohol and masculinity by interjoining their products with athletic events and by strategically placing ads in magazines and television programs with predominantly male audiences."^{115(p215)}

In fact, *Sports Illustrated*, the magazine most read by young men, has more alcohol and tobacco advertisements than any other magazine, according to one study.¹¹⁶ These advertisements, like television beer commercials, conspicuously equate drinking with being a man, taking risks, and facing danger without fear.¹¹⁷

Given these findings, it is no wonder that problem drink-

ing is much greater among college men than among college women.^{34,118} The most recent data from the Core Alcohol and Drug Survey reveal that, on average, college men consume nearly 7 drinks per week, 2½ times the number of drinks that women consume.¹¹⁹ College men are also 2½ times more likely to consume 10 or more drinks per week and 6 times more likely to consume 21 drinks. Nearly half of college men, compared with less than one third of college women, binge drink over a 2-week period.

Even when a gender-specific definition of binge drinking is used, with fewer drinks required for women to meet the binging definition, half of college men nationally, compared with 39% of college women, are binge drinkers; 23% of men and 17% of women are frequent binge drinkers.⁴² Furthermore, frequent college binge drinkers are 7 to 10 times more likely than their nonbinging peers to have unprotected sex or to be injured.⁴² These findings reflect consistent trends demonstrating that college men are more likely than college women to drink alcohol, to drink more, and to drink more often.^{118,120}

College men's alcohol use can be devastating to their well-being. Compared with college women, the college men are invariably found to experience more negative consequences of drinking, including impaired driving and physical injury.¹¹⁸ They are 8 times more likely than women to visit their college health service for alcohol-related injuries.¹²¹ Driving while drunk is the leading cause of death for those under 25 years of age,¹²² and the vast majority of those who die are young men. Sexually active college men in New Jersey who drink are at increased risk for STDs and HIV.⁴⁵ Drinking can also increase the risk for drowning. Among young adults aged 15 to 24 years generally, 10 times more men than women die from drowning¹²³; up to half of those men had been drinking shortly before they drowned.¹²⁴

Young men receive mixed messages about the use of tobacco, as well. Although public health campaigns attempt to convince young men not to use tobacco, other influences attempt to convince them differently. The popular *Sports Illustrated* is also the magazine with the most tobacco advertisements. Men are far more likely than women to receive tobacco industry promotional items.¹²⁵ Documents recently released by the R. J. Reynolds Tobacco Company revealed that the "Joe Camel" advertising campaign "was designed to lure teenagers as young as 12, especially boys."^{126(pA1)} It is not surprising, therefore, that significantly more men than women currently smoke—28% compared with 23%—and that the declines in smoking that are occurring are among women but not among men.¹²⁷ The decline in smoking since 1980 among older teenagers is also greater for females than for males.¹²⁸

Statistics on tobacco use among college students are not entirely consistent. The most recent national data from the Core Alcohol and Drug Survey show more tobacco use among college men than among women at all levels of frequency of use during the previous 30 days, including daily use among 15% of men and 11% of women.¹¹⁹ Earlier

national data showed that the prevalence of cigarette smoking was only slightly greater for men.¹²⁹ Among differing colleges and regions, findings have varied. Some investigators found that more women than men smoked, but the differences were never significant^{32,71,78}; others reported that significantly more men smoke.^{34,129,130}

Researchers rarely examine specific smoking habits, which are more dangerous among men. Men, in general, smoke more cigarettes per day, inhale more deeply, and are more likely to smoke cigarettes without filter tips and cigarettes that are high in tar and nicotine (W.H.C., unpublished data, 1996). Among students in one state, 43% of the men who smoked consumed two or more packs per day, compared with only 20% of women who smoked that amount.⁷¹

Research findings have shown that a common marketing strategy of tobacco companies is to link the use of tobacco products—particularly smokeless tobacco—with virility and athletic performance and to target young men, in particular.¹³¹ Smokeless tobacco consumption has, in fact, nearly tripled since the 1970s^{132,133}; among young men, use has increased between 250% and 300%.¹³⁴ Most smokeless tobacco use is initiated in the teenage years, particularly during college.^{133,135} Twenty-two percent of college men, compared with 2% of women, use more than half a can of smokeless tobacco per week, according to a national study¹³³; male college athletes are twice as likely as nonathletes to use chewing tobacco.^{133,136} Consequently, although most cancers occur later in life, oral cancers, which kill nearly twice as many men as women⁴ are increasingly diagnosed in younger persons.¹³⁴ Among 12- to 17-year-olds, nationally, smokeless tobacco lesions have been found in 3% of males, compared with .1% of females.¹³⁷

Men and boys receive contradictory messages about physical activities and sports. Despite public health efforts to foster caution, my review of the research literature shows that at home, at school, and on television boys learn to take more physical risks than girls (W.H.C., unpublished data, 1996). It is therefore not surprising that college men are more likely than college women to engage in sports that are physically dangerous—mountain climbing, scuba diving, parachuting, hang gliding, and body-contact sports.^{39,49} Men, including college men, also take greater risks in sports than women do, even in sports such as skiing; consequently, injuries among skiers are significantly higher for men than for women.¹³⁸

Men also take greater risks on their bicycles. Males of all ages account for 85% to 90% of all bicycle-related deaths and for 80% of the more than 14,000 bicycle injuries in California, alone, each year.^{85,139} Nine of 10 of the bicyclists killed were not wearing helmets,⁸⁵ although helmets can reduce the risk of head injuries from crashes by 85%.¹⁴⁰ The amount of bicycle riding that men do does not explain these differences; taking into account use patterns and exposure, the risk of fatal bicycle injuries for men is 5½ times greater than that for women.¹³⁹

Compared with women, men also engage in less healthy forms of physical activity (W.H.C, unpublished data, 1996).

Women are more likely than men to engage in light-to-moderate exercise, the type that research indicates is optimal for physical well-being.^{141,142} Women place greater value on exercising for health,⁸¹ they adhere to more regular exercise patterns,²² and they engage primarily in aerobic exercises or walking.¹⁴³ By contrast, men are more likely to participate in body-contact sports that can lead to injuries, such as football and basketball.¹⁴⁴⁻¹⁴⁶ Football accounts for nearly half a million injuries annually and was responsible for 13 high school and college student deaths in a recent year.¹²³

Some young men use anabolic steroids in an attempt to attain cultural ideals of the muscular male physique. The unprescribed use and abuse of steroids is a relatively new phenomenon that occurs most often among men between the ages of 18 and 25 years,¹⁴⁷⁻¹⁴⁹ particularly among those who are athletes. Among college men nationally, 1.2% reported using steroids in a recent year.¹¹⁹ In California, 2% of college men reported they used steroids³⁴; this percentage amounts to more than 300 men on the campus of the University of California, Berkeley, alone. Among adolescents, steroid use has been found to be associated with changes in physiology, behaviors, and perceptions that are consistent with psychological dependence.¹⁴⁹ Nearly 3 out of 4 college men who use steroids report arguments or fights as a consequence of their use, and nearly half report being hurt or injured; they are also more likely than non-users to use other drugs, including marijuana, cocaine, tobacco, and alcohol.¹⁴⁸

How Gender and Stereotypes Influence Service Provision

Stereotypes about men and boys are deeply ingrained in society. These stereotypes contribute to the invisibility of men's health risks and to men's poor health behaviors (W.H.C., unpublished data, 1996). The very attitudes and behaviors that increase men's risks are often considered normal and to be expected. "Boys," people say, "will be boys." Stereotypes contribute to strongly held societal beliefs that men and boys are stronger, tougher, and more robust than women and girls,¹⁵⁰ beliefs that are consistent with men's own perceptions of themselves as being invulnerable.

Boys are exposed to these stereotypes from infancy. When people are told that an infant is a boy, they are more likely to believe that it is "firmer" and "less fragile" than when they are told that the same infant is a girl.^{151,152} Health professionals are not immune to these stereotypic perceptions. Gender role stereotypes influence the diagnostic decisions of mental health clinicians, for example, who often make diagnoses based on whether or not patients conform to traditional gender roles.^{153,154}

The consequences of these stereotypes can be damaging to men's health. In a recent large and well-constructed study, the researchers found that mental health clinicians are significantly less likely to diagnose depression in men than in women; in fact, the clinicians failed to diagnose nearly two thirds of the depressed men.¹⁵⁴ As a result, more

women than men are treated for depression, and women's higher treatment rates, along with studies relying on self-reports, have contributed to a cultural perception of men's immunity to depression.^{76,155} This perception endures despite suicide rates, which are indexes of depression, that are as much as 12 times higher for men.

The finding that depression is undiagnosed in many men is particularly relevant for college health professionals. As I have already noted, there are no significant gender differences in diagnosable depression among college students; therefore undiagnosed depression in young men may contribute to their extraordinarily high rates of suicide.

Gender can influence the quality of care that college men receive from healthcare providers in other ways. Despite their high health risks, men in general receive less information and fewer, briefer explanations in medical encounters than women receive.¹⁵⁶ Among college students, men are less likely to be questioned about tobacco use during medical visits.⁷¹ Consistent findings of gender differences in physician-patient communication have led to the recent conclusion by some leading health communication researchers that those findings "may reflect sexism in medical encounters, but this may act to the advantage of female patients, who have a more informative and positive experience than is typical for male patients."^{157(p44)}

Designing Gender-Specific Interventions

College health service providers need to address gender stereotypes that can influence their interventions with college men.¹⁵⁸ Women and men have very different health needs that must also be addressed, as is illustrated by research using the stages of change model. This model identifies six discrete stages that individuals move through in changing behavior, as well as interventions that have been shown to be effective at each stage.¹⁵⁹

The six stages are precontemplation, contemplation, preparation, action, maintenance, and termination. Precontemplators typically deny their problems or unhealthy behaviors; contemplators recognize their problems and begin to think seriously about solving them. Research based on this model has found that women are more likely than men to be contemplating changing unhealthy behaviors or already maintaining healthy habits (J. S. Rossi, PhD, verbal communication, January 1997). These women need assistance in identifying the causes and consequences of their behaviors, help in considering the pros and cons of changing, or support in maintaining their healthy lifestyles.¹⁵⁹

Men, however, are more likely than women to be precontemplators and not to maintain healthy lifestyles.^{160,161} If men are to adopt healthier behaviors, as precontemplators they need increased awareness of their problems and education to help them begin to consider change. Interventions that neglect to take these gender differences into account or to apply stage-specific strategies are likely to fail. Men who progress from precontemplation to contemplation double the probability of successfully changing their behaviors.¹⁵⁹

Findings in studies of college students provide addition-

al support for gender-specific interventions.^{34,92,162,163} Researchers have reported, for example, that using such approaches as future awareness¹⁶³ and imagining symptoms¹⁶² to decrease sexual health risks are more effective with college men than with college women. Because college men are particularly disinclined to seek help, it has also been suggested that college health professionals should provide outreach to campus locations where large numbers of men congregate—athletic departments, sports events, ROTC, campus police, and academic departments, such as business and economics.¹⁶⁴ A gender-sensitive approach to health could address college men's reluctance to seek help and their tendency to conceal vulnerability by providing health-related telephone hot lines or electronic mail and chat lines.

College men's lack of routine healthcare makes any healthcare provider's contact with a male student an important opportunity for education, assessment, and intervention. An acute care visit or campus outreach may well be the only encounter a college man will have with any health professional for a long time. Unfortunately, too few strategies for making the most of these contacts have been developed, and few strategies have been developed for addressing college men's health in general.

The statistics I have reviewed in this article indicate that college men's greatest health risks are preventable and are the result of controllable behaviors. Interventions should be designed to help college men change modifiable behaviors that increase their health risks. That women typically visit college health services more often than men is not simply "natural." Early in their lives, young women are taught the importance of regular physical examinations. Men need to be taught the importance of receiving periodic evaluations and taking personal responsibility for their health.

I recently developed a clinical practice guideline for health professionals who work with men (W.H.C., unpublished data, 1996).¹⁶⁵⁻¹⁶⁸ In the guideline, I integrated both psychosocial and medical research on men and masculinity; identified behavioral and psychosocial factors that affect the onset, progression, and management of men's health problems; and provided evidence of the effectiveness of specific interventions. In addition, I have developed a Health Risk Inventory (HRI), an instrument to be used in assessing 60 factors that influence health, including gender-related items and respondents' attitudes and beliefs. Studies using the HRI are currently under way on several college campuses.

Implications for Future Research

Although researchers have long examined relationships between sex and health practices, very few attempts have been made to move beyond biologic sex as an independent or control variable and to explain which aspects of gender influence health. *Why* do college men engage in more health risk behaviors than college women? Unhealthy behaviors frequently occur in clusters,^{169,170} and the interaction of these behaviors often compounds men's health risks. Rather than representing a collection of discrete and isolated activ-

ities, these clusters may represent organized constellations of behaviors.¹⁷⁰

Little is currently known about the constellations of health-related behaviors individuals practice,²¹ and even less is known about the psychosocial mechanisms that mediate those behaviors.¹⁶⁹ One mediating factor is men's attitudes about manhood. It has been theorized that men and boys actually use unhealthy behaviors to demonstrate manhood, proving that they are "real" men by consuming large quantities of alcohol or by attempting to drink and drive; national data suggest that this theory may be correct (W.H.C., unpublished data, 1996). Research based on constructs and measures that assess the endorsement of traditional beliefs about manhood^{51,54} would be a promising method for testing this theory. Outcome research is particularly needed to measure the effectiveness of any gender-specific interventions, materials, and resources designed to improve men's health.

Research is also needed to examine whether increasing perceptions of skin cancer risk, for example, will result in college men's reducing their exposure to bright sunlight. Other critical areas for research are investigations of how race, socioeconomic status, and sexual orientation influence the health of college men and how their health risks compare with those of noncollege men. Contrary to popular assumptions, education level, socioeconomic status, and race are not necessarily indicators of young men's health behavior,⁵⁴ and college students' health behaviors can be significantly worse than the behaviors of their nonacademic peers.^{87,171}

Ultimately, a national system for tracking injuries and deaths among students in US colleges and universities must be developed for accurate epidemiologic comparisons of students and nonstudents, as well as for identifying gender differences in health-related college attrition. Many unexplained paradoxes of gender and health remain. Why are suicide rates in this age group 7 times higher for young men, even though college women are far more likely to report considering suicide?^{32,34} Why are college men less likely to be questioned about health risks in medical visits? Research addressing these questions is warranted—and long overdue.

NOTE

For further information and free copies of the Health Risk Inventory, please write Will Courtenay, PhD, 2811 College Avenue, Suite 1, Berkeley, CA, 94705-2167.

REFERENCES

1. *Advance Report of Final Mortality Statistics, 1992*. Hyattsville, MD: US Dept of Health and Human Services; 1995. Public Health Service; Publication PHS 95-1120.
2. Verbrugge LM, Wingard DL. Sex differentials in health and mortality. *Women Health*. 1987;12(2):103-145.
3. *Heart and Stroke Facts: 1995 Statistical Supplement*. Dallas, TX: American Heart Association; 1994.
4. *Cancer Facts and Figures: 1994*. Atlanta, GA: American Cancer Society; 1994.
5. Slap GB, Chaudhuri S, Vorters DF. Risk factors for injury

- during adolescence. *J Adolesc Health*. 1991;12:263-268.
6. *The ABCs of STDs*. New York: EDK Associates; 1995.
 7. Sabo D, Gordon DF, eds. *Men's Health and Illness: Gender, Power and the Body*. Thousand Oaks, CA: Sage; 1995.
 8. Sawyer RG, Moss DJ. Sexually transmitted diseases in college men: A preliminary clinical investigation. *J Am Coll Health*. 1993;42(3):111-115.
 9. Neef N, Scutchfield FD, Elder J, Bender SJ. Testicular self-examination by young men: An analysis of characteristics associated with practice. *J Am Coll Health*. 1991;39:187-190.
 10. Whitaker LC. Macho and morbidity: The emotional need vs. fear dilemma in men. *J Coll Student Psychother*. 1987;1(4):33-47.
 11. Wiley DC, James G, Jordan-Belver G, et al. Assessing the health behaviors of Texas college students. *J Am Coll Health*. 1996;44(4):167-172.
 12. Presley CA, Meilman PW, Cashin JR. Weapon carrying and substance abuse among college students. *J Am Coll Health*. 1997;46(1):3-8.
 13. Snope T. Survey reveals importance of continuing education. *Am Coll Health Assoc Action*. 1994;33(4):1,5-6.
 14. *Vital Statistics of the United States, 1990. Vol 2: Mortality, Part A*. Hyattsville, MD:Department of Health and Human Services, Public Health Service; 1994.
 15. Kandrack M, Grant KR, Segall A. Gender differences in health related behaviour: Some unanswered questions. *Soc Sci Med*. 1991;32:579-590.
 16. Pappas G, Queen S, Hadden W, Fisher G. The increasing disparity in mortality between socioeconomic groups in the United States, 1960 and 1986. *N Engl J Med*. 1993;329(2):103-109.
 17. Wolf SH, Jonas S, Lawrence RS, eds. *Health Promotion and Disease Prevention in Clinical Practice*. Baltimore, MD: Williams & Wilkins; 1996.
 18. US Preventive Services Task Force. *Guide to Clinical Preventive Services*. 2nd ed. Baltimore, MD: Williams & Wilkins; 1996.
 19. Ratner PA, Bottorff JL, Johnson JL, Hayduk LA. The interaction effects of gender within the health promotion model. *Res Nurs Health*. 1994;17:341-350.
 20. Lonquist LE, Weiss GL, Larsen DL. Health value and gender in predicting health protective behavior. *Women Health*. 1992;19(2/3):69-85.
 21. Rossi JS. Stages of change for 15 health risk behaviors in an HMO population. Presented at the Thirteenth Annual Scientific Sessions of the Society of Behavioral Medicine; New York; March 1992.
 22. Walker SN, Volkan K, Sechrist KR, Pender NJ. Health promoting life-styles of older adults: Comparisons with young and middle-aged adults, correlates and patterns. *Advan Nurs Sci*. 1988;11:76-90.
 23. Oleckno WA, Blacconiere MJ. Wellness of college students and differences by gender, race, and class standing. *Coll Stud J*. 1990;24(4):421-429.
 24. Weiss GL, Larson DL. Health value, health locus of control, and the prediction of health protective behaviors. *Soc Behav Personality*. 1990;18(1):121-136.
 25. Katz RC, Meyers K, Walls J. Cancer awareness and self-examination practices in young men and women. *J Behav Med*. 1995;18(4):377-384.
 26. Banks BA, Silverman RA, Schwartz RH, Tunnessen WW. Attitudes of teenagers toward sun exposure and sunscreen use. *Pediatrics*. 1992;89(1):40-42.
 27. Mermelstein RJ, Riesenber LA. Changing knowledge and attitudes about skin cancer risk factors in adolescents. *Health Psychol*. 1992;11(6):371-376.
 28. Vaill-Smith K, Felts M. Sunbathing: College students' knowledge, attitudes, and perceptions of risks. *J Am Coll Health*. 1993;42:21-26.
 29. Centers for Disease Control. Deaths from melanoma—United States, 1973-1992. *MMWR*. 1995;44(17):337, 343-347.
 30. *Skin Cancer Prevention and Early Detection: At-a-Glance*. Atlanta, GA: Centers for Disease Control; 1995.
 31. Stern RS, Weinstein MC, Baker SG. Risk reduction for nonmelanoma skin cancer with childhood sunscreen use. *Arch Dermatol*. 1986;122:537-545.
 32. Lewis DF, Goodhart F, Burns WD. New Jersey college students' high-risk behavior: Will we meet the health objectives for the year 2000? *J Am Coll Health*. 1996;45(3):119-126.
 33. Oleckno WA, Blacconiere MJ. Risk-taking behaviors and other correlates of seat belt use among university students. *Public Health*. 1990;104:155-164.
 34. Patrick KM, Covin JR, Fulop M, Calfas K, Lovato C. Health risk behaviors among California college students. *J Am Coll Health*. 1997;45(6):265-272.
 35. Centers for Disease Control. Public health focus: Impact of safety-belt use on motor-vehicle injuries and costs—Iowa, 1987-1988. *MMWR*. 1993;42:704.
 36. Farrow JA, Briss P. Risk for DWI: A new look at gender differences in drinking and driving influences, experiences and attitudes among new adolescent drivers. *Health Educ Q*. 1990;17(2):312-321.
 37. Jessor R. Risky driving and adolescent problem behavior: An extension of problem behavior theory. *Alcohol Drugs Driving*. 1987;3(3-4):1-13.
 38. Centers for Disease Control. Risky driving behaviors among teenagers—Gwinnett County, Georgia, 1993. *MMWR*. 1994;43(22):405-409.
 39. Zuckerman M. *Behavioral Expressions and Biosocial Bases of Sensation Seeking*. New York: Cambridge University Press; 1994.
 40. Pinch WJ, Heck M, Vinal D. Health needs and concerns of male adolescents. *Adolescence*. 1986;21(84):961-969.
 41. DeJoy DM. An examination of gender differences in traffic accident risk perception. *Accid Anal and Prevent*. 1992;24(3):237-246.
 42. Wechsler H, Davenport A, Dowdall G, Moeyskens B, Castillo S. Health and behavioral consequences of binge drinking in college: A national survey of students at 140 campuses. *JAMA*. 1994;272(21):1672-1677.
 43. Leigh BC, Temple MT, Trocki KF. The sexual behavior of US adults: Results from a national survey. *Am J Public Health*. 1993;83(10):1400-1408.
 44. Jadack RA, Hyde JS, Keller ML. Gender and knowledge about HIV, risky sexual behavior, and safer sex practices. *Res Nurs Health*. 1995;18:313-324.
 45. O'Leary A, Goodhart F, Jemmott LS, Boccher-Lattimore D. Predictors of safer sex on the college campus: A social cognitive theory analysis. *J Am Coll Health*. 1992;40:254-263.
 46. Kotloff KL, Tacket CO, Wasserman SS, et al. A voluntary serosurvey and behavioral risk assessment for human immunodeficiency virus infection among college students. *Sex Trans Dis*. 1991;18(4):223-227.
 47. Lollis CM, Johnson EH, Antoni MH, Hinkle Y. Characteristics of African-Americans with multiple risk factors associated with HIV/AIDS. *J Behav Med*. 1996;19(1):55-71.
 48. Taylor SE, Dilorio C, Stephens TT, Soet JE. A comparison of AIDS-related sexual risk behaviors among African-American college students. *J Natl Med Assoc*. 1997;89:397-403.
 49. Zuckerman M. Sensation seeking and sports. *Personality and Individual Differences*. 1983;4(3):285-293.
 50. Seage GR, Mayer KH, Lenderking WR, et al. HIV and hepatitis B infection and risk behavior in young gay and bisexual men. *Pub Health Rep*. 1997;112:158-167.
 51. Eisler RM. The relationship between masculine gender role stress and men's health risk: The validation of a construct. In: Levant RF, Pollack WS, eds. *A New Psychology of Men*. New

York: Basic Books; 1995:207–225.

52. Eisler RM, Blalock JA. Masculine gender role stress: Implications for the assessment of men. *Clin Psychol Rev*. 1991; 11:45–60.
53. Good GE, Mintz LB. Gender role conflict and depression in college men: Evidence for compounded risk. *J Counsel Develop*. 1990;69(1):17–21.
54. Pleck JH, Sonenstein FL, Ku LC. Problem behaviors and masculinity ideology in adolescent males. In: Ketterlinus RD, Lamb ME, eds. *Adolescent Problem Behaviours: Issues and Research*. Hillsdale, NJ: Erlbaum; 1994:165–186.
55. Huselid RF, Cooper ML. Gender roles as mediators of sex differences in adolescent alcohol use and abuse. *J Health Soc Behav*. 1992;33:348–362.
56. Baffi CR, Redican KJ, Sefchick MK, Impara JC. Gender role identity, gender role stress, and health behaviors: An exploratory study of selected college males. *Health Values*. 1991;15(1):9–18.
57. Eisler RM, Skidmore JR, Ward CH. Masculine gender-role stress: Predictor of anger, anxiety, and health-risk behaviors. *J Person Assess*. 1988;52(1):133–141.
58. Lash SJ, Eisler RM, Schulman RS. Cardiovascular reactivity to stress in men: Effects of masculine gender role stress appraisal and masculine performance challenge. *Behav Modif*. 1990;14(1):3–20.
59. Sharpe MJ, Heppner PP. Gender role, gender role conflict and psychological well-being in men. *J Counsel Psychol*. 1991; 38:323–330.
60. Good GE, Dell DM, Mintz LB. Male role and gender role conflict: Relations to help seeking in men. *J Counsel Psychol*. 1989;36(3):295–300.
61. Oliver SJ, Toner BB. Influence of gender role typing on the expression of depressive symptoms. *Sex Roles*. 1990;22: 77–790.
62. McCall PL. Adolescent and elderly white male suicide trends: Evidence of changing well-being? *J Gerontol*. 1991;46(1): S43–S51.
63. Student dies of self-inflicted gunshot wound. *The Red & Black*. April 29, 1994;101(125):1.
64. Student dies of gunshot wound. *The Red & Black*. October 20, 1993;101(28):1.
65. Johnson ME. Influences of gender and sex role orientation on help-seeking attitudes. *J Psychol*. 1988;122(3):237–241.
66. Williams DG. Gender, masculinity-femininity, and emotional intimacy in same-sex friendship. *Sex Roles*. 1985;12(5/6): 587–600.
67. Athlete dies young. *New York Times*. October 1, 1995;S1, S7.
68. Ashton WA, Fuehrer A. Effects of gender and gender role identification of participant and type of social support resource on support seeking. *Sex Roles*. 1993;28(7/8):461–476.
69. Rule WR, Gandy GL. A thirteen-year comparison in patterns of attitudes toward counseling. *Adolescence*. 1994;29(115): 575–589.
70. Boehm S, Selves EJ, Raleigh E, et al. College students' perception of vulnerability/susceptibility and desire for health information. *Patient Educ Counseling*. 1993;21:77–87.
71. Foote JA, Harris RB, Gilles ME. Physician advice and tobacco use: A survey of 1st-year college students. *J Am Coll Health*. 1996;45(3):129–132.
72. Prosser-Gelwick B, Garni KF. Counseling and psychotherapy with college men. *New Directions Student Service*. 1988;42(Summer):67–77.
73. Chino AF, Funabiki D. A cross-validation of sex differences in the expression of depression. *Sex Roles*. 1984;11: 175–187.
74. O'Neil MK, Lancee WJ, Freeman JJ. Sex differences in depressed university students. *Soc Psychiatry*. 1985;20:186–190.
75. Lester D. Depression and suicide in college students and adolescents. *Personal Individ Differences*. 1990;11(7):757–758.
76. Nolen-Hoeksema S. Sex differences in unipolar depression: Evidence and theory. *Psychol Bull*. 1987;101(2):259–282.
77. Stangler RS, Printz AM. *DSM-III*: Psychiatric diagnosis in a university population. *Am J Psychiatry*. 1980;137(8):937–940.
78. Sax L. Health trends among college freshmen. *J Am Coll Health*. 1997;45(6):252–262.
79. *Health United States 1991 and Prevention Profile*. Hyattsville, MD: US Dept of Health and Human Services; 1992. Public Health Service. Publication PHS 92-1232.
80. Savage I. Demographic influences on risk perceptions. *Risk Analysis*. 1993;13:413–420.
81. Weissfeld JL, Kirscht JP, Brock BM. Health beliefs in a population: The Michigan Blood Pressure Survey. *Health Educ Q*. 1990;17(2):141–155.
82. Flynn J, Slovic P, Mertz CK. Gender, race, and perception of environmental health risks. *Risk Analysis*. 1994;14(6): 1101–1108.
83. Spigner C, Hawkins W, Loren W. Gender differences in perception of risk associated with alcohol and drug use among college students. *Women Health*. 1993;20(1):87–97.
84. Cutter SL, Tiefenbacher J, Solecki WD. En-gendered fears: Femininity and technological risk perception. *Industrial Crisis Q*. 1992;6(1):5–22.
85. *1993 Annual Report of Fatal and Injury Motor Vehicle Traffic Accidents*. Sacramento, CA: California Highway Patrol; 1994.
86. Ericksen KP, Trocki KF. Sex, alcohol and sexually transmitted diseases: A national survey. *Fam Plann Perspect*. 1994;26: 257–263.
87. Tanfer K, Cubbins LA, Billy JO. Gender, race, class and self-reported sexually transmitted disease incidence. *Fam Plann Perspect*. 1995;27(5):196–202.
88. Centers for Disease Control. Sexual behavior among high school students—United States, 1990. *MMWR*. 1992;40(51/52): 885–888.
89. Ward JW, Duchin JS. The epidemiology of HIV and AIDS in the United States. In: Volberding PA, Jacobson MA, eds. *AIDS Clinical Review 1997/1998*. New York: Marcel Dekker; 1998: 1–45.
90. Hansen WB, Hahn GL, Wolkenstein BH. Perceived personal immunity: Beliefs about susceptibility to AIDS. *J Sex Res*. 1990;27(4):622–628.
91. Johnson EH, Gant L, Hinkle YA, Gilbert D, Willis C, Hoopwood T. Do African-American men and women differ in their knowledge about AIDS, attitudes about condoms, and sexual behaviors? *J Natl Med Assoc*. 1992;84(1):49–64.
92. Dekin B. Gender differences in HIV-related self-reported knowledge, attitudes, and behaviors among college students. *Am J Prevent Med*. 1996;12 (Suppl 1):61–66.
93. Goldman JA, Harlow LL. Self-perception variables that mediate AIDS-preventive behavior in college students. *Health Psychol*. 1993;12(6):489–498.
94. DiIorio C, Parsons M, Lehr S, Adame D, Carlone J. Factors associated with use of safer sex practices among college freshmen. *Res Nurs Health*. 1993;16:343–350.
95. Gray LA, Saracino M. AIDS on campus: A preliminary study of college students' knowledge and behaviors. *J Counseling Develop*. 1989;68(2):199–202.
96. Thurman QC, Franklin KM. AIDS and college health: Knowledge, threat, and prevention at a northeastern university. *J Am Coll Health*. 1990;38:179–184.
97. Rosenstock IM. The Health Belief Model: Explaining health behavior through expectancies. In: Glanz K, Rimer B, Lewis F, eds. *Health Behavior and Health Education: Theory, Research and Practice*. San Francisco: Jossey-Bass; 1990:39–62.
98. Weinstein ND. Unrealistic optimism about illness suscep-

- tibility: Conclusions from a community-wide sample. *J Behav Med.* 1987;10:481-500.
99. Blesch KS. Health beliefs about testicular cancer and self-examination among professional men. *Oncol Nurs Forum.* 1986;18(1):29-33.
100. Roth BJ, Nichols CR, Einhorn LH. Neoplasms of the testis. In: Holland JF, Frei E, Basset RC, et al, eds. *Cancer Medicine.* Vol 2,3rd ed. Philadelphia: Lea & Febiger; 1993:1592-1619.
101. Prout G, Griffin P. Testicular tumors: Delay in diagnosis and influence on survival. *Am Fam Practitioner.* 1984;29:205-209.
102. Einhorn LH, Richie JP, Shipley WU. Cancer of the testis. In: DeVita VT, Hellman S, Rosenberg SA, eds. *Cancer: Principles and Practice of Oncology.* 4th ed. Philadelphia: Lippincott; 1993:1126-1151.
103. American School Health Association. *The National Adolescent Student Health Survey: A Report on the Health of America's Youth.* Oakland, CA: Third Party; 1989.
104. Bostick RM, Sprafka JM, Virnig BA, Potter JD. Knowledge, attitudes, and personal practices regarding prevention and early detection of cancer. *Prevent Med.* 1993;22:65-85.
105. Polednak AP. Knowledge of colorectal cancer and use of screening tests in persons 40-74 years of age. *Prevent Med.* 1990;19:213-226.
106. Ford ES, Jones DH. Cardiovascular health knowledge in the United States: Findings from the National Health Interview Survey, 1985. *Prevent Med.* 1991;20:725-736.
107. White AA, Klimis-Tavantzis DJ. Dietary risk assessment for cardiovascular disease among central Maine adolescents. *J School Health.* 1992;62(9):428-432.
108. Carroll L. Gender, knowledge about AIDS, reported behavioral change, and the sexual behavior of college students. *J Am Coll Health.* 1991;40(1):5-12.
109. Love N. Why patients delay seeking care for cancer symptoms: What you can do about it. *Postgrad Med.* 1991;89(4):151-158.
110. Carmel S. The health belief model in the research of AIDS related preventive behavior. *Public Health Rev.* 1990;18:73-85.
111. Thomas SB, Gilliam AG, Iwrey CG. Knowledge about AIDS and reported risk behaviors among Black college students. *J Am Coll Health.* 1989;38:61-65.
112. Heintz-Knowles K. *The Reflection on the Screen: Television's Image of Children.* Washington, DC: Children Now; 1995.
113. Sege R, Dietz W. Television viewing and violence in children: The pediatrician as agent for change. *Pediatrics.* 1994;94:600-607.
114. Gelles RJ, Straus MA. *Intimate Violence.* New York: Simon & Schuster; 1988.
115. Lemle R, Mishkind ME. Alcohol and masculinity. *J Subst Abuse Treat.* 1989;6:213-222.
116. Klein JD, Brown JD, Childers KW, et al. Adolescents' risky behaviour and mass media use. *Pediatrics.* 1993;92:24-31.
117. Strate L. Beer commercials: A manual on masculinity. In: Craig S, ed. *Men, Masculinity, and the Media.* Newbury Park, CA: Sage; 1992:78-92.
118. Perkins HW. Gender patterns in consequences of collegiate alcohol abuse: A 10-year study of trends in an undergraduate population. *J Stud Alcohol.* 1992;53:458-462.
119. Presley CA, Meilman PW, Cashin JR. *Alcohol and Drugs on American College Campuses: Use, Consequences, and Perceptions of the Campus Environment. Volume IV: 1992-94.* Carbondale, IL: The Core Institute; 1996.
120. Prendergast ML. Substance use and abuse among college students: A review of recent literature. *J Am Coll Health.* 1994;43(3):99-113.
121. Meilman PW, Yanofsky NN, Gaylor MS, Turco JH. Visits to the college health service for alcohol-related injuries. *J Am Coll Health.* 1989;37:205-210.
122. Centers for Disease Control. Update: Alcohol-related traffic fatalities—United States, 1982-1993. *MMWR.* 1994;43(47):861-867.
123. *Accident Facts, 1994 Edition.* Itasca, IL: National Safety Council; 1994.
124. Centers for Disease Control. Alcohol use and aquatic activities—United States, 1991. *MMWR.* 1993;42(36):675-676, 681-682.
125. Gilpin E, Pierce JP, Rosbrook B. Are adolescents receptive to current sales promotion practices of the tobacco industry? *Prevent Med.* 1997;26:14-21.
126. Joe Camel designed to lure teens. *San Francisco Chronicle.* January 15, 1998;A1,A15.
127. Centers for Disease Control. Surveillance for smoking-attributable mortality and years of potential life lost, by state—United States, 1990. *MMWR.* 1994;43:1-3, 6-7.
128. Nelson DE, Giovino GA, Shopland DR, Mowery PD, Mills SL, Eriksen MP. Trends in cigarette smoking among US adolescents, 1974 through 1991. *Am J Public Health.* 1995;85(1):34-40.
129. Johnston LD, O'Malley PM, Bachman JG. *National Survey Results on Drug Use from the Monitoring the Future Study, 1975-1994. Vol. II: College Students and Young Adults.* Rockville, MD: National Institute on Drug Abuse; 1996.
130. Fiore MC, Jorenby DE, Wetter DW, et al. Prevalence of daily and experimental smoking among University of Wisconsin—Madison undergraduates, 1989-1993. *Wis Med J.* 1993;92(11):605-608.
131. Connolly GN, Orleans CT, Blum A. Snuffing tobacco out of sport. *Am J Pub Health.* 1992;82:351-353.
132. Centers for Disease Control. Use of smokeless tobacco among adults—United States, 1991. *MMWR.* 1993;42(14):263-266.
133. Glover ED, Laflin M, Flannery D, Albritton DL. Smokeless tobacco use among American college students. *J Am Coll Health.* 1989;38:81-85.
134. *Oral Cancers: Research Report.* Bethesda, MD: National Cancer Institute; 1991. National Institutes of Health publication no NIH 92-2876.
135. Levenson-Gingiss P, Morrow JR, Dratt LM. Patterns of smokeless tobacco use among university athletes. *J Am Coll Health.* 1989;38:87-90.
136. Wechsler H, Davenport AE, Dowdall GW, Grossman SJ, Zanakos SI. Binge drinking, tobacco, and illicit drug use and involvement in college athletics: A survey of students at 140 American colleges. *J Am Coll Health.* 1997;45:195-200.
137. Tomar SL, Winn DM, Swango PA, Giovino GA, Kleinman DV. Oral mucosal smokeless tobacco lesions among adolescents in the United States. *J Dent Res.* 1997;76(6):1277-1286.
138. Kraus JF, Conroy C. Mortality and morbidity from injuries in sports and recreation. *Annu Rev Public Health.* 1984;5:163-192.
139. Rodgers GB. Bicyclist deaths and fatality risk patterns. *Accident Analysis Prevent.* 1995;27(2):215-223.
140. Centers for Disease Control. Safety-belt and helmet use among high school students—United States, 1990. *MMWR.* 1992;41(7):111-114.
141. Blair SN, Kohl HW, Paffenbarger RS. Physical fitness and all-cause mortality: A retrospective study of healthy men and women. *JAMA.* 1989;262(17):2395-2401.
142. Pate RR, Pratt M, Blair SN, et al. Physical activity and public health: A recommendation from the Centers for Disease Control and Prevention and the American College of Sports Medicine. *JAMA.* 1995;273(5):402-407.
143. *Vital and Health Statistics: Health Promotion and Disease Prevention, United States, 1990.* Hyattsville, MD: Public Health Service; 1993. Dept Health and Human Services; Publication PHS 93-1513.
144. Ross CE, Bird CE. Sex stratification and health lifestyle:

Consequences of men's and women's perceived health. *J Health Soc Behav.* 1994;35:161-178.

145. Stevens T, Jacobs DR, White CC. A descriptive epidemiology of leisure-time physical activity. *Public Health Rep.* 1985; 100:147-158.

146. Centers for Disease Control. Vigorous physical activity among high school students—United States, 1990. *MMWR.* 1992;41(3):33-35.

147. *National Household Survey on Drug Abuse: Population Estimates 1991.* Washington, DC: National Institute on Drug Abuse; 1992. US Dept of Public Health; Publication ADM 92-1887 (Revised November 20, 1992).

148. Meilman PW, Crace RK, Presley CA, Lyerla R. Beyond performance enhancement: Polypharmacy among collegiate users of steroids. *J Am Coll Health.* 1994;44(3):98-104.

149. *Healthy People 2000: National Health Promotion and Disease Prevention Objectives.* Washington, DC: US Dept of Health and Human Services; 1991. Public Health Service; Publication PHS 91-50212.

150. Williams JE, Best DL. *Measuring Sex Stereotypes: A Multination Study.* Newbury Park, CA: Sage; 1990.

151. Golombok S, Fivush R. *Gender Development.* Cambridge, MA: Cambridge University Press; 1994.

152. Stern M, Karraker KH. Sex stereotyping of infants: A review of gender labeling studies. *Sex Roles.* 1989;20(9/10): 501-522.

153. Adler DA, Drake RE, Teague GB. Clinicians' practices in personality assessment: Does gender influence the use of *DSM-III* axis II? *Comprehensive Psychiatry.* 1990;31(2):125-133.

154. Potts MK, Burnam MA, Wells KB. Gender differences in depression detection: A comparison of clinician diagnosis and standardized assessment. *Psychological Assessment.* 1991;3(4): 609-615.

155. Warren LW. Male intolerance of depression: A review with implications for psychotherapy. *Clin Psychol Rev.* 1983;3: 147-156.

156. Hall JA, Roter DL, Katz NR. Meta-analysis of correlates of provider behavior in medical encounters. *Medical Care.* 1988;26(7):657-675.

157. Roter DL, Hall JA. *Doctors Talking with Patients/Patients Talking with Doctors: Improving Communication in Medical Visits.* Westport, CT: Auburn House; 1997.

158. Courtenay WH. Better to die than cry: Defining and responding to the men's health crisis. Presented at the 75th Annual Meeting of the American College Health Association; June 1, 1994; Atlanta, GA.

159. Prochaska JO, Norcross JC, DiClemente CC. *Changing For Good.* New York: William Morrow; 1994.

160. Laforge RG, Greene GW, Prochaska JO. Psychological factors influencing low fruit and vegetable consumption. *J Behav Med.* 1994;17(4):361-374.

161. Rossi JS, Blais LM. Stages of change for sun exposure. Presented at the 13th Annual Scientific Sessions of the Society of Behavioral Medicine; March 1992; New York.

162. DePalma MT, McCall M, English G. Increasing perceptions of disease vulnerability through imagery. *J Am Coll Health.* 1996;44(5):227-234.

163. Rothspan S, Read SJ. Present versus future time perspective and HIV risk among heterosexual college students. *Health Psychol.* 1996;15(2):131-134.

164. Kafka E. Men: An endangered species. Presented at the Annual Meeting of the Association of University and College

Counseling Center Directors; November 13, 1997; Williamsburg, VA.

165. Courtenay WH. Practical practice guideline for reducing men's risks and health care costs. Chairperson's address at the Men's Health Programs Conference; November 18, 1996; Scottsdale, AZ.

166. Courtenay WH. Men's health in the new millennium. Keynote Address and Half-Day Conference sponsored by New York Department of Health; November 3, 1997; New Rochelle.

167. Courtenay WH. Six-Point Plan to Improve Men's Health. Keynote Address, Male Sexual Health Conference sponsored by Massachusetts Department of Public Health; June 17, 1997; Boston, MA.

168. Courtenay WH. Communication strategies for improving men's health: The 6-Point HEALTH Plan. *Wellness Management.* 1998;14(1):1, 3-4.

169. Emmons KM, Marcus BH, Linnan L, Rossi JS, Abrams DB. Mechanisms in multiple risk factor interventions: Smoking, physical activity, and dietary fat intake among manufacturing workers. *Prevent Med.* 1994;23:481-489.

170. Jessor R, Donovan JE, Costa FM. *Beyond Adolescence: Problem Behavior and Young Adult Development.* New York: Cambridge University Press; 1991.

171. Clark MJ. Seat belt use on a university campus. *J Am Coll Health.* 1993;41(4):169-171.