INTRODUCTION

In the 110 years since Emile Durkheim published his classic, *"Suicide: A Study in Sociology"*[1] numerous studies have shown an association between marital status and health. For both men and women, mortality rates were found to be lower for married than they were for unmarried individuals.[2] Married adults were generally found healthier than unmarried adults, having lowest rates of acute conditions, of chronic conditions which limit social activity, and of disability for health problems.[3] Married adults generally use health care services less.[4] In addition, unmarried motherhood is associated with an elevated infant mortality rate,[5] and children in single-parent families are more likely to have fair or poor health status compared with children in two-parent families.[6]

These results usually are explained by selectivity into marital status because of health-related characteristics ("marital selection" theory) and/or by additional advantages that married people have in terms of economic resources, social and psychological support ("marriage protection" theory). The selection theory suggests that lifestyle and behavioral factors such as emotional stability and absence of disability, drug abuse, heavy drinking or body mass may play a role in determining the likelihood of getting married and divorced. "Healthy people are selected into marriage and, by extension, are less likely to be selected out of marriage via divorce or widowhood than the less healthy".[7] The protection theory underlines the social integrative function of marriage and the role of social control over risk-taking behavior. These two theories are not mutually exclusive. The selective and protective mechanisms most likely operate together.

PURPOSE

The findings that married people experience lower risk of morbidity and mortality but also are less likely to utilize health care services are of obvious public health interest. Even more so because of unprecedented sociodemographic changes that have been taking place in our society. The decline in the marriage rate is increasing the proportions of never married and divorced adults. Age at the first marriage has risen and living with a domestic partner outside of marriage is quite common. Gender differences in life expectancy in an ageing population are likely to continue to contribute to greater prevalence of widowhood among elderly females than males.

The purpose of our report is to provide Arizona-specific prevalence estimates by marital status for select health conditions and health risk behaviors; select characteristics of birth outcomes (including infant mortality) by mother's marital status; hospitalization rates for a variety of diagnostic categories; and cause-specific mortality rates.

Age-specific and age-adjusted prevalence estimates, hospitalization and mortality rates in this report are for ages 18 years or older. The majority of statistical information is provided for two groups of Arizonans, those who are married (including separated) vs. those who are unmarried. In addition, for several of the indicators we compare the following four marital status groups: married, never married, divorced, and widowed.

METHODS AND SOURCES

Six data sources are utilized in this publication: Arizona Behavioral Risk Factor Surveillance System (BRFSS) telephone survey, the hospital discharge database, the birth certificate database, the linked birth/infant death database, the death certificate database, and the population denominator database.

The BRFSS is a random sample telephone survey that uses disproportionate stratified sampling, random digit dialing (RDD), and a Computer Assisted Telephone Interviewing (CATI) system. A sample size of 4,700 interviews over a 12-month period was selected to achieve an acceptable confidence interval on risk factor prevalence estimates of the Arizona adult population (18 years of age or older). The collected data is compiled and weighted by the CDC. Weighted counts were based on the Arizona population to accurately reflect the population demographics. The weighting factor considered the number of adults and telephone lines in the household, cluster size, stratum size, and age/race/sex distribution of the general population. All analyses presented are based on cell counts of at least eight cases. The demographic information that was collected and presented in these results includes sex, age, education, household income, race, and ethnicity.

The hospital discharge database contains two types of records: inpatient hospitalizations and emergency room visits. An inpatient discharge occurs when a person who was admitted to a hospital leaves that hospital. A person who has been hospitalized more than once in a given calendar year will be counted multiple times as a discharge and included more than once in the hospital inpatient discharge data set; thus, the numbers we report here are for discharges, not persons. Up to nine diagnoses are coded for each discharge. Diagnostic groupings and code numbers are based on the International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM). Information about the patient's marital status is available only for inpatient hospitalizations but not for emergency room visits.

Birth and death databases are compiled from the original documents filed with the Arizona Department of Health Services, Office of Vital Records and from transcripts of original death certificates filed in other states but affecting Arizona residents.

The birth certificate database contains maternal demographic characteristics (age, marital status, educational attainment); maternal lifestyle and health characteristics (medical risk factors, weight gain, alcohol and tobacco use); medical care utilization during pregnancy; and infant characteristics (period of gestation, weight at birth, congenital anomalies).

The linked birth/infant death database comprises the information from the death certificate linked to information from the birth certificate for each infant less than 1 year of age who died in 2006. The purpose of the linkage is to use additional variables available from the birth certificate (birthweight, mother's age, marital status, education, etc.), which are not available on the infant's death certificate.

The death certificate database contains demographic characteristics of the deceased (age, gender, race/ethnicity marital status, educational attainment), and cause of death. For the purpose of mortality statistics, every death is attributed to one underlying condition or underlying cause of death. The underlying cause is defined as the disease or injury that initiated the chain of events leading directly to death. It is selected from up to 20 causes and conditions entered by the physician on the death certificate. The totality of all these conditions is known as multiple cause of death. Since 2000, the causes of death are classified by the Tenth Revision of the International Classification of Diseases (ICD-10), replacing the Ninth Revision used during 1979-1999.

Two data sources were utilized in producing the 2006 population estimates by age group, gender and marital status. The estimated number of Arizona males and females who were 18 years or older in 2006 comes from our population denominator file used to calculate vital rates (detailed information about the estimation procedure is available at www.azdhs.gov/plan/menu/info/pop/pop06/pd06.htm The percentages of population breakdowns by marital status, age group and gender were derived from the U.S. Bureau of the Census 2000 Summary File 3 (*PCT7, Sex by marital status by age for the population 15 years and over*). The 2006 denominators used to calculate age-specific and age-adjusted rates by marital status and gender are in **Table 1-1**.

Age adjustment is important for any analysis of the association between marital status and health because both marital status and health vary by age[8]. In this report all rates that are not age-specific are age-adjusted. The rates were age-adjusted using the 2000 U.S. standard population (see **Technical Notes**).

LIMITATIONS OF THE DATA

It is important to note when interpreting the findings presented in this report that we use cross-sectional, not longitudinal data, therefore causality in the relationship of marital status and health cannot be established.

In each of the databases we use, marital status is either self-reported by the mother, survey respondent or patient, or provided for the deceased by an informant. Respondents “living with a partner” may report that they are “married” and the extent to which married persons are legally married cannot be determined. In addition, the information about marital status is limited to current marital status. The databases we use in this report do not store information about marital history of someone who is currently widowed and may have also been divorced or separated in the past.

The population denominators by marital status for 2006, used to calculate hospitalization and mortality rates are not exact enumerations but estimates. In addition, the age composition of the marital status groups reproduces the pattern from 2000.

Since the purpose of this publication is purely descriptive, marital status differences in health shown in our report have not been tested for statistical significance.

DATA ORGANIZATION

The charts and tables comprising *Marital Status and Health, Arizona Residents, 2006* are organized into nine major sections:

1. Trends and patterns in marital status
2. Risk behaviors
3. Health care coverage and health care practices
4. Prevalence of health conditions
5. Self-assessed health status and life satisfaction
6. Maternal and newborn health
7. Utilization of inpatient hospital care
8. Mortality
9. Family structure and child health

In the Technical Notes we provide information about the age-adjustment weights used to compute the age-adjusted rates by category of marital status, formulas used to compute standard errors and confidence intervals, and diagnostic categories used in **Section 7** and **Section 8** of this report.

SUMMARY OF FINDINGS

√ Married adults aged 18 years or older, both females and males, are generally healthier than unmarried adults;

√ Married adults share a lower risk of mortality than individuals in the unmarried category. The mortality disadvantage associated with being unmarried is seen for each of the leading causes of death and in every age group among Arizona females and males;

√ The prevalence of asthma, diabetes, glaucoma, and stroke is lower among married compared to unmarried Arizonans. In contrast, the prevalence rates of obesity are greater among married than unmarried;

√ Married persons make less use of inpatient hospital care than the unmarried;

√ Marital status differences in hospitalization rates associated with certain diagnostic categories such as mental disorders, drug dependence or alcohol abuse can be best understood within the framework of "marital selection" theory (those who are seriously mentally ill and/or drug dependent are less likely to be selected into marriage – and more likely to be selected out of marriage through divorce - than those who are free from mental illness and/or addiction).

√ "Marital protection" theory offers a better framework for the understanding of marital status differences in hospitalization and mortality rates for unintentional injuries, including motor vehicle accidents and falls. A spouse may deter risky behaviors such as drinking and driving or speeding and stimulate healthy behaviors.

√ Married Arizonans are less likely to engage in risky health behaviors, including heavy drinking and smoking, than unmarried Arizonans;

√ Married men and women are less likely to have unmet medical needs (i.e. unable to see a medical doctor due to cost) and more likely to follow the recommended health practices such as vaccination for influenza and pneumonia. Unmarried females are less likely to have mammograms and breast exams than married females;

√ Babies born to married mothers are at lower risk of infant death than newborns of unmarried mothers. The effect of marital status on infant mortality suggests that marital status is a proxy measure of factors traditionally related to infant mortality such as financial resources, access to health care, social and emotional support;

√ Relative to unmarried mothers, married mothers are less likely to use tobacco and/or drugs during pregnancy;

√ Children in married-couple families are less likely to be uninsured or to have unmet medical needs than children in single-parent families.

The above facts are increasingly important in view of the growing proportion of "singles" in Arizona. The decline in marriage rates is increasing the proportion of never married and divorced Arizonans. Gender differences in life expectancy in an ageing population continue to contribute to a much greater prevalence of widowhood among elderly females than males. Single motherhood continues to be a maternal and child-health policy issue in the State. Divorce and out-of-wedlock childbearing are estimated to cost U.S. taxpayers more than $112 billion a year.[*] Arizona-specific taxpayer costs of family fragmentation are estimated at $654 million per year.[#]

*Benjamin Scafidi: *The Taxpayer Costs of Divorce and Unwed Childbearing*. Georgia Family Council and Institute for American Values, 2008. The report is available online at http://www.marriagedebate.com/pdf/ec_div.pdf

#Ibidem: p.38, Table A5.

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[8]Page 4 in Schoenborn CA, *Marital status and health: United States, 1999-2002*. Advance data from vital and health statistics; no 351. Hyattsville, Maryland: National Center for Health Statistics. 2004