Childlessness and the Psychological Well-Being of Older Persons

Zhenmei Zhang and Mark D. Hayward

Population Research Institute and Department of Sociology, The Pennsylvania State University, University Park.

Objectives. Rapid growth in the size of the childless elderly population has prompted concerns about the negative effects of childlessness on psychological well-being. This study adds to this line of inquiry by examining the effects of childlessness on two important dimensions of elderly persons' psychological well-being: loneliness and depression.

Methods. Using the 1993 Asset and Health Dynamics Among the Oldest Old data set, the authors estimated logistic and ordinary least squares regression models of psychological well-being for a nationally representative sample of people aged 70 and older ($N = 6{,}517$).

Results. Childlessness per se did not significantly increase the prevalence of loneliness and depression at advanced ages, net of other factors. There also was no statistical evidence for the hypothesis that childlessness increases loneliness and depression for divorced, widowed, and never married elderly persons. Sex, however, altered how childlessness and marital status influenced psychological well-being. Divorced, widowed, and never married men who were childless had significantly higher rates of loneliness compared with women in comparable circumstances; divorced and widowed men who were childless also had significantly higher rates of depression than divorced and widowed women.

Discussion. The findings suggest that it is important to understand the consequences of childlessness in the context of marital status and sex.

THE childless elderly population in the United States has grown quickly in recent years, although surprisingly little is known about this group's health, social service utilization, and general well-being. In 1990, childless persons accounted for approximately one fifth of the population aged older than 65 (Himes, 1992). A special report in *American Demographics* ("Childless Couples," 1993) projected that childless couples will be one of the fastest growing segments of the elderly population over the next two decades owing to delayed marriage, infertility, voluntary childlessness, and high divorce rates. Wachter (1997) estimated that about 25% of the elderly persons aged 70–85 years in 2030 will not have a living spouse, living children, or living stepchildren.

Concerns over the psychological well-being of childless elderly persons have arisen out of the traditional beliefs about the importance of adult children as sources of emotional, physical, and financial support for elderly parents (Brubaker, 1990; McMullin & Marshall, 1996). Some researchers have suggested that "the mere knowledge that offspring are there to help if they are needed could contribute substantially to the psychological well-being of the elderly" (Glenn & McLanahan, 1981, p. 441). In addition, children as well as grandchildren can provide elderly family members with a sense of meaning and security, immortality, success, companionship, and affection (Alexander, Rubinstein, Goodman, & Luborsky, 1992; Rubinstein, 1987). Childless people are presumed to fare less well at older ages than parents, because childless elderly persons lack a crucial social support network created by children (Choi, 1994).

It is well established in the literature that social isolation and low levels of social support are important risk factors for depression and mortality (Cappeliez & Flynn, 1993). Although research has shown that most childless persons often have support networks consisting of relatives, friends, and neighbors, those networks are less likely to provide the long-term commitment and level of instrumental support provided by children. In other words, the type of lasting support that children can provide is not as readily available to many childless persons (Beckman & Houser, 1982; Choi, 1994). The fear and reality of support inadequacy that may accompany childlessness potentially imposes a heavy burden on childless elders' psychological well-being (Rubinstein, 1987).

The empirical evidence on this issue, however, is inconsistent. On the one hand, childless elderly persons score significantly lower on objective measures of social support. For example, childless elderly persons are more likely than elderly parents to live alone, have fewer close family ties, and have less social contact (Chapman, 1989; Koropeckyj-Cox, 1998; McMullin & Marshall, 1996). In addition, childless elderly persons are less likely to expect to have any caregivers in the event of major bouts of sickness (Choi, 1994). Despite these social support deficits, however, the majority of available empirical evidence suggests that psychological well-being does not differ significantly between elderly parents and childless elderly persons (e.g., Glenn & McLanahan, 1981; Koropeckyj-Cox, 1998; McMullin & Marshall, 1996; Rempel, 1985). Only a few studies have reported otherwise (Beckman & Houser, 1982; Kandel, Davies, & Raveis, 1985). In view of the vast array of studies reporting that social support directly affects psychological well-being and mediates the effects of undesirable life

events (e.g., Hammen, 1997; Lin, Dean, & Ensel, 1986), the similarity in the psychological well-being of elderly childless persons and parents seems paradoxical.

In this article we revisit this paradox and contribute to the current discussion about the psychological well-being of childless elderly persons in several ways. First, we take advantage of a recent nationally representative sample of non-institutionalized people aged 70 and older in 1993, thus avoiding possible limitations of prior studies (e.g., Alexander et al., 1992; Beckman & Houser, 1982; Callan, 1987; Connidis & McMullin, 1993; Dugan & Kivett, 1994; Kivett & Learner, 1980) based on small or nonrepresentative samples. Most research on childless elderly persons has focused on young-old persons (e.g., persons aged 70 and younger) who are relatively healthy. At least one study showed that childless persons in good health were able to avoid social isolation by frequent non-kin contact but faced a high probability of isolation when in poor health (Bachrach, 1980). Little research has included persons aged 85 and older. Health declines rapidly among this age group, triggering the need for social support and potentially elevating the value of children as a source of that support.

Second, we argue that it is important to study the effects of childlessness on psychological well-being in the context of marital status and sex. Although adult children are important caregivers, children are less likely to provide the kinds of support that a marital partner does on a daily basis. Thus, childlessness may have little negative effect on married elderly couples but may aggravate the plight of single persons. In addition, men generally are less integrated socially than women. This gap may be worsened by childlessness and being unmarried, with negative consequences for men's psychological well-being.

As part of this study, we have extended prior research on the effects of childlessness by distinguishing between completely childless people (i.e., no biological children or stepchildren) and biologically childless people with stepchildren. American family forms are becoming increasingly diverse, and stepfamilies have become an important family form. One third of Americans are involved in stepfamily relationships (Larson, 1992), and it is increasingly likely that biologically childless persons are becoming stepparents. Little is known, however, about whether stepchildren are substitutes for biological children in providing social support to elderly parents and the subsequent effect of stepchildren on elderly parents' psychological well-being.

Background

Does childlessness matter for the psychological well-being of elderly persons? The answer is still not conclusive. On the whole, the empirical literature provides little evidence that children make a difference in the psychological well-being of elderly persons (Glenn & McLanahan, 1981; Kivett & Learner, 1980; Koropeckyj-Cox, 1998; McMullin & Marshall, 1996; Rempel, 1985). Using pooled cross-sectional data of about 1,500 people aged 50 and older from the 1973–78 General Social Survey, Glenn and McLanahan (1981) found little support for the idea that older parents were happier and more satisfied with their life than childless people. In a similar study in Canada, Rempel (1985) re-ported few statistically significant differences between parents and childless elderly persons in terms of life satisfaction. A more recent analysis of data from the 1988 National Survey of Families and Households showed similarly that childlessness is not significantly related to loneliness and depression among American community-dwelling persons aged 50–84 (Koropeckyj-Cox, 1998). Such findings are echoed by research based on a Canadian sample (McMullin & Marshall, 1996).

Although no significant differences in psychological well-being were found between parents and nonparents at the population level, recent research has raised the question of whether parental status has complex interactive effects depending on marital status and sex. Koropeckyj-Cox (1998) argued that marital status should mediate the negative effects of childlessness on psychological well-being. Childlessness is likely to have few negative effects for married couples whose needs are generally provided for within marriage. Childlessness, however, may have more negative consequences for the widowed group, who are likely to have the greatest shortfall of familial support. Koropeckyj-Cox suggested that no adverse effect of childlessness is expected among the divorced because childlessness results in fewer stresses and negotiations in the divorce process. Childlessness is unlikely to be detrimental to never married persons because of the likelihood of their having formed a long-term social network that helps in contingencies.

The empirical results by Koropeckyj-Cox (1998) provided mixed support for the above-mentioned arguments. Using data from the National Survey of Households and Families, a survey limited to community-dwelling adults aged less than 85, Koropeckyj-Cox found no significant detrimental effect of childlessness on psychological well-being for married and never married adults. Within almost every ever-married subgroup, childless persons were more likely to report feelings of loneliness and depression than those who had children, net of other factors (although these differences were not statistically significant).

Beckman and Houser (1982) also found support for the idea that the effect of childlessness is contextualized by marital status. On the basis of data for 719 older women aged 60–75, Beckman and Houser observed that childlessness had more negative consequences for well-being among widows than among married women. Childless widows were more lonely and depressed than widows with children, net of other factors. Unfortunately, whether this result can be generalized to the whole population of older women is unknown, because the sample was not randomly selected.

Another line of research has suggested that sex is an additional contextualizing factor that must be considered for investigators to understand the consequences of childlessness for psychological well-being. Parenthood is often assumed to be more important for women than for men, with motherhood bringing both greater fulfillment and more restrictions than fatherhood (Alexander et al., 1992; McLanahan & Adams, 1987; Veroff, Kulka, & Douvan, 1981). Lending support to this idea is the report by Kandel and colleagues (1985) that parenthood is negatively associated with the prevalence of depression among women. Balancing these

findings is evidence that parenthood has more negative consequences for women than men because of less marital support and the stress of balancing work and family (McLanahan & Adams, 1987).

Sex differences in social integration and support favor the idea that men have much smaller social support networks outside of the immediate family and may thus benefit more from having children than women do (Chapman, 1989). Using data from the 1991 Canadian Survey on Aging, Wu and Pollard (1998) observed that women were more often involved in support exchange than men. In general, support exchange directly corresponds with support receipt. Combining this idea with research suggesting that unmarried elderly persons have a shortfall in social support, one would expect that childless elderly men are at greater risk of social isolation and distress than childless women. Koropeckyj-Cox (1998) examined this issue but found no evidence for the idea that the effects of childlessness on loneliness and depression differed for men and women. However, she did not examine the possibility that sex differences in the effects of childlessness are contingent on marital status. Sex differences in the effects of childlessness may be minimal for older married couples because of the presence of the spouse. In the absence of a spouse, however, childlessness may become more salient. To our knowledge, prior research has not examined the simultaneous contextualizing influences of sex and marital status on the effects of childlessness for elderly persons' psychological well-being.

One caveat in the interpretation of the effects of childlessness is whether childlessness is voluntary or involuntary. One plausible hypothesis is that childlessness reduces psychological well-being only if it is involuntary. Individuals who want to have children but are unable may feel stressed and perceive that they lack control over their own lives, leading to depressed mood. Persons who are voluntarily childless, on the other hand, view childlessness almost by definition as a desired lifestyle, and over the life course these persons successfully develop their own social support networks that buffer life stressors and enhance psychological well-being (Andrews, Abbey, & Halman, 1991; Callan, 1987; Connidis & McMullin, 1993). Connidis and McMullin (1993) observed, for example, that the psychological well-being of voluntarily childless persons did not differ significantly from that of parents who were emotionally close to their offspring. However, involuntarily childless persons were less happy and more depressed than emotionally close parents.

We view this as an important distinction—particularly given the rise of voluntary childlessness since the 1960s (De Jong & Sell, 1977). Prior to the 1960s, however, the available evidence suggests that the substantial majority of childless persons were childless for largely involuntary reasons (Blake, 1974; De Jong & Sell, 1977). Although we were unable to determine the reasons for childlessness in our data, our respondents' prime years of family formation occurred during the Great Depression and the 1940s—two decades when childlessness more than likely resulted from involuntary reasons. Childless persons in our data, therefore, were presumed to be at greater risk of social isolation and distress relative to parents.

A second caveat is that adaptation among childless persons may result in social support networks in which childless persons are fully integrated and support is provided. McMullin and Marshall (1996) observed, for example, that although older childless persons were less integrated in close family networks, they were equally integrated in close friend networks compared with parents. Other evidence suggests that childless persons depend more on siblings, nieces, and nephews than elderly parents (Choi, 1994). Unclear, however, is the question of the substitutability of the sources of social support and the consequences for psychological well-being. One study found that a close family member can mediate the negative effects of stress on well-being but a close friend does not (McMullin & Marshall, 1996). Chapman (1989) noted that compared with distant kin and friends, spouses and children provide better and more intensive care to elderly persons. This finding suggests that close family ties cannot be easily replaced by other networks and that childless elderly persons are at greater risk of loneliness and depression (McMullin & Marshall, 1996).

METHODS

Data

Our study drew on the first wave (1993) of the Asset and Health Dynamics Among the Oldest Old (AHEAD). These data are nationally representative of community-dwelling persons aged 70 years and older ($N = 7,443$). We included married, divorced, widowed, and never married persons who provided complete demographic and health information. We excluded age-ineligible respondents, because they did not constitute a representative sample. We also excluded respondents who were cohabiting or married with absent spouses ($N = 142$) and persons for whom information was obtained by proxy reports ($N = 774$). Another 8 respondents who did not answer key questions, such as health, assets, and demographic information, were also excluded. The final sample used in our analysis included 6,517 respondents, 4,081 women and 2,436 men.

AHEAD respondents were generally born between 1900 and 1923. Those born in the years 1901–10, that is, persons aged 83–92 at the time of the survey, had children primarily during the Great Depression, a period in which childlessness increased to historic highs. Figure 1 shows the percentage of AHEAD respondents who reported being childless by age cohort and sex. Childlessness was defined as having not given birth to or sired any children; individuals may have had stepchildren, however, through marriage. The age cohorts 80–84 and 85–89, indeed, had the highest percentage of childlessness for women, reaching 18.5% and 25.6%, respectively.

The restriction of the baseline sample to community-dwelling persons omitted persons who were institutionalized. Research has shown that childlessness significantly increases the risk of institutionalization (Freedman, 1996; Palmore, 1976). Under the assumption that childless persons have lower well-being than elderly parents, we anticipated that the association between childlessness and psychologi-
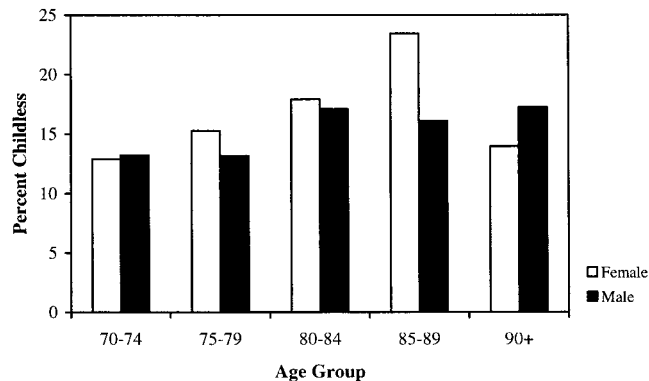
Figure 1. Percentage of persons who were childless by age group and sex, Asset and Health Dynamics Among the Oldest Old, 1993 ($N = 6,517$). Childlessness was defined as having no biological children.

cal well-being would be attenuated, resulting in conservative tests of the hypotheses.

Dependent Variables

Psychological well-being can be conceptualized and measured in various ways. In this article we focus on two dimensions of psychological well-being: loneliness and depression. "Loneliness is the subjective negative feelings associated with perceived social isolation, a lower level of contact than that desired or the absence of a specific desired companion" (Wenger, Davies, Shahtahmasebi, & Scott, 1996, p. 333). It has long been associated with old age and childless elderly persons in particular. Its negative characteristics are also reflected in the association of loneliness with depression, anxiety, and grief (Dugan & Kivett, 1994). Loneliness was measured in AHEAD with a single item. Respondents were asked to answer *yes* or *no* to the following statement: "(Much of the time during the past week) I felt lonely."

Depression, the most prevalent mental disorder of older adults, is a multifaceted and multicausal illness. The psychosocial model of the etiology of depression suggests that depression usually results from the interplay of stressful life events, the resources of the people, and their coping strategies (Chaisson-Stewart, 1985). Elderly people's susceptibility to depression is often thought to be related to the negative aspects of the aging processes—"a progression of disengagements, separations, and losses at numerous levels, from the physical to the social" (Cappeliez, 1993, p. 332). Under such circumstances, the availability of the resources and the effectiveness of the coping strategy seem particularly important in fending off depression for elderly persons. Previous research has shown that an individual's resources including social support, health, income, and education enhance psychological well-being in two ways. These resources reduce exposure to life stress and promote a sense of self-worth, achievement, and happiness. In this sense, social and economic resources have a lasting protective effect over the life course against loneliness and depression. These resources also mediate the negative effects of stress in life by promoting a positive coping adaptation to

crisis. In this way, social and economic resources function as a buffer under acute conditions (Cappeliez, 1993).

In this study we focused on self-reported depressive symptoms. Depressive symptoms are often used in population studies as criteria to screen for possible clinical depression. An advantage of depressive symptoms (hereafter referred to as *depression*) rather than clinical diagnosis is that symptoms are less likely to reflect lower use of hospital services by poor and isolated people seeking treatment of psychiatric illness. Depression in the AHEAD was measured with a modified shorter version of the Center for Epidemiologic Studies-Depression (CES-D) scale. Recent research has shown that use of the short form of the CES-D results in little loss of information, compared with the original scale (Soldo, Hurd, Rodgers, & Wallace, 1997). Respondents are asked to answer *yes* or *no* to 10 statements about the feelings they experienced last week. The items include questions on how often the respondent felt happy, felt sad, enjoyed life, had restless sleep, felt tired, and felt lonely. High scores indicate greater levels of depression. For the current sample, the Cronbach's alpha was .79.

Like many depression indexes, the short-version CES-D has a positively skewed distribution that can produce problems in meeting the distributional assumptions of ordinary least squares (Hays et al., 1998; OLS; Sen & Srivastava, 1990). We thus suggest caution in evaluating the OLS regression estimates. Previous research has often used a cutoff point (roughly the highest 20% of depression scores for the CES-D scale) to define *depressed* and *not depressed* categories. This categorization is predictive of clinical depression (Koropeckyj-Cox, 1998; Lin et al., 1986). We used this criterion to dichotomize the depression scores. Scores above 3 were recoded as 1, indicating the presence of depression, and scores equal to or below 3 were coded as 0, indicating no depression. In our sample, about 23.7% of respondents had depression scores higher than 3. In our analysis, we examined the sensitivity of our results to alternative cutoff points. We also used the continuous measure of depression (scored 0–10, with 10 indicating the highest number of depressive symptoms) to assess whether our modeling results were sensitive to OLS versus logistic regression specifications.

Independent Variables

The core independent variables in this study were childlessness, marital status, and sex. We also included covariates such as age (in years), race (Blacks, Whites, and others), physical health (self-rating of health as excellent, 5, to poor, 1), education (number of years of schooling), and net household wealth (in dollars) to control for other resources that elderly persons have to protect them against loneliness and depression. We adjusted net household wealth because of its skewed distribution by adding a constant to all households to eliminate negative wealth and then logged the value. We included race as a covariate because it is a marker of social inequality, discrimination, different cultural beliefs and practices, and small but uncertain biological factors, all of which can have different consequences on people's psychological well-being (Jones, 1992).

Childlessness was defined primarily as a social rather than a biological variable. Most previous studies have de-

fined childlessness as having no biological children. This definition does not reflect the possible acquisition of parental status via marriage and divorce. In our analytic sample, about 12% of biologically childless women and 22% of biologically childless men had stepchildren. We regarded stepchildren as a potential source of social support. Childlessness was defined in our analysis as having neither biological children nor stepchildren. This status was contrasted with respondents reporting stepchildren but no biological children and respondents reporting biological children (and possibly stepchildren as well). The last category, biological parent, was designated as the reference category in the analysis.

Unfortunately, the AHEAD does not provide information about whether respondents had adopted children. We were thus unable to identify whether biologically childless persons were parents by adoption; thus we classified these individuals as childless. To the best of our knowledge, extant data are not available to give us some sense of what percentage of childless persons in these birth cohorts acquired parental status via adoption.

Marital status measured the respondent's status at the time of the baseline survey. Marital status was defined as married, divorced, widowed, and never married, with married serving as the reference category.

Statistical Analysis

Loneliness and depression were defined as binary variables taking on the values of 1 (lonely/depressed) or 0 (not lonely/not depressed), and we used a logistic regression approach to statistically model the two measures of psychological well-being. In the absence of a well articulated theoretical model, we did not attempt to model the possible interdependence between these two facets of psychological well-being. Instead we treated each outcome as distinct in the modeling. As noted previously, we used OLS regression to analyze the continuous score of depression.

We began our analysis by examining the main effect of childlessness on psychological well-being, controlling for marital status, sex, and the other covariates. We then examined whether childlessness was conditional on marital status. Because of sparse data problems, we created a nine-category family status measure based on the interaction of the four marital statuses and three parental statuses. Married persons with children were treated as the reference category. In creating this measure, we combined divorced persons with stepchildren together with divorced persons with biological children because of the small number of divorced stepparents. Lastly, to examine how sex contextualized the effects of family status, we introduced interaction terms between sex and the family status categories into the model.

RESULTS

Descriptive Statistics

The results shown in Table 1 indicate that childless men were more likely to feel lonely (22%) compared with parents (15%). For women, loneliness was also relatively high among childless persons (26%), although the same was true among parents (24%). Childlessness appeared to have different consequences for loneliness for men and women. We

Table 1. Sample Characteristics for Persons Aged 70 Years and Older by Parental Status and Sex, AHEAD, 1993

Variable	Parents	Stepparents	Childless	Significance Test[a]		
				I	II	III
Women (n = 4,081)						
n	3,413	81	587			
Depression	2.39	2.19	2.37	–	–	–
Depression (1/0)	0.27	0.19	0.25	–	–	–
Loneliness (1/0)	0.24	0.17	0.26	–	–	–
Age (years)	77.34	77.44	78.72	–	**	–
Physical health	2.97	3.02	2.97	–	–	–
Education (years)	10.79	11.93	11.16	**	*	–
Wealth ($)	149,497	169,771	149,051	–	–	–
Marital status (%)						
Married	0.37	0.46	0.23	–	**	**
Divorced	0.06	0.01	0.09	**	**	**
Widowed	0.57	0.53	0.45	–	**	–
Never married	0.005	0	0.23	–	**	**
Race (%)						
Whites	0.85	0.70	0.78	**	**	–
Blacks	0.13	0.28	0.20	**	**	–
Others	0.02	0.01	0.02	–	–	–
Men (n = 2,436)						
n	2,069	82	285			
Depression	1.85	2.20	2.09	–	–	–
Depression (1/0)	0.18	0.23	0.23	–	–	–
Loneliness (1/0)	0.15	0.15	0.22	–	**	–
Age (years)	76.90	77.29	77.62	–	*	–
Physical health	3.05	2.73	2.95	*	–	–
Education (years)	11.11	10.83	10.88	–	–	–
Wealth ($)	242,097	271,488	225,592	–	–	–
Marital status (%)						
Married	0.76	0.72	0.52	–	**	**
Divorced	0.05	0.04	0.06	–	–	–
Widowed	0.19	0.23	0.22	–	–	–
Never married	0.003	0	0.20	–	**	**
Race (%)						
Whites	0.87	0.87	0.83	–	–	–
Blacks	0.11	0.12	0.15	–	–	–
Others	0.02	0.12	0.02	–	–	–

Notes: All means and percentages are based on unweighted sample data. Some percentages do not add up to 100% because of rounding. AHEAD = Asset and Health Dynamics Among the Oldest Old.

[a]The *t* statistics for Columns I, II, and III identify covariate differences for parents and stepparents (I), parents and childless persons (II), and childless persons and stepparents (III).

*p < .05; **p < .01.

found little statistical evidence that childlessness was associated with depression among women and men. Overall, the results shown in Table 1 suggest that childlessness was more strongly associated with loneliness than depression, and the strength of association between childlessness and loneliness appeared stronger for men than women.

The results shown in Table 1 also indicate that childless women were not systematically disadvantaged in terms of the various resources examined in this study. Not surprisingly, marital status was the characteristic most strongly associated with childlessness. Childless women were less likely to be currently married or widowed, and they were more likely to be divorced or never married. The results for men were similar.

Main Effects of Childlessness

Net of resources, how did childlessness influence the psychological well-being of the older persons? The results shown in Tables 2, 3, and 4 indicate that childless persons were not more likely to be lonely or depressed compared with parents and stepparents once marital status was controlled. Note also that stepparents were not significantly different from elderly parents in terms of both aspects of psychological well-being.

Although parental status was not statistically associated with psychological well-being, marriage appeared to bring substantial psychological benefits: Married persons had lower rates of loneliness and depression compared with all other marital status groups. Psychological well-being was also significantly better among persons with higher levels of education, better physical health, and greater wealth—a pattern of results reported consistently in prior studies of psychological well-being.

Childlessness and Marital Status

Although the main effects of childlessness were not statistically significant, one of our core arguments is that the effects of childlessness on psychological well-being are more likely to arise for some marital status groups than others. We did not anticipate low levels of psychological well-being among married couples because of the presence of marital partners who provide major social support. We anticipated that childlessness would be more likely to have negative consequences for single persons because childlessness, in addition to the lack of a spouse, narrows the social support network. To test whether childlessness was conditional on marital status, we next examined the effects of our family status measure based on the interaction of four marital statuses and three parental statuses.

The results of the family status model are presented in Table 5. As expected, childlessness was not statistically as-

Table 3. Main Effects of Childlessness on Depression: Logistic Regression Results for Persons Aged 70 and Older, AHEAD, 1993 (*N* = 6,517)

Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Parents (reference)					
Stepparents	0.847	0.895	0.896	0.917	0.909
Childless	1.026	1.003	0.952	0.950	0.933
Sex (male = 1)		0.633**		0.810**	0.779**
Married (reference)					
Divorced			2.233**	2.141**	1.783**
Widowed			2.113**	1.954**	1.672**
Never married			1.613**	1.534*	1.419
Age					1.014*
Education					0.949**
Physical health					0.466**
Wealth (log)					0.742**
Whites (reference)					
Blacks					0.870
Others					0.616*
ROC	0.503	0.552	0.594	0.603	0.765
−2log-likelihood	7140.0	7085.4	6982.7	6973.1	6052.2

Notes: Odds ratios are reported here. Confidence intervals are available on request. AHEAD = Asset and Health Dynamics Among the Oldest Old.
*p < .05; **p < .01.

sociated with loneliness among married persons, when other variables were controlled. In contrast to what we expected, however, we found little evidence for the idea that childlessness had negative effects on psychological well-being among divorced, widowed, and never married persons. Although divorced and widowed childless elderly persons seemed to have higher odds of loneliness than parents, the differences were small and the confidence intervals (available upon request) of the estimates were large. To better illustrate the effects of childlessness among persons who were not married, we compared whether psychological

Table 2. Main Effects of Childlessness on Loneliness: Logistic Regression Results for Persons Aged 70 and Older, AHEAD, 1993 (*N* = 6,517)

Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Parents (reference)					
Stepparents	0.744	0.791	0.820	0.809	0.855
Childless	1.299**	1.270**	1.125	1.126	1.172
Sex (male = 1)		0.598**		1.110	1.126
Married (reference)					
Divorced			4.814**	4.923**	4.292**
Widowed			5.376**	5.599**	5.116**
Never married			3.371**	3.462**	3.159**
Age					1.005
Education					0.933**
Physical health					0.683**
Wealth (log)					0.747*
Whites (reference)					
Blacks					0.819*
Others					1.035
ROC	0.519	0.567	0.693	0.693	0.760
−2log-likelihood	6656.4	6594.6	6048.1	6046.2	5716.0

Notes: Odds ratios are reported here. Confidence intervals are available on request. AHEAD = Asset and Health Dynamics Among the Oldest Old.
*p < .05; **p < .01.

Table 4. Main Effects of Childlessness on Depression: Ordinary Least Squares Regression Results for Persons Aged 70 and Older, AHEAD, 1993 (*N* = 6,517)

Independent Variable	Model 1	Model 2	Model 3	Model 4	Model 5
Parents (reference)					
Stepparents	0.009	0.070	0.069	0.094	0.021
Childless	0.092	0.067	0.003	0.0002	−0.006
Sex (male = 1)		−0.491**		−0.247**	−0.259**
Married (reference)					
Divorced			0.856**	0.805**	0.575**
Widowed			0.747**	0.653**	0.400**
Never married			0.495**	0.435*	0.277
Age					0.018**
Education					−0.053**
Physical health					−0.827**
Wealth (log)					−0.151*
Whites (reference)					
Blacks					−0.248**
Others					−0.224
R^2	0.0002	0.011	0.026	0.028	0.230

Notes: Unstandardized ordinary least squares regression coefficients are reported here. Standard errors are available on request. AHEAD = Asset and Health Dynamics Among the Oldest Old.
*p < .05; **p < .01.

Table 5. Conditional Effects of Childlessness on Loneliness and Depression: Logistic and Ordinary Least Squares Regression Results for Persons Aged 70 and Older, AHEAD, 1993 ($N = 6,517$)

Independent Variable	Loneliness, Odds Ratio	Depression (Logistic), Odds Ratio	Depression, b
Married parents (reference)			
Married stepparents	0.761	0.895	0.028
Married childless	1.198	0.817	−0.100
Divorced parents	4.239**	1.664**	0.490**
Divorced childless	5.319**	2.112**	0.910**
Widowed parents	5.110**	1.649**	0.395**
Widowed stepparents	4.072**	1.292	0.257
Widowed childless	6.152**	1.629**	0.411**
Never married parents	5.538**	2.125	0.574
Never married childless	3.372**	1.218	0.225
Sex (male = 1)	1.129	0.781**	−0.256**
Age	1.005	1.014*	0.018**
Education	0.934**	0.949**	−0.052**
Physical health	0.683**	0.466**	−0.827**
Wealth (log)	0.747*	0.741**	−0.153*
Whites (reference)			
Blacks	0.810*	0.864	−0.250**
Others	1.012	0.602*	−0.237
R^2			0.231
ROC	0.760	0.765	
−2log-likelihood	5713.3	6049.0	

Note: AHEAD = Asset and Health Dynamics Among the Oldest Old.
*$p < .05$; **$p < .01$.

well-being differed according to childlessness within the marital status categories of divorced, widowed, and never married persons (Table 6). Regardless of the reason for not being married, we had no statistical evidence that childless elderly persons differed from parents in the chances of being lonely.

If psychological well-being is gauged in terms of depression, the results shown in Tables 5 and 6 do not support the

Table 6. Comparing Effects of Childlessness on Loneliness and Depression Among the Unmarried Groups: Logistic and Ordinary Least Squares Regression Results for Persons Aged 70 and Older, AHEAD, 1993 ($N = 6,517$)

Independent Variable	Loneliness, Odds Ratio	Depression (Logistic), Odds Ratio	Depression, b
Divorced childless vs divorced parents	1.255	1.269	0.420
Widowed stepparents vs widowed parents	0.796	0.783	−0.138
Widowed childless vs widowed parents	1.203	0.988	0.016
Never married childless vs never married parents	0.609	0.573	−0.349

Notes: Divorced parents, widowed parents, and never married parents were each entered as the reference category sequentially into the full models shown in Table 5. The results were the conditional effects of childlessness, controlling for sex, age, education, physical health, wealth (log), and race. AHEAD = Asset and Health Dynamics Among the Oldest Old.
*$p < .05$; **$p < .01$.

idea that childless persons—even those who were not married—were disadvantaged. Being divorced, widowed, or never married did not place childless persons at greater risk of loneliness and depression. Note also the similarity in the results for the logistic regression and OLS models for depression.

Childlessness, Sex, and Marital Status

We have argued that unmarried men may be particularly vulnerable to the effects of childlessness. Men in general have smaller social support networks outside the family. Unmarried men are thus at the greatest risk of a paucity of social support from kith and kin, and because of the shortfall in social support, we expected that unmarried men without children would be at the greatest risk of social isolation and distress.

The results shown in Table 7 provide statistical evidence supporting this argument. Divorced and widowed men who were childless had the highest odds of loneliness compared with men in other family statuses and women in all family statuses (Figure 2). Divorced men who were childless also had the highest odds of depression (Figure 3). Among divorced childless elderly persons, men were approximately twice as likely to feel lonely compared with women, net of the covariates included in the full model (Figure 2). Among widowed childless elderly persons, men were 1.74 times more likely than women to feel lonely, and never married childless men were 1.44 times more likely to feel lonely than never married childless women. All of these effects were statistically significant. As expected, we found no evidence of sex differences in the effects of childlessness among persons who were married.

The pattern of results was similar for depression. Divorced and widowed childless men were significantly more likely to feel depressed than divorced and widowed childless women (Table 7). The logistic regression models show that divorced childless men were about 2.07 times more likely to be depressed than divorced childless women (Figure 3), and widowed childless men were almost 1.57 times more likely to be depressed than widowed childless women. (Although the differences were statistically significant, we think some degree of caution is warranted in interpreting the results given the small cell sizes for childless men who were divorced [$n = 17$], widowed [$n = 63$], and never married [$n = 57$].) In contrast to the results for loneliness, however, we did not find evidence that never married childless men were at greater risk of depression than never married childless women. Again, we observed that there were no statistically significant sex differences in the effects of childlessness on the risk of depression for married people. Results for the OLS regression were largely in line with those of logistic regression models, except that sex differences of childlessness became statistically insignificant among the divorced persons.

Looking at the overall pattern of gender differences in the effects of childlessness on psychological well-being, our findings indicate that men usually were advantaged compared with women. Men were less likely to feel lonely and depressed, compared with women. This pattern is consistent with prior research. Men's advantages, however, withered

Table 7. Conditional Effects of Childlessness on Loneliness and Depression: Logistic and Ordinary Least Squares Regression Results for Persons Aged 70 and Older, AHEAD, 1993 (N = 6,517)

Independent Variable	Loneliness, Odds Ratio	Depression (Logistic), Odds Ratio	Depression, b
Married parents (reference)			
Married stepparents	0.773	0.550	−0.089
Married childless	1.355	0.624	−0.172
Divorced parents	2.611**	1.186	0.156
Divorced childless	3.059**	1.305	0.577*
Widowed parents	3.216**	1.234*	0.173*
Widowed stepparents	3.001**	1.063	0.223
Widowed childless	3.869**	1.139	0.186
Never married parents	3.711*	1.478	0.023
Never married childless	2.130**	0.952	−0.001
Sex × Married Stepparents	1.106	2.326	0.214
Sex × Married Childless	0.679	1.696	0.120
Sex × Divorced Parents	2.737**	2.164*	0.769**
Sex × Divorced Childless	4.012*	4.109*	1.013
Sex × Widowed Parents	3.353**	2.343**	0.676**
Sex × Widowed Stepparents	1.667	1.410	−0.119
Sex × Widowed Childless	3.175**	3.116**	0.632*
Sex × Never Married Parents	2.217	2.471	1.519
Sex × Never Married Childless	2.627*	1.665	0.510
Sex (male = 1)	0.547**	0.504**	−0.531**
Age	1.006	1.015*	0.019**
Education	0.933**	0.950**	−0.052**
Physical health	0.677**	0.462**	−0.832**
Wealth (log)	0.731**	0.732**	−0.161*
Whites (reference)			
Blacks	0.796*	0.860	−0.260**
Others	0.998	0.595*	−0.232
R^2			0.235
ROC	0.767	0.769	
−2log-likelihood	5657.1	6014.0	

Note: AHEAD = Asset and Health Dynamics Among the Oldest Old.
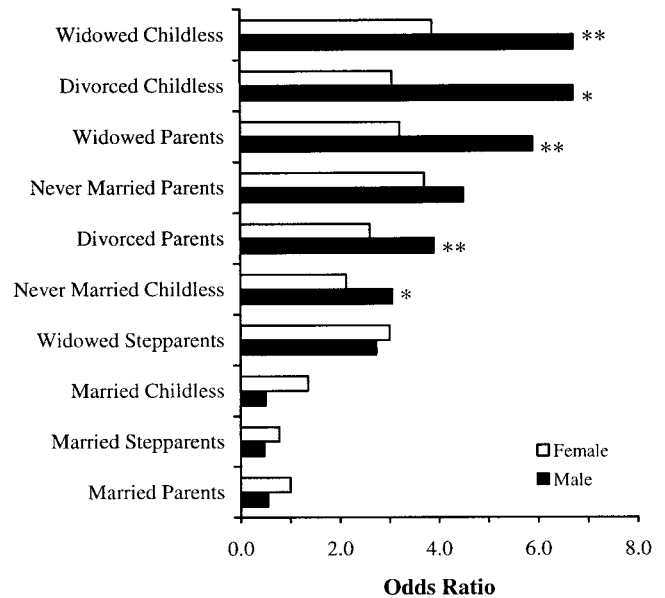*p < .05; **p < .01.

Figure 2. The joint effects of childlessness, marital status, and sex on loneliness, controlling for age, education, health, household wealth, and race for persons aged 70 and older in the Asset and Health Dynamics Among the Oldest Old, 1993 (N = 6,517). The reference group was female married parents. The estimated odds ratio for any other family status by sex was calculated with the estimated odds ratios in Table 7. For example, the odds ratio of loneliness for the male childless widowed group was 3.869 × 0.547 × 3.175 = 6.719, controlling for age, education, health, household wealth, and race. Asterisks indicate significant sex differences in the effects of combination of parental and marital status on loneliness. *p < .05; **p < .01.

in the absence of children and marriage. Being childless and unmarried at old age deprived men of their relative advantage in psychological well-being, reversing the traditional relationship between sex and psychological well-being. The results support the view that childless and unmarried older men are a highly vulnerable group.

One factor not considered in our investigation of the effects of childlessness on psychological well-being was the living arrangements of elderly persons. In the results shown previously, we excluded living arrangements as a predictor variable because of the problems of reverse causality. When parents become depressed or sick, co-residence with or moving closer to adult children often occurs so that care can be provided (Siegel, 1993). In this sense, living arrangements are frequently an outcome rather than a predictor of psychological well-being. As a partial test of this idea, we operationalized living arrangements as a series of indicator variables: living with children, having children nearby but without resident children, and having neither resident children nor children nearby. Having resident children was strongly associated with high rates of depression (results not reported), net of other factors. Although we could not deter-

mine the causal relationship between the two variables, this pattern is consistent with the idea that living arrangements were an outcome of psychological well-being in this sample.

In additional analyses, we considered a more stringent criterion to define depression (i.e., we used 4 as the cutoff point), and we re-ran the models described above. The direction of the parameter estimates remained unchanged, and the magnitude of effects changed very little. The only exception was among never married childless elderly persons: men were significantly more likely to feel depressed than women. This effect was not statistically significant when we used 3 as the cutoff point.

DISCUSSION

Prior research on the effects of childlessness on psychological well-being has largely focused on young, middle-aged, and young-old persons. Given the dramatic increase in childlessness and low rates of marriage in recent decades, the aging of the American population in the 21st century will result in greater numbers of future elderly persons who are both childless and unmarried. Whether these conditions foretell a growing vulnerable population at greater risk of loneliness and depression has been the guiding question of this investigation.

Drawing on a nationally representative sample of persons aged 70 and older, we examined how marital status and sex condition the effects of childlessness at older ages. Our results show that these factors significantly interact to influ-
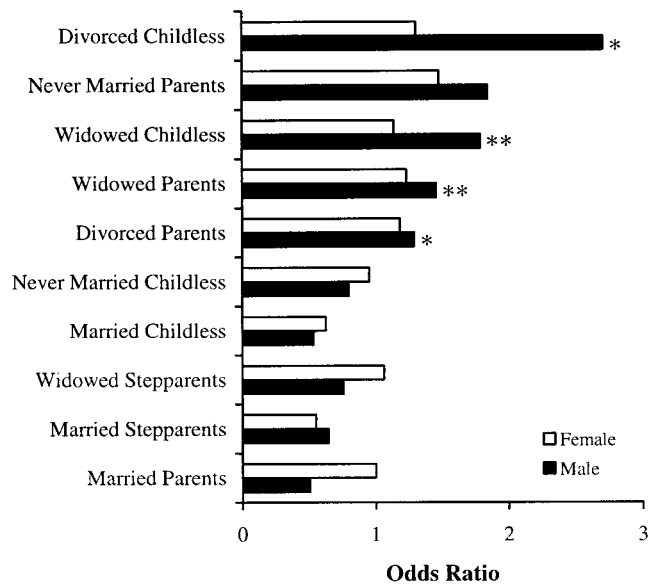
Figure 3. The joint effects of childlessness, sex, and marital status on depression, controlling for age, education, health, household wealth, and race for persons aged 70 and older in the Asset and Health Dynamics Among the Oldest Old, 1993 ($N = 6,517$). The reference group was female married parents. The estimated odds ratio of depression for any other family status by sex was calculated with the estimated odds ratios in Table 7. For example, the odds ratio of depression for the male childless divorced group was $1.305 \times 0.504 \times 4.109 = 2.703$, controlling for age, education, health, household wealth, and race. Asterisks indicate significant sex differences in the effects of combination of parental and marital status on depression. $*p < .05; **p < .01$.

ence both loneliness and depression. Childless unmarried men, in particular, have significantly higher rates of loneliness and depression compared with men and women in other family statuses.

Our findings expand current understanding of the effects of childlessness on psychological well-being over the life cycle. Prior research has found little support for the idea that childlessness has negative consequences for the psychological well-being of middle-aged and young-old persons. Consistent with prior research findings, we find that the effects of childlessness on loneliness and depression remain minimal at advanced ages. Our research also provides little statistical evidence for the idea that the effects of childlessness are conditional on marital status. Overall, marital status rather than parental status is a more salient factor influencing loneliness and depression in old age.

When we consider whether the interaction effects of marital status and childlessness on psychological well-being are gendered, the effects of childlessness become more distinct. The adverse consequences of childlessness are a characteristic of unmarried men but not women. Among divorced, widowed, and never married elderly persons, childless men are much more likely to feel lonely than childless women. Divorced and widowed childless men are also more likely to feel depressed than divorced and widowed childless women.

We were able to take advantage of novel information in the AHEAD data to differentiate biologically childless peo-

ple in terms of the presence of stepchildren. Our study shows that a sizable percentage of biologically childless men and women have stepchildren. Stepparents do not appear to be substantially different from biological parents in many aspects, and stepparents' psychological well-being is akin to that of biological parents. This suggests that stepchildren may be an important source of social support for older people and that biological ties between parents and children may be less important than familial ties.

Although the main effects of childlessness are minimal in this study for older persons, it is premature to conclude that childlessness has no direct effect on the psychological well-being of older people. By virtue of the sample design, our analysis excludes institutionalized older people. At advanced ages, childless persons are more likely to become institutionalized (Freedman, 1996; Koropeckyj-Cox, 1998; Palmore, 1976; Siegel, 1993), and rates of depression are much higher for persons living in institutions than those living in communities. This problem may be compounded by differential mortality selection. Kobrin and Hendershot (1977) observed, for example, that age-adjusted mortality rates are higher for nonparents than for parents. Because our sample only includes aged persons who have survived to 70 and older, many childless persons may have already died before 70 years old. Fortunately, the nature of these selection problems suggests that the results of this study are conservative tests.

Ultimately, these issues point to the importance of moving to a longitudinal design to understand the relationship between childlessness and psychological well-being—particularly in the presence of mortality and institutionalization selection processes. Such a design would also enable researchers to examine the effects of childlessness on the *process* of psychological well-being, that is, the onset of loneliness and depression, the duration of these problems, and the ultimate outcomes of these problems in terms of institutionalization and death. Childlessness potentially comes into play at different points in the process. Childlessness may have few effects on the onset of psychological problems, for example, but once persons experience those problems, childlessness may exact a heavy toll in terms of greater risks of institutionalization and death. We plan to take up these issues in our future work.

Address correspondence to Zhenmei Zhang, Department of Sociology, Penn State University, University Park, PA 16802. E-mail: zhenmei@pop.psu.edu

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