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Review article

The Health Status of Young Adults in the United States

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Abstract The health issues of young adulthood have received relatively little attention compared with those of adolescence, although the critical issues in young adulthood parallel those of adolescence. Young adults often fare worse than adolescents on health indicators, with many measures of negative outcomes—including rates of injury, homicide, and substance use—peaking during the young adult years. The contextual factors shaping health status and access to care in young adulthood differ significantly from the context of adolescence. This article synthesizes national data to present a health profile of young adults, reviewing social indicators that describe the context of young adulthood and presenting measures of health status. We examine mortality, morbidity, risky behaviors, and health care access and utilization, identifying the most significant gender and racial/ethnic disparities. The article also identifies limitations of existing data and offers suggestions for future research and health monitoring in this area. We conclude with a discussion of current efforts to address the health and well-being of young adults and argue for creating a national health agenda for young adults that includes research, programs and policies to address health issues during this period of the lifespan.

Keywords: Young adulthood; Health status; Disparities; Mortality; Risky behavior; Access to health care; Health care utilization; Health policies and programs

Health status during the young adult years has received little attention compared with adolescence. Although young adults are sometimes grouped with adolescents, the contextual influences that shape risky behavior, health outcomes and access to care change during the young adult years. The critical health issues of young adulthood mirror those of adolescence, including reproductive health, injury, substance use, mental health, violence, obesity and access to health care. Young adults fare worse than adolescents in many areas: rates of injury, homicide, and substance use peak in young adulthood. This article synthesizes national data to present a health profile of young adults. We examine social indicators, mortality, morbidity, risky behaviors, and health care access and utilization, identifying the most significant gender and racial/ethnic disparities. We argue for creating a national young adult health agenda that includes research, programs and policies to address health issues during this period of the lifespan.

Contextual Framework for Young Adult Health

Two important contextual influences shape young adult health: a prolonged transition to adult roles and responsibilities and the weakening of the safety net that supports adolescents and younger children. Legally, 18-year-olds gain adult privileges, such as consenting to confidential health care. However, many do not assume adult roles and responsibilities for several years. Young adulthood involves exploration and steps toward independence, with varying levels of adult supervision, roles and responsibilities—making this period unique in the lifespan. These factors have important implications for risky behaviors. Arnett argues

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that significant identity exploration takes place during this period of greater freedom and fewer constraints. He states that risky behaviors in young adulthood "can be understood in part . . . as one reflection of the desire to obtain a wide range of behavior before settling down" [1]. In the area of sexual behavior, the prolonged transition is reflected in the long period between first intercourse and marriage (10 years for the average male and eight years for the average female) [2]. Arnett suggests that the context of diminished parental surveillance and little "normative pressure to enter marriage" during these years may contribute to risky sexual behaviors [1].

Young adults take many paths to adulthood—paths that may involve college, military service, parenthood, and marriage. It is important to assess the implications of different paths—each with its unique set of constraints and role expectations—for health. Researchers have begun to examine the influence of transition to adult responsibilities on behavior. In the area of substance use, Schulenberg et al suggest that decline in young adults' substance use is linked to events including marriage, parenthood and employment [3].

This prolonged transition results from major social and economic transformations—including the shift to a postindustrial economy and changes in women's roles. These changes have shaped the timing and sequencing of young adult transitions—including leaving home, entering or leaving school, entering the workforce, and forming families [1,4–7]. Major trends include: more young people pursuing postsecondary education; delayed marriage and childbearing; and women's increased participation in the labor force [4]. Other trends include a rise in single motherhood and the number of young men in prison. In 2002, females aged 20–24 years had the highest nonmarital birth rate of any age group [8]. Incarceration rates are especially high for young Black males, with 11% of Black males aged 20–24 years in prison in 2004 [7,9].

This period of transition is accompanied by a significant weakening of the safety net, as well as supportive institutions, organizations and networks that serve adolescents. For example, while nearly all adolescents are enrolled in school (96.4% of youth aged 14–17 years in 2002), no single institution serves such a large percentage of young adults [10]. Whereas three-quarters of young adults have completed high school and at least some postsecondary education, one in seven are disconnected from activities leading to financial independence, being neither in school, the work force, nor the military and having no degree beyond a high school diploma or GED (ages 18–24, 2000) [11,12]. Young adults who do not finish college are at particularly high risk of falling behind economically [13].

Populations of adolescents that rely heavily on institutions suffer disproportionately with the abrupt change in support. These populations—such as those in foster care or juvenile justice and those with mental health problems or other special health care needs—are left to navigate young adulthood with few supports as they age out of these systems [14]. A large literature has documented that young adults with disabilities require special services to transition successfully to adult roles and functioning. The sharp decrease in insurance coverage in the late teen years makes it difficult for many in this population to secure these services [15]. Similarly, young people in the foster care system, who have a high prevalence of physical and mental health problems, also face barriers to retaining insurance as they exit foster care, jeopardizing a healthy transition to adulthood [16].

Methods

This article defines young adulthood as ages 18–24 years and presents data using that age grouping where possible. Age 18 is commonly the year of high school graduation and a year during which most young people have begun taking steps to achieve independence. No clear event marks the end of young adulthood. Most data present age groups ending at age 24 years. People in their late 20s differ from those in their early 20s on many markers of health, as well as social indicators, such as employment status and school enrollment. To create a health profile for young adults, we conducted a comprehensive review of electronic databases, articles and reports since 2000 that used nationally representative samples. Internet searches were conducted using PubMed and other search engines. Various search terms and key words were used, including "young adult," "early adult," "emerging adult," "age" and outcomes of interest. Some measures were derived from private analyses of publicly available data (see Table 1 for data sources).

To select outcomes of interest, we adapted the 21 Critical Objectives for Adolescent and Young Adult Health [17]. A federally convened panel of experts selected these objectives from the 108 *Healthy People 2010* objectives that address adolescents and young adults [18]. These objectives fall into six general areas, which we used to structure our presentation of the data (Table 2). We also review access to care and service utilization indicators for young adults.

Socio-demographic profile

The 2000 Census counted 27.1 million young adults aged 18–24 years. Like adolescents, the young adult population is more racially/ethnically diverse than the overall population. In 2000, White non-Hispanics (NHs) comprised 61.7% of the young adult population; Hispanics, 17.3%; Black NHs, 13.6%; Asian/Pacific Islander NHs, 4.2%; and American Indian/Alaskan Native NHs, .9%. Thirteen percent of young adults were foreign born; this figure ranges from 2.4% of White NHs and 1.3% of American Indian/Alaskan Native NHs to 61.2% of Asian/Pacific Islander NHs and

Table 1
Data sources for monitoring young adult health

Name of data source (Abbreviation) Sponsor Website	Data source	Type of data collected	Sample and age grouping	Periodicity
Data collected by the Centers for Disease Control and Prevention (CDC)				
HIV/AIDS Surveillance CDC, National Center for HIV, STD and TB Prevention, Division of HIV/AIDS Prevention http://www.cdc.gov/hiv/dhap.htm	Surveillance	HIV and AIDS Cases	AIDS cases reported to CDC by 50 states and DC; HIV cases reported by 38 states & DC Age groupings vary by report	Annually from 1982–1992, bi-annually since 1993, most recent 2004
National Health and Nutrition Examination Survey (NHANES) CDC, National Center for Health Statistics http://www.cdc.gov/nchs/nhanes.htm	Interview, physical examination, clinical measurements and tests	BMI, weight, waist circumference	National probability sample Age grouping 20–29 years	11 surveys since 1960, most recent in 2002
National Health Interview Survey (NHIS) CDC, National Center for Health Statistics, http://www.cdc.gov/nchs/nhis.htm	Personal household interview	Access to health services, insurance, and health-related behaviors	Nationally representative sample of households Age grouping 18–24; 25–34 years	Annually since 1957
National Hospital Discharge Survey (NHDS) CDC, National Center for Health Statistics http://www.cdc.gov/nchs/about/major/hdasd/nhds.htm	Medical records	Rates of discharge, length of stay	National sample of short-stay hospitals Age grouping 20–24 years	Annually since 1965, most recent 2001
National Survey of Family Growth (NSFG) CDC, National Center for Health Statistics http://www.cdc.gov/nchs/nsfg.htm	Personal interview	Factors affecting pregnancy and women's health	Nationally representative sample of women ages 15–44 years Age groupings 20–24; 25–29 years	1973, 1976, 1988, 1995, 2002
National Vital Statistics System (NVSS) CDC, National Center for Health Statistics http://www.cdc.gov/nchs/nvss.htm	Birth and death certificates	Mortality and natality	All births and deaths Age groupings 20–24; 25–29 years	Annually since 1950
Sexually Transmitted Disease Surveillance (STDS) CDC, National Center for HIV, STD and TB Prevention, Division of Sexually Transmitted Diseases http://www.cdc.gov/std/	Surveillance	Sexually transmitted diseases	STD surveillance systems operated by state and local STD control programs Age groupings 20–24; 25–29 years	Ongoing surveillance, annual publication
Behavior Risk Factor Surveillance System (BRFSS) CDC, Division of Adolescent and School Health, National Center for Chronic Disease Prevention and Health Promotion http://www.cdc.gov/brfss/index.htm	Telephone survey	Health status, immunization, risky behaviors	Nationally representative sample of adults, 18+ years old Age groupings 18–24; 25–34 years	Initiated in early 1980s, annually

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Table 1
Continued

Name of data source (Abbreviation) Sponsor Website	Data source	Type of data collected	Sample and age grouping	Periodicity
Other Federally Sponsored Surveys				
Census Bureau United States Department of Commerce, U.S. Bureau of the Census http://www.census.gov/	Questionnaire administered in homes	Population	National estimates and projections of the population count, and demographic variables Age groupings 18–24; 25–29 years	Decennial census, periodic annual population surveys
Monitoring the Future (MTF) National Institute on Drug Abuse, National Institutes of Health (conducted by Institute for Social Research at University of Michigan) http://www.monitoringthefuture.org/	Self-administered questionnaire in schools	Substance use	Nationally representative sample of students in grades 8 to 12, college students, and long. follow-up through 45; young adults aged 19–28 years	Annually since 1975, most recent 2005
National Center for Statistics & Analysis (NCSA) National Highway Traffic Safety Administration, U.S. Dept. of Transportation http://www-nrd.nhtsa.dot.gov/departments/nrd-30/ncsa/	Records from fatal motor vehicle crashes and work-related fatalities	Demographics of persons involved, circumstances surrounding the crash	Records collected in multiple data sources (including GES & FARS) Age groupings 21–24; 25–34 years	Annually since 1975, most recent 2004
National Survey on Drug Use & Health (NSDUH) Substance Abuse and Mental Health Administration, Office of Applied Statistics http://www.drugabusestatistics.samhsa.gov/	Personal household interview	Substance use, mental health	Nationally representative sample, aged 12 and older Age grouping 18–25 years	Annually since 1971, most recent 2004
National Longitudinal Study of Adolescent Health (AddHealth) The National Institute of Child Health and Human Development (conducted by the University of North Carolina, Chapel Hill) http://www.cpc.unc.edu/projects/addhealth/	Self-administered questionnaire in schools	Health-related behaviors with emphasis on social context	Nationally representative original sample of students in grades 7 to 12, 3rd wave = aged 18–28 years	Wave 1: 1994–95, Wave 2: 1996 Wave 3: 2001, 2002
National Survey of Adolescent Males (NSAM) The National Institute of Child Health and Human Development, National Institutes of Health (conducted by Urban Institute) http://www.urban.org/	Household-based survey	Demographics, family and educational history, sexual behavior and knowledge, substance use	Longitudinal data collection in 3 waves: males aged 15–19; 16–21; and 21–27 years	1988, 1990–91, 1995

44.8% of Hispanics [12]. In 2003, one in six (16.5%) young adults aged 18–24 lived in poverty; rates were higher for young females, especially Blacks (33.1%) and Hispanics (25.3%) [19]. Table 3 provides additional sociodemographic data [12,20,21].

Health Status

Overall health and disability

By traditional measures, young adults are healthy. Over 96% of 18–24-year-olds report being in excellent, very

Table 2
Areas covered by 21 critical objectives for adolescent and young adult health

Mortality
Unintentional Injury
Violence
Substance abuse and mental health
Reproductive health
Chronic diseases (including overweight/obese and physical activity)

Source: U.S. Department of Health and Human Services. *Healthy People 2010,* Volumes 1 and 2. Washington, DC: U.S. Government Printing Office, 2000. This information can also be accessed at http://wonder.cdc.gov/data2010/.

good, or good health, a figure that varies little by gender or race/ethnicity. Disabilities are relatively rare, with 4.6% reporting any physical, mental, or emotional limitation that affects daily functioning (including self care, housekeeping, and work) [22].

Mortality

Young adults aged 18–24 have over twice the mortality rate of adolescents aged 12–17 (Figure 1). As in adolescence, unintentional injury, homicide and suicide account for three-quarters of all young adult deaths. The higher rate for young adults is largely attributable to the male mortality rate, which is three times the female rate. American Indian/Alaskan Native NH and Black NH males have the highest mortality rates (230.4 and 217.8, respectively), whereas Asian/Pacific Islander females have the lowest rate (31.6 [all mortality rates per 100,000]). Homicide accounts for the high mortality among Black NH young adults, whereas suicide and motor vehicle accidents account for the high mortality among American Indian/Alaskan Native NHs (Table 4). Despite persistent disparities, overall trends in young adult mortality are encouraging: the rate decreased from 109.0 in 1990 to 94.4 in 2003 [23].

Unintentional injury

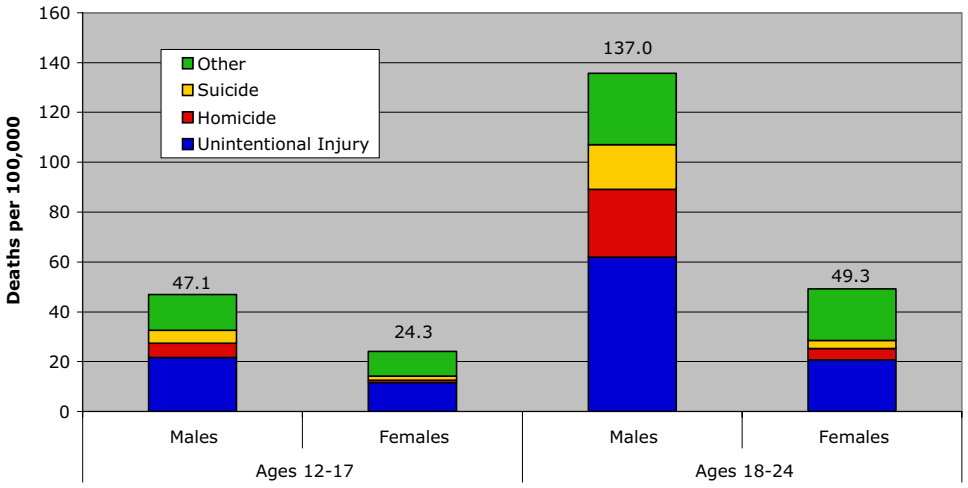
Unintentional injury (UI) is the leading cause of mortality for young adults. The UI mortality rate peaks in the young adult years at 42.0, then decreases until age 70. Young adult males are three times more likely to die from injury than their female peers (Table 4). About 70% of young adults' UI mortality is due to motor vehicle accidents (MVAs). American Indian/Alaskan Native NH males have the highest MVA mortality rate. Overall, young adult UI mortality has decreased in the past two decades, from 46.9 in 1990 to 42.0 in 2003 [23].

Failure to wear a seat belt and driving while alcohol- or drug-impaired put all drivers at greater risk of fatal MVAs. In 2002, 70.2% of 18–24-year-olds reported that they always use seatbelts, up from 57.7% in 1995. This figure increases to 75.1% for 25–29-year-olds and continues to increase throughout the lifespan [24]. Alcohol

Table 3
Young adult marriage, childbearing, education and employment by gender, race/ethnicity and, for selected indicators, age group

Indicator	Young adults overall	Male	Female	White NH	Black NH	Hispanic	AI/AN NH	Asian or A/PI NH
Marriage (ages 18–24, 2000) [12]	18.5%; 18–20: 10.2%; 21–24: 25.2%	15.3%	21.8%	Male: 14.5% Female: 22.1%	Male: 13.7% Female: 11.7%	Male: 21.0% Female: 30.9%	Male: 16.3% Female: 22.4%	Male: 9.2% Female: 18.5%
Childbearing (ages 18–24, 2002) [20]	N/A	16.7%; 18: 6.0%; 24: 31.3%	27.3%; 18: 13.5%; 24: 45.4%	Female: 19.3%	Female: 43.6%	Female: 43.2%	N/A	N/A
Attending school or school/working (ages 18–24, 2004) [21]	43.5%; 18–20: 58.6%; 21–24: 32.5%	40.5%	46.5%	47.0%	44.0%	31.8%	34.5%	65.3%
Working only (ages 18–24, 2004) [21]	38.1%; 18–20: 25.8%; 21–24: 47.0%	45.2%	30.8%	39.1%	29.8%	45.4%	25.7%	21.7%

N/A = Data not available for these indicators. NH = non-Hispanic; AI/AN = American Indian/Alaskan Native; A/PI = Asian/Pacific Islander.
Sources: Jekielek and Brown [12]; NSFG Data Run [20]; CT 2004 ACS Data Run [21].



Source: National Center for Injury Prevention and Control [23]

Figure 1. Mortality by cause, gender and age group, ages 12–24 years, 2003.

plays a larger role in MVA fatalities in young adulthood than any other age: in 2003, nearly a third (32.2%) of fatal MVAs among 21–24-year-olds involved an alcohol-impaired driver, compared with 18.8% among 16–20-year-olds. This rate decreases to 26.6% for 25–34-year-olds and continues to decrease throughout the lifespan [25]. In 2003, one in four (25.3%) young adults aged 18–25 drove under the influence of alcohol and one in

Table 4
Young adult health indicators by gender and race/ethnicity, with comparison to adolescents

Name of indicator	Adolescents overall	Young adults overall	Male	Female	White NH	Black NH	Hispanic	AI/AN NH	Asian or A/PI NH
Mortality[a] (adolescents aged 12–17 years; young adults aged 18–24 years; 2003); rates per 100,000									
Overall	35.9	94.4	137.0	49.3	87.1	142.6	87.5	168.7	48.7
Motor vehicle accidents	12.8	29.3	42.0	15.9	31.4	22.6	28.4	63.5	15.6
Homicide	3.5	16.1	27.0	4.6	4.3	62.1	22.0	20.3	7.0
Suicide	3.5	11.5	19.2	3.3	12.9	9.3	8.2	24.7	7.4
Substance use and mental health[b] (adolescents aged 12–17 years; young adults aged 18–25 years; 2003); percentages									
Cigarette use	12.2%	40.2%	44.2%	36.2%	45.4%	28.5%	33.9%	58.1%	26.9%
Binge drinking	10.7%	41.9%	51.3%	31.8%	47.8%	24.2%	36.5%	41.6%	27.8%
Heavy alcohol use	2.6%	14.9%	21.2%	9.0%	19.0%	5.4%	10.8%	13.0%	7.8%
Illicit drug use	11.2%	20.3%	24.0%	16.5%	22.5%	18.2%	15.6%	31.0%	11.8%
Dependence/abuse	8.9%	21.0%	26.3%	15.7%	11.8%	8.0%	9.4%	14.5%	5.7%
Serious mental illness	Not Available	13.7%	10.3%	17.0%	14.5%	12.5%	11.4%	13.0%	13.4%
Sexually transmitted infections (adolescents aged 15–19 years; young adults aged 20–24 years; 2004); rates per 100,000									
Chlamydia	1578.5	1660.4	744.7	2630.7	886.4	5301.3	1685.4	2881.9	603.9
Gonorrhea	427.1	497.8	430.6	569.1	149.0	2,487.2	237.3	456.1	87.6

NH = non-Hispanic; AI/AN = American Indian/Alaskan Native; A/PI = Asian/Pacific Islander.

Sources: Mortality: National Center for Injury Prevention and Control [23]; Substance Use and Mental Health: Overall Adolescent and Young Adult Indicators, NSDUH 2003 Report [26]; All Other Young Adult Indicators, NSDUH 2003 Private Data Run [38]; Sexually Transmitted Infections - Centers for Disease Control & Prevention [43].

[a] All mortality data are presented as rates per 100,000. To calculate overall rates for this age group, which is not a traditional vital statistics age grouping, the authors used numbers of deaths from Leading Causes of Death and population estimates from Fatal Injury Reports at NCIPC [23].

[b] Substance use and mental health definitions: Binge drinking = drinking five or more drinks on the same occasion; Heavy alcohol use = binge drinking on five or more days in past month; Illicit drugs = marijuana/hashish, cocaine, heroin, hallucinogens, inhalants, or any prescription-type psychotherapeutic used nonmedically; Dependence/abuse = abuse of alcohol or illicit drugs in the past year; based on the 4th edition of the *Diagnostic and Statistical Manual of Mental Disorders*; Serious mental illness = diagnosable mental, behavioral, or emotional disorder that met *Diagnostic and Statistical Manual of Mental Disorders* criteria for a disorder and resulted in a functional impairment that substantially interfered with or limited one or more major life activities.

seven (14.1%) drove under the influence of any illicit drug in the past year [26].

For every fatal MVA among young adults aged 21–24, there are 82 nonfatal MVAs (2003 data) [23]. The nonfatal MVA rate (per 100,000) for this age group was 1884 (1873 males vs. 1894 females). This rate was second only to that of 16–20-year-olds (2352) and was much higher than that of adults aged 25–34 (1361) [27].

Violence

As in many countries, most perpetrators and victims of violence in the United States are adolescent and young adult males [28]. Homicide rates peak in young adulthood at 16.1 and then decline throughout the lifespan. In 2003, over four-fifths of young adult homicides involved firearms (82.5%), a figure that has stayed relatively stable over the past decade. Male young adults are about six times more likely to die from homicide than same-age females (Table 4), with the rate for Black NH males (111.0) being extremely high. Between 1990 and 2003, young adult homicide rates declined (from 22.2 to 16.1), especially among Black NH males (163.8 to 111.0) [23]. Homicide offending rates also peak in young adulthood and are highest among Black males. These rates have decreased considerably over the past decade [29].

Violent crime data show a similar pattern. Among young adults (aged 20–24 years) in 2003, 43.5 per 1000 were victims of violent crimes, which include homicide, rape/sexual assault, robbery and assault [30]. Although lower than the rate for 16–19-year-olds (53.1), this figure was much higher than the rate for adults aged 25–34 (26.5) [31]. In 2002, young adults aged 18–29 perpetrated more than a third (35.4%) of violent crime offenses. Violent crime victimization rates are higher among young adult males than same-age females. American Indians and Whites have the highest victimization rates [30,32]. Between 1993 and 2003, the victimization rate for young adults decreased by half (91.6 to 43.5) [31].

In contrast to other areas of violence, females are more likely to be victims of sexual assault than males. The rate (per 1000) for females peaks at ages 16–19 (10.4 in 2002). It then decreases for young adults (5.4) and throughout the lifespan. The rate of sexual assault, including rape, is 13.5 times higher among females than males (5.4 vs. .4, ages 20–24) and is highest among Whites [30].

Substance use

Substance use and abuse have a substantial societal impact, with research showing links to other risky behaviors, mental health problems, suicide, motor vehicle accidents, violent crime, and major health problems, including cancer and heart disease [33,34]. Substance use peaks in the young adult years and is especially high among males [26]. Generally, American Indians/Alaskan Natives and Whites report the highest levels of substance use and Blacks report the lowest [26]. After a dramatic drop in the use of all substances during the 1980s, trends in substance use since the early 1990s vary by substance and age group within young adulthood [35].

Tobacco

Tobacco use is the leading actual cause of death for all ages, because of its link to cancer, cardiovascular disease and respiratory disease [36,37]. Cigarette smoking peaks in young adulthood. According to the 2003 National Survey on Drug Use and Health (NSDUH), young adults (ages 18–25 years) report a rate of recent (i.e., past month) smoking that is 3.3 times the rate for adolescents (ages 12–17) and 1.6 times the rate for adults ages 26 and older (40.2% vs. 12.2% and 24.7%, respectively) [26]. Young adults' cigarette use is higher among males than females and among American Indian/Alaskan Native NHs (Table 4) [38]. Among all young adults, college graduates have a lower prevalence of cigarette use than those with less than a high school degree (28.7% vs. 49.2%) [26]. Data from the Monitoring the Future study (MTF), which reports higher substance use rates than NSDUH [26], show a steep rise in cigarette smoking among young adults in the 1990s. Rates have declined since the late 1990s for 19–22-year-olds, but not 23–24-year-olds [35].

Alcohol

Recent binge drinking and heavy alcohol use peak in young adulthood. According to the 2003 NSDUH, young adults aged 18–25 report a slightly higher rate of recent binge drinking than adults aged 26–29 (41.9% vs. 37.8%, respectively) and a much higher rate than adolescents aged 12–17 (10.7%) (Table 4) [26]. Among young adults, more males report binge drinking than females, and rates are highest for White NHs (58.2% males and 38.8% females), American Indian/Alaskan Native NHs (47.8% and 34.8%) and Hispanics (46.6% and 23.7%) [38]. Heavy alcohol use follows a similar pattern. Young adults have a slightly higher rate than adults aged 26–29 (14.9% vs. 11.5%) and a rate over five times that of adolescents (2.6%). Males have twice the rate of females. Among young adult males, rates are highest among White NHs (26.2%), [26] American Indian/Alaskan Natives NHs (18.2%), and Hispanics (14.1%) [38]. According to MTF, college students binge drink more than young adults not in college (41.7% vs. 33.7%). By contrast, those not in school report higher rates of daily drinking than their peers in school (5.8% vs. 3.7%, respectively). Binge drinking in the past two weeks rose during the 1990s and decreased slightly for 19–22-year-olds, but not 23–24-year-olds [35].

Illicit drugs

Recent illicit drug use also peaks during young adulthood: in 2003, 20.3% of young adults aged 18–25 reported

recent illicit drug use, compared with 11.2% of adolescents aged 12–17 and 13.4% of adults aged 26–29 [26]. Young adult males report recent illicit drug use more than females (Table 4). American Indian/Alaskan Native NH young adults report the highest rates of illicit drug use (34.0% males and 28.9% females) and marijuana use (32.4% and 22.4%, respectively) [38]. Recent marijuana use has increased for young adults since the early 1990s: the rate for 19–20-year-olds increased from 13.2% in 1991 to 23.1% in 1999, and decreased slightly to 22.5% in 2003 [35].

Substance dependence/abuse and treatment

Rates of dependence on or abuse of any illicit drug or alcohol are highest in young adulthood (ages 18–25 years) and are higher for males (Table 4) [39]. Among males, rates of substance dependence/abuse are highest for White NHs and American Indian/Alaskan Native NHs (14.1% and 13.1%, respectively) [38]. Dependence/abuse rates decline for both males and females after age 25 [39]. Among young adults who report substance abuse/dependence, few (2.8%) have received any treatment addressing abuse or associated conditions the past year. NSDUH data indicate great unmet need for substance abuse treatment: 21.5% of young adults needed treatment for an illicit drug or alcohol problem in the past year, but only 7.1% received treatment specifically for abuse or related conditions [26].

Suicide and mental health

Young adults aged 18–24 years have triple the suicide rate of adolescents aged 12–17. Young adult males have six times the suicide rate of females (Table 4). Among young adults, rates are highest for male American Indian/Alaskan Native NHs (43.9) and White NHs (23.1). Overall, the young adult suicide rate decreased from 14.8 in 1990 to 11.5 in 2003 [23].

The young adult years represent a critical period for identifying problems, as three-quarters of all lifetime cases of diagnosable mental disorders begin by age 24. According to the 2002 National Co-Morbidity Survey, 52.4% of 18–29-year-olds have experienced a mental disorder at some point in their lives, with depression (15.4%) and alcohol abuse (14.3%) being the most common [40]. The 2003 NSDUH indicates that one in seven young adults aged 18–25 years reports having a serious mental illness (SMI) at some time in the past year (Table 4) [26]. SMI rates are higher for females than males, and are highest among Whites and Asians [38]. SMI is more prevalent among those who have less than a high school degree or are unemployed. One-third (35.2%) of young adults with SMI received mental health treatment or counseling in the past year [26].

Reproductive health

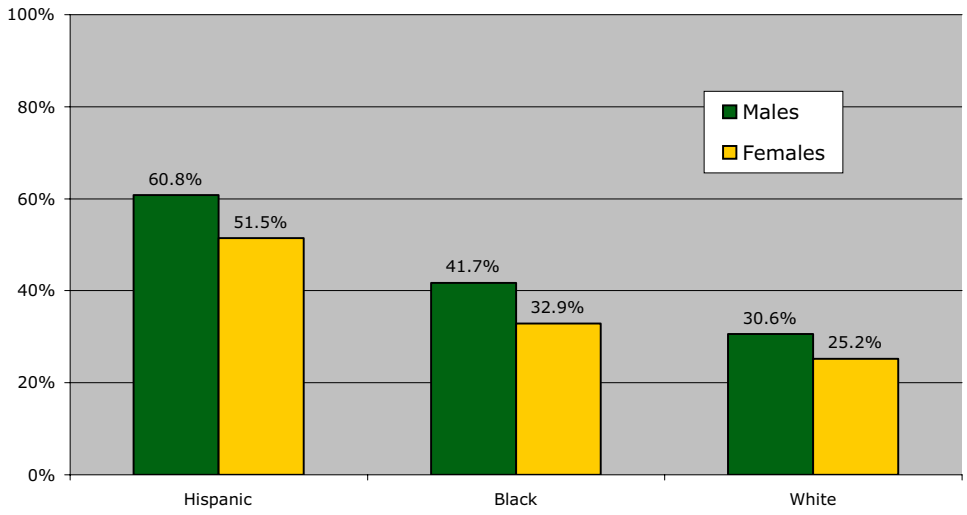
Most young adults aged 18–24 are sexually experienced (80.3% males and 82.1% females). Among males, this figure is higher for Black NHs (87.8%) and Hispanics (87.7%) than White NHs (78.4%). Among females this figure is highest among Black NHs (86.7%), followed by Hispanics (82.5%) and White NHs (81.5%). Although most sexually active young adults use contraception, large numbers do not. Among young adult males who are single and not cohabitating or who have had more than one partner in the past year, 7.3% used withdrawal or no method at most recent intercourse; among same-age females, this figure was 7.9% [20]. More males than females report having more than one partner in the last year (33.5% vs. 24.3%, respectively), a behavior linked to sexually transmitted infections (STIs) [20,41].

STIs can have serious consequences, including pelvic inflammatory disease, infertility, urethritis, epididymitis, and cardiovascular and organ damage [42]. The prevalence of many STIs, including chlamydia and gonorrhea, peaks in young adulthood. Large disparities exist by race/ethnicity, with Blacks, especially Black females, disproportionately affected. Chlamydia is the most commonly reported STI among young adults aged 20–24. Females have nearly four times the rate of males, with the rate for Black NH females (7847.8, 2004 data) being especially high. Gonorrhea is somewhat less prevalent and the gender disparity is much smaller (Table 4). The gonorrhea rate for young adult Black NH females (2565.4) is also very high [43]. The number of new HIV/AIDS cases in 2002 was about three times higher for young adults (aged 20–24, 2459 cases) than adolescents (aged 13–19, 854 cases). Black males were most affected, comprising 32.2% of all new HIV/AIDS cases among young adults [44]. Although gonorrhea rates for young adults have decreased dramatically over the past decade (1131.2 in 1990 vs. 497.8 in 2004) [43,45], several factors make it difficult to assess trends for other STIs. The large increase in chlamydia—from 882.4 in 1996 to 1660.4 in 2004—may be partly attributable to more sensitive tests and greater testing [42,43,46]. The number of new AIDS cases changed very little between 1990 and 2002 (1637 vs. 1574, respectively) [44,47].

Overweight/obesity and physical activity

Overweight/obesity is the second leading actual cause of death for all ages. Poor diet and physical inactivity contribute to overweight/obesity and are associated with cancer, cardiovascular disease and diabetes [36,48,49]. As with the general population, the prevalence of overweight/obesity among young adults has increased significantly in the past four decades. The average body mass index (BMI) of young adult males (ages 20–29) increased from 24.3 in 1960–1962 to 26.6 in 1999–2002; for same-age females these figures are 22.2 to 26.8 [50]. Obesity affects one in six young adults (ages 24–26), with males and females having similar rates (16.8% vs. 17.2%) [51].

In 2004, nearly four-fifths (79.7%) of young adults aged 18–24 reported participating in any physical activity during the past month. Higher rates of physical activity are reported



Source: Private Data Run of NHIS 2002-2003 [22]

Figure 2. Percent uninsured by gender and race/ethnicity, ages 18–24 years, 2002–2003.

by White NH males (88.3%), White NH females (83.9%), and Black NH males (81.7%). Lower rates are reported by Hispanic males (68.5%), Black NH females (66.2%), and Hispanic females (60.0%) [52].

Health access and utilization

Young adults have the lowest insurance rate of any age group 0–64 years [53]. In the transition to young adulthood, young people become ineligible for their parents' health coverage and the public insurance that covers adolescents. Data from 2002–2003 show that 37.7% of males and 30.7% of females aged 18–24 years were uninsured at any point during the past year (Figure 2) [22]. These figures are larger than previously published measures, which assessed insurance at the time of the interview, rather at any point in the previous year [54]. The gender disparity may be due in part to Medicaid coverage of poor families, which are disproportionately headed by young single women with children [55]. Risk of being uninsured is greater among certain groups of young adults, including the poor, Hispanics, those with low educational attainment, and nonstudents [54].

Low insurance rates affect young adults' access to and utilization of health care services. Compared with their insured peers, uninsured young adults are more likely to report foregoing needed care; not filling a prescription because of cost; not having spoken to a health professional in the past 12 months; and having no usual source of care. Young adult males are more likely than females to report no contact with a health professional (35.1% vs. 12.8%) and no usual source of care (36.3% vs. 19.9%). Males and females report similar rates of foregoing care (11.1% vs. 12.6%). Among young adult males, 62% of the uninsured had no usual source of health care, compared with 24% of the privately insured. Among females, 26% of the uninsured reported having delayed or missed medical care due to cost, compared with only 8% of those privately insured [56].

Young adults report high use of emergency room care. In 2002, 8.5% of young adults (aged 18–24) had two or more emergency department (ED) visits in the past year, a figure second only to 9.0% for ages 75+ [57]. In 2002, trauma-related disorders accounted for the highest number of young adults' (aged 18–24) ED visits, with more males than females reporting such a visit (933,000 vs. 664,000) in 2002 [58].

With over four-fifths of young adult women sexually active and over 2.2 million pregnancies among women aged 20–24 years (2000 data), reproductive health services are critical for young women [59]. Reproductive health services dominate health care utilization: data for females aged 18–24 in 2002 show that live birth accounts for the highest number of hospitalizations (865,000); contraception and female genital disorders account for the highest number of prescription medicines prescribed (2.1 million); birth, contraception and female genital disorders also dominate outpatient visits [58]. In 2002, 75.7% of young adult females aged 20–24 received at least one medical service related to reproductive health in the past year [60].

Outside of reproductive health issues, similar conditions account for male and female health care utilization. Conditions accounting for the largest number of young adults' use of health care services (including office visits, hospitalizations, ED visits and prescription medicine) are, in order: trauma-related disorders, asthma, acute bronchitis/upper respiratory infection, skin disorders, and mental health disorders [58]. In 2004, 72.3% of 18–24-year-olds reported having visited the dentist or dental clinic in the past year. Among adults, only

25–34- and 65+-year-olds are less likely to have had a dental visit in the past year (67.6% and 66.1%, respectively) [24].

Young adults with disabilities

Access to care is especially important for the increasing numbers of children with disabilities who survive into adulthood [61,62]. Lack of insurance has greater consequences for these young adults, because of their greater health needs. According to 2002–2003 data, 60% of uninsured young adults aged 19–29 years with a disability delayed care due to costs, compared with 14.7% of their peers with insurance and 19.4% of uninsured young adults without a disability. Similarly, 41.4% could not afford to fill a prescription, compared with 12.3% of their peers with insurance and 14.5% of uninsured young adults without a disability [63].

Discussion

These data show that young adult health issues merit attention. Mortality rates more than double between adolescence and young adulthood. The prevalence of many health problems—including homicide, motor vehicle injuries, substance abuse, and STIs—peaks during the early 20s. In addition, large disparities persist. Young men, particularly Whites and American Indian/Alaskan Natives, have higher rates of substance abuse; American Indian/Alaskan Native males have higher suicide rates; young Black men are disproportionately affected by homicide; and young Black women experience higher STI rates. Compounding these problems is a spike in uninsurance during young adulthood, a problem most pronounced among certain groups, including those who are low-income, Hispanic or not in school. On the positive side, trends in many areas are encouraging, such as declines in the major causes of death.

Available data on young adult health are limited in many ways. Although a few surveys regularly monitor some indicators of health and well-being, there is no comprehensive monitoring system parallel to the Youth Risk Behavior Surveillance System, for example, administered by the Centers for Disease Control and Prevention [64]. A key challenge in data collection is the lack of a single institution that serves the majority of young adults, parallel to schools for adolescents. A persistent problem is the inconsistent age grouping for young adults. Despite the high prevalence of many health problems during young adulthood, data sources often group young adults with older adults. When data are presented for young adults, basic demographic breakdowns are seldom available, despite the disparities noted above. Assessing socioeconomic status is particularly challenging; with many young adults in school, income is a problematic measure.

Data are lacking in specific health areas. Given the prevalence of overweight/obesity, greater information on nutrition, physical activity and sedentary behavior is needed. Monitoring data on mental health, a problem that clearly affects this population, are fairly limited for young adults, as are data on oral health. Specific data on access to care for different types of students (e.g., full-time vs. part-time, four-year college vs. two-year college) would help identify gaps in access. Special populations warrant additional focus, including the unemployed, those with disabilities, or those transitioning out of foster care, as well as young adults in different settings, such as the incarcerated or those in the military.

Summary and Implications

A national health research and policy agenda for young adults needs further development. Although many health problems of young adulthood could be addressed through preventive interventions and greater access to care, this age group has largely been neglected by researchers, policymakers and professional organizations, in contrast to support for adolescents. Whereas child and adolescent health advocates have been largely successful in promoting policies to offset declines in private insurance, the lack of parallel effort for young adults leaves them with the lowest insurance rate of any age group. Similarly, professional health organizations have developed numerous clinical guidelines to promote healthy development and prevent risky behaviors for children and adolescents. However, similar guidelines do not exist for young adults, who face similar health problems as adolescents. Perhaps the most glaring problem is that young adults lack a common entry point into the health care system. Although college health services play a valuable role in serving many young adults during the school year, those not in school are not served by this system.

Compared with adolescence, few research or policy initiatives have focused on young adulthood. Where national young adult health recommendations exist, they generally are part of efforts that primarily address adolescents. For example, of the 21 Critical Objectives that provided a framework for this article, only five include young adults in the *Healthy People 2010* measure (Table 5) [17]. A few national consensus reports that focus primarily on adolescents offer information and recommendations related to young adults, including reports on underage drinking [65] and youth development [66]. Although there is substantial literature on effective prevention programs for adolescents [67], very little exists for young adults [68].

A few initiatives do primarily address young adults. These include: the Commonwealth Fund's focus on insurance and the MacArthur Foundation's Network on Transitions to Adulthood and Public Policy, which examines young adults' risky behaviors and other social trends [69,70]. The well-being of non-college-bound youth, including risky behaviors, has been examined in the *Forgotten Half* and the *Forgotten Half Revisited* [13,71]. The American College Health Association provides national leadership in college health, with research, monitoring, advocacy and professional education [72]. Young adults with disabilities have been the focus of national attention since Surgeon General Koop convened a conference on the issue in 1989, through *Healthy People 2010*, which includes

Table 5
21 critical objectives addressing young adults

Objective #	Objective	Baseline (year)	2010 Target
16-03. (a,b,c)	Reduce deaths of adolescents and young adults.		(per 100,000)
	10- to 14-year-olds	21.5 per 100,000 (1998)	16.8
	15- to 19-year-olds	69.5 per 100,000 (1998)	39.8
	20- to 24-year-olds	92.7 per 100,000 (1998)	49.0
15-15. (a)	Reduce deaths caused by motor vehicle crashes. 15- to 24-year-olds	25.6 per 100,000 (1999)	[a]
26-01. (a)	Reduce deaths and injuries caused by alcohol- and drug-related motor vehicle crashes. 15- to 24-year-olds	13.5 per 100,000 (1998)	[b]
13-05.	(Developmental) Reduce the number of new cases of HIV/AIDS diagnosed among adolescents and adults. 13- to 24-year-olds	16,479 (1998)[d]	[c]
25-01. (a,b,c)	Reduce the proportion of adolescents and young adults with *Chlamydia trachomatis* infections. 15- to 24-year-olds		
	Females attending family planning clinics	5.0% (1997)	3.0%
	Females attending sexually transmitted disease clinics	12.2% (1997)	3.0%
	Males attending sexually transmitted disease clinics	15.7% (1997)	3.0%

Additionally, the measure for Objective 19-03, "Reduce the proportion of children and adolescents who are overweight or obese," covers ages 12– 19 years.
Note: Critical health outcomes are underlined, and behaviors that substantially contribute to important health outcomes are in normal font.
Source: U.S. Department of Health and Human Services. *Healthy People 2010,* Volumes 1 and 2. Washington, DC: U.S. Government Printing Office, 2000. This information can also be accessed at http://wonder.cdc.gov/data2010/.
[a] 2010 target not provided for adolescent/young adult age group.
[b] Baseline and target inclusive of age groups outside of adolescent/young adult age parameters.
[c] Developmental objective - baseline and 2010 target coming soon.
[d] Proposed baseline is shown but has not yet been approved by the *Healthy People 2010* Steering Committee.

objectives specific to this population [61,62,73–75]. A few states have addressed young adult health [76,77]. Bills before Congress would expand private and public insurance coverage for young adults [78]. Some states require all students to be covered by their college [53]. Some cities and counties are addressing young adults' lack of insurance as well [79].

These and other initiatives form a base on which to build a national health agenda for young adults. As with adolescents, advancing a young adult health agenda will require collaborative efforts of different sectors, such as colleges, the military, and employers, as well as health professionals. More longitudinal research—for example, studies that identify risk and protective factors for risky behaviors among young adults in different settings—can shape effective policies and programs. Data collection systems can provide demographic breakdowns to improve monitoring of populations at greatest risk [7].

This article highlights key health issues for the young adult population and identifies gaps in research, monitoring and programmatic efforts. Based on our review, we conclude that young adulthood is an important, unique period of the lifespan and recommend the development of a national young adult health agenda to address the needs of this population.

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