CHAPTER II

THE EFFECTS OF MARRIAGE ON HEALTH BEHAVIORS

One important way in which marriage may influence a person's health is through its effect on health-related behaviors, such as alcohol consumption, drug use, cigarette smoking, diet, and exercise. Marriage may affect these kinds of behaviors in a variety of ways, and the expected direction of these effects is not always clear. For example, new responsibilities and social norms associated with marriage may encourage people to give up certain behaviors considered incompatible with married life, such as heavy drinking or drug use. In addition, marriage may have a substantial influence on how adults spend their time—reducing the amount of time spent socializing with friends, for example. These changes may lead to a reduction in alcohol consumption, if marriage causes people to be less likely to go out to social events that involve drinking. If the responsibilities of family life reduce the time available for exercise, these changes may also lead to a reduction in the amount of physical activity. Having a spouse to monitor one's behavior may encourage healthier living habits—such as a better diet, less heavy drinking, and more physical activity. On the other hand, married adults may be less concerned than single adults with physical attractiveness, making them less worried about their weight and the amount of exercise they get.

In this chapter, we review the recent research evidence concerning the effect of marriage on these health behaviors. The best studies in this area use longitudinal data and examine how transitions into and out of marriage affect these behaviors. Studies of this type provide the most compelling evidence of a causal relationship between marriage and health behaviors because sample members in effect serve as their own control group (since these behaviors are observed both before and after marriage). By focusing on how changes in marital status relate to changes in health behaviors, these studies adjust for background differences that do not change. The strongest studies of this type examine whether the changes in health behaviors occur near the time of the marital transition, because this provides more compelling evidence of a causal link between the change in marital status and the changes in these behaviors. For this reason, we focus our review on studies that use longitudinal data and can link the timing of marital transitions closely to the timing of changes in behavior. Studies relying on this methodology require large sample sizes so that they will have enough sample members who change marital status during the follow-up

period to estimate these effects precisely. Therefore, we restrict our review to studies using large data sets with substantial numbers of sample members who experience marital transitions. In addition, we restrict our review to studies completed since 1990 and that involve U.S. populations.

We begin by reviewing the research evidence concerning the link between marriage and alcohol consumption and drug use. We then review the research evidence concerning the potential effect of marriage on smoking. Next, we discuss the research concerning marriage and body weight. We end the chapter with a review of the evidence on marriage's effect on physical activity.

EFFECTS OF MARRIAGE ON ALCOHOL AND DRUG USE

Much of the recent research concerning the connection between marriage and health behaviors has examined the effect of marriage on alcohol use. These studies have examined the effects of transitions both into and out of marriage on alcohol consumption, and the effects of marriage on both the likelihood of heavy drinking and on the overall level of alcohol consumption. Most research in this area has focused on younger adults and the effect of entry into first marriage on their alcohol use. Less research has been done on the effects of marriage on the alcohol consumption of older Americans, and studies that have been completed on older populations are based on nonrepresentative samples. A few recent studies have also examined the effects of marriage on marijuana use. These studies have focused exclusively on these effects among younger adults, in part because drug use is more common among younger adults.

Effects Among Younger Americans

One of the most rigorous recent studies of the effects of marriage on the substance use of younger Americans was conducted by Duncan et al. (2006) and uses data from a large, nationally representative sample drawn from the National Longitudinal Survey of Youth (NLSY). This study examines the effect of transitions into first marriage on marijuana use and binge drinking (defined by these researchers as having had six or more drinks in one day) during the past month. Data for this study were collected from 1979 through 2000, when most sample members were in their 20s or 30s. Their statistical models examine the change in the likelihood of binge drinking and marijuana use during the 24-month period from one year before first marriage to one year after it. Their models are estimated separately for men and women and control for age, race, education, calendar year, and the presence of children under age 10 in the household.

Duncan and his colleagues find that, for both men and women, the frequency of binge drinking declines substantially during this 24-month window just before and just after first marriage. For men, their estimates suggest a drop in the likelihood of engaging in binge drinking around the time of marriage from 50 to 45 percent. For women, their results suggest a drop from 27 to 22 percent. This lower rate of binge drinking relative to what would have been expected if these young adults had not married persists for both men and women beyond the first year of marriage. However, the likelihood of binge drinking does

not continue to decline with more years of marriage. Duncan and his colleagues find that these declines in binge drinking around the time of first marriage are similar for African Americans and whites, as well as for those with higher and lower levels of education.

The Duncan et al. study also finds significant reductions in marijuana use associated with entry into first marriage for men. These researchers estimate that, among men, entry into first marriage is associated with a drop in the likelihood of having used marijuana in the past month from 19 to 12 percent. However, the study finds no significant effect of marriage on the marijuana use of young women (who, in general, have substantially lower rates of marijuana use than do young men). As with the effects on binge drinking, the Duncan et al. study finds that these patterns are similar for African Americans and whites.

Several earlier studies also used NLSY data to examine the connection between marriage and alcohol consumption and found results similar to those from the Duncan et al. study. For example, Curran and his colleagues (1998) use these data to examine how the transition into first marriage affects the average weekly consumption of alcoholic beverages, which they define as the number of beers, glasses of wine, or drinks of liquor consumed in the seven days prior to the survey. The Curran et al. study restricts the sample to those who were at least 21 years old in 1982, roughly the oldest half of the NLSY cohort. They use data from the 1982 to 1985 waves of the NLSY, when this cohort was in their mid-20s.

As in the Duncan et al. study, Curran and his colleagues use a statistical methodology that allows them to closely link the timing of declines in alcohol consumption with the timing of marital transitions, permitting them to test the causal nature of the relationship between marriage and alcohol consumption more carefully. Using a latent growth curve analysis, these researchers find that total alcohol consumption declines more rapidly around the time of first marriage than it does for similar individuals who do not marry and that this effect is similar for men and women. In an earlier study using NLSY data from the mid-1980s, Miller-Tutzauer and her colleagues (1991) use similar analytic methods and also find that the transition into first marriage is associated with a significant decline in alcohol consumption for both men and women.

As in the Duncan et al. study, Curran and his colleagues test whether the effect of entry into first marriage on alcohol consumption is different for African Americans and whites. However, unlike the Duncan et al. study, which finds similar marriage effects for African Americans and whites, Curran and his colleagues find that, although the entry into a first marriage is associated with a significant decline in alcohol consumption for both African Americans and whites, this decline is significantly smaller for African Americans.

There are several possible reasons for the difference in these results across the two studies. First, the two studies use different measures of alcohol consumption. The Curran et al. study examines average weekly consumption, whereas the Duncan et al. study examines frequency of binge drinking. Marriage may have a similar effect for African Americans and whites on the likelihood of binge drinking but different effects on their average level of alcohol consumption. Second, the Duncan et al. study uses a longer follow-up period than does the Curran et al. study, allowing these researchers to examine the effects of first

marriage on alcohol consumption for people who marry for the first time as late as their mid-30s, while the Curran et al. study examines only those who married by their mid-20s. Including a wider age range for first marriage may make the results for African Americans and whites more similar. In spite of these differing results concerning whether the marriage effect on alcohol consumption is the same for African Americans and whites, both studies consistently find that entry into first marriage is associated with a reduction in alcohol consumption for both African Americans and whites, as well as for both men and women.

Bachman and his colleagues (1997) use a different nationally representative data set to examine the link between marriage and substance use among young adults and reach similar conclusions. These researchers analyze data from the Monitoring the Future (MTF) project, which tracks a nationally representative sample of successive cohorts of high school seniors beginning with the class of 1976. The Bachman et al. study uses data for the graduating classes of 1976 to 1994.

As with studies analyzing NLSY data, the Bachman et al. study finds that the frequency of heavy alcohol use among young adults declines around the time of entry into first marriage and that this result is similar for men and women. These researchers also find that being engaged reduces heavy alcohol use for both men and women, with the effect of being engaged somewhat smaller than the effect of being married. Moreover, this study finds that heavy alcohol use increases at the time of divorce for both men and women and that the magnitude of this increase in heavy drinking is similar to the decline in heavy drinking associated with marriage.

These researchers also find substantial declines in marijuana use around the time of first marriage for both men and women. However, the declines in marijuana use associated with marriage are substantially larger for men. Similar to their results for heavy drinking, these researchers find that being engaged also reduces marijuana use; however, it has a smaller effect than being married. The Bachman et al. study also finds increases in marijuana use associated with divorce for both men and women.

Additional analyses by these authors indicate that much of the negative effect of marriage on marijuana and heavy alcohol use is due to the negative effect marriage has on the frequency of going out at night for social events (Bachman et al. 2002). The effect of marriage on general attitudes toward drinking and the kinds of friends people have also appear to play a role in marriage's negative effect on substance use.

Effects Among Older Americans

The effect of marital transitions on the substance use of older Americans has been studied much less extensively than it has for younger adults. No nationally representative rigorous evidence (in other words, evidence based on a large, longitudinal sample that can closely align the timing of changes in substance use with marital transitions) on the link between marriage and substance use among older Americans is currently available. However, two recent rigorous studies of the effects of marriage on the health behaviors of health professionals—one of men and the other of women—by researchers at the Harvard

School of Public Health provide evidence on the effect of marriage on the alcohol consumption of older Americans—albeit on a nonrepresentative sample. Health professionals in particular may respond differently from other adults to marriage in terms of changing their health behaviors, so these results may not be consistent with what would be observed in a study of the general population. Even so, these studies represent the best evidence currently available on the effect of marriage on the health behaviors of older Americans. These studies examine the effects of marital transitions on alcohol consumption, but they do not examine the effects of marriage on drug use.

The Harvard study of male health professionals examines a large sample of dentists, veterinarians, pharmacists, optometrists, and other health specialists who were ages 40 to 75 in 1986 (Eng et al. 2005). The study examines their marital transitions (remarriage, divorce, and widowhood) over a four-year period and relates those transitions to changes in their alcohol consumption over the same time period. These researchers find that becoming widowed is associated with an increase in alcohol consumption of an additional half serving per week—a six percent increase in the amount of alcohol consumed. In contrast, remarriage and divorce do not have statistically significant effects on alcohol consumption.

The Harvard study of female health professionals uses a similar methodology and examines a large sample of nurses who were ages 46 to 71 in 1992 (Lee et al. 2005). The results of this study show no clear patterns of the effect of marriage on alcohol consumption. In addition, because the researchers conducted their analysis separately for initial abstainers and initial drinkers, the results are somewhat difficult to interpret. Among those who did not drink at all at baseline, widowhood is associated with a significant increase in the likelihood of beginning to drink. However, remarriage also is associated with an increased likelihood of drinking among initial abstainers, while divorce has no effect. Among those who did drink initially, widowhood and divorce are associated with decreases in alcohol consumption (with the effect of divorce just missing statistical significance), while remarriage has no effect.

Summary of the Evidence on Marriage and Substance Use

The link between marriage and substance use has been studied most extensively among younger adults. Recent research in this area consistently finds that entry into first marriage is associated with a significant decline in heavy drinking and overall alcohol consumption among young adults and that the effect of marriage on alcohol use is similar for men and women. For drug use, recent studies suggest a significant negative effect of entry into marriage on the marijuana use of young men and a smaller (and possibly insignificant) effect of marriage entry on the marijuana use of young women. In addition, entry into first marriage is associated with a decline in alcohol consumption and marijuana use for both African Americans and whites. However, some research suggests this effect is smaller for African Americans, while other research indicates that the effects of marriage on substance use are similar for these two racial groups. Less research has been done examining the effects of marriage exits on the substance use of young adults. However, the research that has been done suggests that exiting marriage increases alcohol consumption and marijuana

use for both men and women and that the magnitude of the increase is similar to the magnitude of the decrease associated with marriage entry for young adults.

The evidence on the effect of marriage on the substance use of older Americans is more limited, and it is based on nonrepresentative samples. For older men, the evidence suggests that widowhood is associated with increased drinking, while other marital transitions have no effect on alcohol consumption. For older women, the evidence on the effects of marriage on alcohol consumption is mixed, with no clear patterns emerging. These results are based on nonrepresentative samples of health professionals and may not generalize to the full population of Americans. Therefore, understanding more fully the effects of marital transitions on the substance use of older Americans would be a useful goal of future research.

EFFECTS OF MARRIAGE ON SMOKING

Relatively little rigorous research has been done in recent years on the link between marriage and smoking in U.S. populations. In addition, the research that has been done has yielded limited evidence that marriage reduces cigarette smoking. For example, the Duncan et al. study (2006) (discussed in the previous section), which examines NLSY data, finds no evidence that entry into first marriage reduces the likelihood of smoking or the number of cigarettes smoked for young men. Moreover, this study finds that entry into first marriage is associated with a significant *increase* in the likelihood of smoking for women.

The Bachman et al. (1997) study (also discussed in the previous section), which analyzes MTF data, also examines the relationship between smoking and marital transitions among young adults. These researchers also find little or no evidence of an effect of entry into first marriage on smoking. In contrast, they find that, for both young men and women, divorce leads to a fairly substantial increase in the likelihood of smoking, while remarriage after divorce leads to a similarly large decline in the likelihood of smoking.

The two studies of health professionals described in the previous section also examine the effects of marriage on smoking. The Eng et al. study (2005), which examines the effects of marriage on the health behaviors of older male health professionals, finds no significant effects on cigarette smoking of divorce, widowhood, or remarriage. In contrast, the Lee et al. study (2005), which examines the effects of marriage on the health behaviors of a cohort of older female nurses, finds that marriage is associated with a reduced likelihood of smoking. In particular, among those women who smoked initially, widowhood reduced the likelihood of quitting, while remarriage increased this likelihood. Similarly, among those who did not smoke initially, both divorce and widowhood increased the likelihood of starting to smoke.

The few recent rigorous studies that have examined the effects of marriage on smoking find limited evidence of a reduction in smoking associated with marriage. These studies find some evidence that marriage may reduce smoking among older women, as well as among younger adults who divorce. Among other groups, the available evidence suggests either that marriage has no effect on smoking or, in one case, that marriage may increase smoking.

The fairly limited and conflicting evidence on the effects of marriage on smoking makes this an important topic for future research to examine further.

EFFECTS OF MARRIAGE ON BODY WEIGHT

Several recent rigorous studies of U.S. populations have examined the effects of marriage on body weight. The strongest studies in this area (in other words, those based on longitudinal data and large samples) consistently indicate that marriage is associated with a small weight increase for both men and women. In this section, we summarize the evidence from the most rigorous recent studies on this topic based on U.S. samples.

Studies of Nationally Representative Samples

Some of the strongest evidence concerning an effect of marriage on body weight comes from several studies that have analyzed data from the National Health and Nutrition Examination Survey I (NHANES-I). This nationally representative survey was originally conducted from 1971 to 1975; a follow-up survey with this sample was conducted approximately 10 years later. These data are particularly well suited for examining issues concerning body weight because weight was measured directly at both baseline and followup and is not based on self-reports.

Kahn and his colleagues conducted two studies using NHANES-I data—one of men and the other of women—that examined the effect of marriage on body weight (Kahn and Williamson 1990; Kahn et al. 1991). These researchers restrict their samples to those who were 25 to 44 years old at baseline. These studies find that—for both men and women—transitions into marriage were associated with statistically significant weight gain over the 10-year follow-up period relative to what would have been expected if they had remained unmarried. Similarly, for both men and women, transitions out of marriage were associated with statistically significant weight loss, relative to what would have been expected if they had remained stably married. However, for both men and women, the weight changes associated with these marital transitions are small. In their analyses of both men and women, these researchers' estimates suggest a change in body weight associated with a change in marital status of less than five pounds over a 10-year period.

Sobal and his colleagues (2003) reanalyzed the NHANES-I data examining a broader age range of adults than was included in the studies by Kahn and his colleagues. Sobal et al. studied people who were ages 17 to 74 at baseline and found results similar to those of these earlier studies. As in the earlier studies, they find a connection between marriage and body weight for both men and women. In addition, as with the earlier analyses of NHANES-I, they find that changes in marital status are associated with changes in body weight of less than five pounds.

Studies of Nonrepresentative Samples

Additional evidence of the effect of marriage on body weight is available from studies of nonrepresentative samples. For example, Jeffery and Rick (2002) examine data from the

Healthy Worker Project, which surveyed a sample of employed adults in the Minneapolis-St. Paul metropolitan area from 1987 to 1991 and again two years later. As in NHANES-I, these data include direct (rather than self-reported) measures of weight and height at baseline and followup. These researchers find that—relative to those who experienced no change in marital status—transitions into marriage were associated with increases in body weight over a two-year follow-up period for both men and women (although this effect is only statistically significant for women), while transitions into marriage were associated with statistically significant weight increases for both men and women. These results suggest a somewhat stronger effect of marriage on body weight for women than on men and somewhat stronger effects than those found in studies using the nationally representative NHANES-I data. Even so, their estimates suggest a relatively small effect of marriage on weight. For a woman of average weight and height, their results suggest that getting married is associated with a weight increase of about six pounds over the study's two-year follow-up period. Their estimated effects on body weight of transitions out of marriage for women, as well as both transitions into and out of marriage for men, are somewhat smaller (about two to four pounds).

The two studies of health professionals described earlier in this chapter also examine the effects of marriage on body weight (Eng et al. 2005; Lee et al. 2005). Consistent with other studies examining this issue, these studies find that marriage is associated with weight gain for both men and women and that the magnitude of this effect is small. In particular, these studies find that, among older health professionals, transitions out of marriage are associated with a statistically significant decline in weight over the four-year follow-up period (relative to those who remained married), while transitions into marriage are associated with a statistically significant weight increase (relative to those who remained unmarried). As in the Jeffery and Rick study, these researchers find that these effects are somewhat larger for women. As in the earlier studies, their results suggest that—for both men and women—the change in weight associated with a change in marital status is small—less than five pounds over a four-year period.

Both these studies of health professionals also examine the effects of marital transitions on diet. For both men and women, they find some evidence that those who are married eat better—in particular, that they eat more vegetables. However, these studies also find that those who are married eat more starches (such as refined grains and potatoes), which may explain, in part, the weight gain associated with marriage.

Summary of the Evidence on Marriage and Weight

Evidence from several recent rigorous studies suggests that marriage is associated with modest weight gain for both men and women. In addition, there is some evidence that the effect of marriage on body weight may be larger for women. For both men and women, the estimates from these studies suggest relatively modest weight gain associated with marriage—in most cases, an increase of less than five pounds. Therefore, although substantial increases in body weight are associated with many adverse health outcomes, these modest weight increases may be too small to have substantial effects on a person's overall health.

EFFECTS OF MARRIAGE ON PHYSICAL ACTIVITY

Relatively little research using longitudinal samples has been done in recent years on the link between marriage and physical activity. The only recent studies of this type conducted on U.S. populations are the two studies of health professionals described earlier, which examine the effects of transitions into and out of marriage on the level of physical activity among older adults (Eng et al. 2005; Lee et al. 2005). These studies measured physical activity by asking respondents to report the typical amount of time they spent in various aerobic activities during the past year. This information was then converted to metabolic equivalents (METs), a standard unit measuring the amount of energy expended through these activities.

Both studies find some evidence that marriage is associated with lower levels of physical activity. For example, the study of male health professionals finds that remarriage leads to a significant decline in the level of physical activity relative to those who are otherwise similar but remain unmarried, while divorce and widowhood have no effect. The study of female health professionals also provides some evidence that marriage reduces the level of physical activity; however, it finds a somewhat different pattern of results. In particular, these researchers find that, among older women, divorce is associated with an increase in physical activity, while remarriage and widowhood have no effect.

A recent study by Nomaguchi and Bianchi (2004) uses cross-sectional data to examine the relationship between marriage and physical activity. In particular, they analyze detailed time use data collected in 2000 as part of the National Health Interview Survey, a large, nationally representative sample. Because this study is not based on longitudinal analysis—relating changes in marital status to changes in levels of physical activity—it is not able to control as carefully for differences between those who are married and those who are not. These researchers adjust their estimates for the presence of young children, hours of work, age, ethnicity, education, and income. However, they cannot adjust for unobserved differences between married and unmarried people that do not vary over time, as longitudinal studies can. Therefore, their results should be interpreted more cautiously than those of the other studies discussed in this chapter.

Nomaguchi and Bianchi find that married men spend substantially less time exercising than their unmarried counterparts. Their estimates suggest that married men exercise about an hour and 15 minutes less each week (or 30 percent less) than do similar unmarried men. Marriage is also associated with less time spent exercising for women; however, the difference for women between those who are married and those who are not is much smaller than it is for men. Nomaguchi and Bianchi find that married women exercise about 20 minutes less each week (or 15 percent less) than do similar unmarried women.

Part of these substantial differences in time spent exercising between those who are married and those who are not may arise because those who particularly enjoy spending time in individual activities such as exercise may be less likely to marry. However, Nomaguchi and Bianchi also find that married men exercise substantially less than similar widowed men,

a difference that seems unlikely to be due to unobserved differences between these two groups. Therefore, their results suggest that the lower rate of exercise among those who are married—particularly married men—relative to those who are not represents, at least in part, a causal relationship between marriage and exercise.

SUMMARY OF RESULTS

Recent research suggests that marriage has significant effects on the health behaviors of both men and women. However, the pattern of these effects is mixed—with marriage associated with healthier behaviors in some cases and less healthy behaviors in others. In particular, recent studies consistently indicate that for young adults marriage reduces alcohol use for both men and women. Although the research is less extensive, marriage is also associated with reduced marijuana use for young men; however, it appears to have smaller effects on the drug use of young women. In contrast, studies of marriage and smoking reveal no consistent pattern of results and suggest that marriage may have little or no influence on this health behavior.

Unlike the studies of alcohol and drug use, studies of the effect of marriage on weight and physical activity suggest that marriage may have negative effects on healthy behaviors. In particular, evidence from rigorous research studies consistently indicates that marriage leads to modest weight increases for both men and women. The research on the effects of marriage on physical activity is less extensive and conclusive. However, the available evidence suggests that marriage leads to reductions in physical activity—particularly for men.