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Impending widowhood and health care spending

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Abstract

Research has established that a household's needs-adjusted income declines when a spouse dies. However, the process by which this income decline occurs is less clear. This study utilizes the 1996, 1997, and 1998 Medical Expenditure Panel Surveys (MEPS) to investigate whether medical expenditures prior to widowhood contribute to the income decline. Multivariate regressions reveal that both total and out-of-pocket medical expenditures are significantly higher for the about-to-be-widowed compared to an otherwise similar group of continuously married, healthy respondents. The differences are particularly large when the soon-to-be-deceased spouse is not eligible for Medicare.

Keywords: Widowhood; Health related expenditures; End of life

1. Introduction

Extensive research has established that American widows typically experience a dramatic decline in needs-adjusted incomes when their husbands die (Bound et al., 1991; Holden and Zick, 1997; Holden et al., 1988; Hurd and Wise, 1989). In addition, recent work reveals that widows' lower incomes are not offset by greater assets. Rather, about-to-be-widowed couples have lower wealth holdings than do otherwise similar couples and there is a further decline in wealth when the husband dies (Zick and Holden, 2000). Widowed women also experience a higher incidence of poverty compared to the general population. In 1999, 26.4% of widowed women were poor or near poor with income-to-needs ratios less than 125% of the poverty threshold, compared to 16.7% of the general population (US Bureau of the Census, 2003). Their higher poverty rates are partly a function of the high mortality risks faced

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by low-income households (Daly et al., 1998; McDonough et al., 1997) and the loss of labor earnings, Social Security, and/or private pension income that often occurs when a husband dies (Bound et al., 1991; Holden and Zick, 1998). We suggest that another potentially important, but generally neglected factor, may be high out-of-pocket health care expenditures made in the months or years prior to the death.

The fact that widowed women continue to face an elevated risk of poverty has sparked suggestions regarding the need to reform Social Security so that it might better insure women against this economic risk (Burkhauser, 1994; Holden and Zick, 1998; Sandell and Iams, 1997). For example, Sandell and Iams (1997) advocate for a transfer of Social Security funds from married couples to the surviving widow. Yet, if pre-widowhood health care expenditures are partially responsible for post-widowhood economic experiences, then such a shift might not improve the situation in a substantial manner.

As policymakers undertake reforms of Social Security and/or Medicare and as financial educators work with families on financial planning issues, it is important that both groups have an understanding of the expenditure dynamics that occur prior to a death. Specifically, to what extent do about-to-be-widowed households spend more on health care than otherwise similar continuously married couples? Does Medicare coverage protect about-to-be-widowed households from experiencing large out-of-pocket health expenses? By answering these questions, we hope to gain some insights about how end-of-life health expenditures may contribute to changes in newly widowed individuals' economic well-being.

Most of the research on health expenditures in the months prior to a death focuses on expenses that are covered by Medicare, Medicaid, and/or private insurance (Graber et al., 1998; Levinsky et al., 2001; Long et al., 1984; Lubitz and Riley, 1993). Yet, statistics indicate that out-of-pocket expenditures on health care are substantial. In 1996, 907.2 billion dollars were spent on health care in the United States. Third party payments covered only 81% of that total with the remaining 172.4 billion dollars being paid out-of-pocket by consumers (US Bureau of the Census, 1998). Moreover, analyses reveal that these expenditures increase with age (Acs and Sabelhaus, 1995; Cutler and Meara, 1998; Hitschler, 1993; Rubin and Koelln, 1993) and chronic disease status (Mueller et al., 1997).

Paulin (2000) estimates that individuals age 65–74 in the late 1990s spent approximately 10% of their income on health care which is more than double the percentage spent on health care by individuals under age 65. The figures rise to 14% for those individuals over age 74 which is approximately three times the income share spent on health care by individuals under age 65. Research on health care spending of Medicare beneficiaries reveals that approximately 20% of their health care expenses are covered by out-of-pocket payments (Gornick et al., 1996). Moreover, during the last six months of life, Medicare was found to cover only 48% of health care bills, suggesting that remainder is paid for by some combination of private health insurance and out-of-pocket spending (Field and Cassel, 1997). Thus, even Medicare beneficiaries can incur substantial out-of-pocket health care expenses.

Could the increase in out-of-pocket health care expenditures prior to a spouse's death be a factor that contributes to the increased risk that a newly widowed

individual will experience a substantial decline in needs-adjusted income? Covinsky et al. (1994) identified a sample of 2661 individuals initially hospitalized with any of nine diagnoses that had high six-month mortality risks. The patients and/or their surrogates were interviewed about the impact of the illness on the family. Thirty-one percent of respondents reported that because of the illness "most of the family savings was lost" even though 96% had hospitalization insurance. The authors' multivariate analyses revealed statistically significant associations between the report of lost savings and the patient (a) being younger, (b) having an annual income of less than $25,000 (measured in 1989 dollars), and (c) needing assistance with three or more activities of daily living. The inverse association that they found between age and lost savings may be a function of Medicare age-eligibility rules. Yet, it is also important to note that Covinsky et al.'s (1994) findings may overstate the wealth loss for the typical about-to-be widowed household because their sample is limited to individuals with relatively long-standing, chronic conditions.

McGarry and Schoeni (2002) have undertaken the most comprehensive analysis of pre-widowhood out-of-pocket medical expenditures to date. They use data from the Asset and Health Dynamics (AHEAD) study to compare the out-of-pocket medical expenditures for households where a spouse dies between interviewing waves one and two ($N = 271$) with the out-of-pocket medical expenditures for an otherwise comparable group of continuously married households ($N = 3559$). They find that out-of-pocket health care expenditures are almost twice as high for about-to-be widowed households compared to their continuously married counterparts and they conclude that out-of-pocket medical expenditures in the last year of life account for approximately 25% of the post-widowhood increase in poverty.

While McGarry and Schoeni's (2002) work provides useful insights, the AHEAD data have two attributes that limit the generalizability of their results. First, since the AHEAD sample is restricted to individuals who were age 70 or older at the time of the initial interview, younger widows and widowers who are typically not covered by Medicare are excluded from their analyses. Data from the January 2001 Current Population Survey reveal that slightly more than one-third of all *current* widows are under the age of 70 (US Bureau of the Census, 2001). Since many of the widowed individuals over age 70 may have become widowed years earlier, this suggests that an even larger percentage lose their spouse prior to age 70.

Second, the time period over which out-of-pocket health care expenditures are reported varies in the AHEAD sample. For the continuously married couples, out-of-pocket expenditures are reported for a three-year period. That is, they are reported for one year prior to the wave 1 interview and for the two years that elapse between the wave 1 and wave 2 interviews. For those households where a spouse dies, AHEAD provides data on health expenditures up to the point where the death occurs. Thus, for the about-to-be widowed households, the time period may be as short as one year or as long as three years. McGarry and Schoeni (2002) acknowledge that this reporting structure generally leads to an underestimate of the increase in out-of-pocket medical expenditures near widowhood.

The analyses that follow build on the work of McGarry and Schoeni (2002) and Covinsky et al. (1994). Specifically, data from the Medical Expenditure Panel Survey

(MEPS) are used to examine total and out-of-pocket health care expenditures in an age-heterogeneous sample of about-to-be widowed households. There are two questions we want to answer. First, to what extent are about-to-be widowed couples spending more on health care than otherwise comparable, healthy couples where no death in imminent? Second, are Medicare-ineligible about-to-be widowed couples spending significantly more on health care than otherwise comparable couples who are Medicare eligible? We focus a sub-set of our analyses on the impact of Medicare on health related expenditures near the time of widowhood because Medicare is the major health insurance program targeted at insulating older Americans from high out-of-pocket health care expenditures.

2. Materials and methods

2.1. Overview

We are interested in assessing the extent to which total and/or out-of-pocket health care expenditures are higher for households where a death is about to occur compared to households where no death takes place. Our analysis approach is purely descriptive. We draw on both the neoclassical economics framework and the life course framework to inform the specification of our descriptive, multivariate analyses. Proponents of the neoclassical economics framework argue that household expenditures are influenced by income, prices, and preferences. While predictions about the roles that income and prices play are clear (i.e., increases in income are hypothesized to lead to increased consumption of all normal goods including health care), the economic model provides less guidance regarding how preferences may alter expenditures. To gain a better understanding of the role that preference shifters may play, we turn to the life course framework. Proponents of this framework argue that families' social and behavioral responses to life events (e.g., an impending death) are dependent upon age, period, and cohort effects (Bengtson and Allen, 1993). Thus, our preference measures will include variables that capture these dimensions of family life.

Our analysis begins by presenting descriptive statistics on health related expenditures and socio-demographic characteristics by group membership. These descriptive statistics provide guidance regarding the household characteristics that should be included as control variables in the multivariate analyses. The health care expenditures regressions focus on comparisons of group membership's impact on health expenditures controlling for possible confounding economic and life course variables. In addition, we estimate models separately by Medicare status to assess whether or not participation in this major health insurance program interacts with group membership to affect health related expenditures.

2.2. The data

The data for our study come from the 1996, 1997, and 1998 full-year MEPS (US Department of Health and Human Services, 2002). MEPS is a nationally

representative survey of medical care use and expenditures co-sponsored by the Agency for Healthcare Research and Quality (AHRQ) and the National Center for Health Statistics. The Household Component (HC) of MEPS gathers data on demographic characteristics, health conditions, health status, use of medical care services, charges and payments, access to care, health insurance coverage, income, and employment. The HC uses an overlapping panel design. Data on health care expenditures are gathered at five different points in time over a two-year period for each panel. Data are collected both at the personal and household levels. The 1996 full year data include only respondents from the first year of the 1996 MEPS panel. The 1997 full year data contain respondents from the second year of the 1996 panel and the first year of the 1997 panel. The 1998 full year data contain respondents from the second year of the 1997 panel and the first year of the 1998 panel (US Department of Health and Human Services, 2002).

Widowhood is an extremely rare event at very young ages. Thus, the sample used in this study is restricted to respondents age 40 or over at the beginning of the survey. In addition, widowhood is an event that is typically preceded by a period of declining health. Indeed, three-quarters of the about-to-be deceased individuals in our MEPS sample report their overall health to be either "fair" or "poor." This high correlation between health status and impending widowhood makes it impossible to include both variables among the regressors. We solve this problem by creating three groups in our MEPS sample: (1) those who report their health to be "excellent," "very good," or good" and who are married to the same person in all interviews (i.e., the continuously married, good health group), (2) those who report their health to be "fair" or "poor" but who remain married to the same person in all interviews (i.e., the continuously married, poor health group), and (3) those individuals who are married at the time of the first interview but who report subsequent to the first interview that their marital status has changed from married to widowed (i.e., the about-to-be-widowed group). The individuals in this last group were widowed at some point between interviews 1 and 5. Prior to the death, approximately 75% of these about-to-be deceased spouses reported that their overall health status was either fair or poor. Thus, membership in this group typically represents both some period of poor health and a life-ending health event.

The unit of analysis in our MEPS samples is the household, as we are interested in all health care expenditures that might reduce household wealth. Data from all five interviews are available for the 1996 and 1997 panels, while only data from the first two or three interviews are available for the 1998 panel. Because the sample size for the continuously married is much larger than the about-to-be widowed, we randomly selected a half sample for the continuously married group. Our final sample has 1809 continuously married households with good health, 386 continuously married households with poor health, and 173 about-to-be widowed households.

Family-level weights are used as the expenditure data we investigate are at the household level. These family-level weights are further adjusted so the final weighted age distribution for the continuously married sub-samples are the same as the age distribution of the about-to-be-widowed group because the continuously married are on average somewhat younger than the about-to-be widowed. All expenditure

and demographic statistics reported here are weighted by these age-adjusted family level weights. Further, because three panels of households are included in the sample, expenditure data cover a span of three years. As a consequence, the Medical Care Consumer Price Index is used to adjust all expenditure figures to 2001 dollars so that expenditures are measured in comparable, current dollar terms.

While the demographic information comes from the MEPS HC main files, the detailed expenditure information comes from the event files in the HC. Detailed information on insurance payments from different sources and out-of-pocket payments is available for each health event in these files. Questions about person-specific health events and associated expenditures from various sources are asked at the time of each interview. Given that the typical elapsed time between interviews is approximately five months, this allows us to capture those expenditures that occur close to the time of the death. Furthermore, since the files are event-specific, problems with linking expenditure flows to an event are minimized.

Unfortunately, information on nursing home expenditures and on health insurance premiums is not available in the HC. There are two other components in MEPS that collect such information: the Nursing Home Component (NHC) and the Insurance Component (IC). The NHC collects information from a nationwide sample of nursing homes and their residents. This sample is separate and cannot be linked to the HC data. The IC collects insurance related information from various health insurance establishments. The IC has detailed information on the health insurance held by and offered to respondents in the HC. However, these data are not available in the public domain. Therefore, our figures do not include expenditures on two potentially large health-related categories—expenditures on health insurance premiums and expenditures on nursing homes.

All expenditure data are re-centered by the interview where the respondent first reported his/her marital status as widowed because we are interested in medical expenditures incurred in the months immediately prior to the death. We designate this interview as the "reference interview." For comparison purposes, we randomly assign a reference interview to the households in the continuously married sub-samples using the reference interview distribution of the about-to-be widowed sub-sample. For the about-to-be-widowed sub-sample, we designate the spouse who died during the panel as the "reference person." For the two continuously married sub-samples, we randomly assign either widower or widow status using the gender distribution of the about-to-be widowed sample to create a pseudo-reference person.

2.3. *The variables*

The medical expenditure variables we examine are measured as the average monthly expenditures reported in (a) the interview prior to the reference interview, and (b) the reference interview. We calculate an average monthly expenditure figure based on these interviews as the length of time between interviews varies across households. The total time period covered by these two interviews ranges from 4.8 to 19.9 months. The average is 10.6 months. As an example of this calculation, suppose a household reported spending $1000 and $1500 out-of-pocket in the two

interviews. If the elapsed time covered by these interviews was 8 months, then the average monthly out-of-pocket expenditures would be reported as $312.50.

The economic and life course variables that we believe may confound the relationship between expenditures and impending widowhood status include income, age, race, education of the reference person, his/her family size, region of residence, metropolitan statistical area (MSA) residence, health insurance coverage, and payment help from outside of the household. We do not have direct information on the price of health care. As a second best solution, we use residential location, payment help from outside of the household, and health insurance coverage to control for price variations. Age, race, education, and family size comprise our somewhat standard set of life course socio-demographic covariates.

The measurement specifics of several of the independent variables warrant some elaboration. Health insurance coverage measures are available on a monthly basis in MEPS. We use coverage information from the first month of the interview prior to the reference interview. Based on these data, we create a series of dummy variables that measure how many health insurance policies the reference person has (i.e., zero, one, more than one). We also construct a separate dummy variable that measures whether or not the individual has Medicare coverage because of our interest in the role that Medicare plays in reducing total out-of-pocket health care expenditures.

Payment from any non-health insurance source is a dummy variable that takes on a value of "1" if the household reports that any portion of the health related expense has been covered by a non-health insurance source outside of the household. Such sources might include use of an indigent care facility, payments from adult children, or payments from automobile insurance claims.

Income is measured by a dummy variable that assesses weather or not the family's income-to-needs ratio (i.e., the family's annual income divided by the appropriate poverty threshold) is less than 1.25. While an interview-specific total household income measure would be more suitable for our study, MEPS only provides annual income information as measured by a categorical income-to-needs ratio. Our measure is taken at the end of the first year of the survey.

Finally, family size for the about-to-be widowed group is adjusted by assuming that the spouse died at the midpoint between the two interviews since we do not have information on the exact date of death. Measurements of all other variables used in the analysis are self-explanatory.

2.4. The analysis plan

Generalized least squares regressions are used to estimate the expenditure equations. Given the complex sampling design used in MEPS, we use the SURVEYREG procedure in SAS to correct the variance estimates in all of the multivariate regressions (Agency for Healthcare Research and Quality, 2002). In addition to conducting analyses using the whole sample, we estimate separate regressions for those with Medicare coverage and those without Medicare coverage in an attempt to assess the effectiveness of Medicare in reducing out-of-pocket health care expenditures near the time of widowhood.

Initially, we separated about-to-be-widows from about-to-be-widowers in our analyses because prior research has documented gender differences in post-widowhood economic well-being (Zick and Smith, 1991). Preliminary analyses, available from the authors upon request, reveal no statistically significant differences in expenditure patterns by gender of the surviving spouse so we collapse the two groups for the purposes of the analyses presented here.

3. Results and discussion

3.1. Descriptive results

Table 1 presents the weighted demographic profile of the sample. Bivariate statistical tests indicate that the three sub-samples are significantly different from one another on all of the socio-demographic variables except for the income-to-needs ratio. These statistically significant differences likely reflect socio-demographic differences in the risk of mortality. For example, past research has linked lower levels of educational attainment and lower levels of economic well-being to an increased risk of mortality (Daly et al., 1998; McDonough et al., 1997). These bivariate differences in socio-demographic characteristics reinforce the importance of undertaking a multivariate analysis of health related expenditures if we are to draw confident conclusions about the relationship between health expenditures and impending widowhood.

Table 2 presents means and distributional information for our two medical expenditure categories. As expected, both total expenditures and out-of-pocket expenditures are typically higher for the about-to-be-widowed group than the continuously-married, good health group. But, expenditures of the about-to-be-widowed group are very similar to those of the continuously married, poor health group, suggesting that the accumulated difference in out-of-pocket expenditures prior to the death may be especially high if an individual is in poor health for an extended period of time. Out-of-pocket medical expenditures are 64% higher for the about-to-be-widowed group than the continuously married, good health group at the mean level. At the 95th percentile, however, the difference is considerably greater with about-to-be-widowed households spending $832 per month while the 95th percentile for the continuously married, good health sample is only $402. In 1998, the median net financial assets for all households in the United States was $9850 ($10,736 measured in 2001 dollars) (Montalto, 2001). If those about-to-be-widowed households at the high end of the expenditure distribution incur these high expenditures for any extended period of time, it could force them to use up a considerable fraction of their financial assets.

In comparing our descriptive findings to those of McGarry and Schoeni (2002), it should be noted that even after adjusting for differences in the length of the reporting period and the fact that our figures are for the household while their figures are measured on a person-level, our descriptive expenditure figures are generally lower than theirs. This is not surprising, however, given that their figures include health insurance premiums and nursing home expenditures while ours do not.

Table 1
Weighted socio-demographic profile of the sub-samples[a]

Variable	Continuously married, good health ($N = 1809$)	Continuously married, poor health ($N = 386$)	About-to-be-widowed ($N = 173$)	Bivariate test results[b]
Mean age of reference person (standard deviation)	68.7 (10.3)	71.0 (9.61)	70.8 (9.79)	$F = 10.2^{***}$
Mean family size (standard deviation)	2.30 (0.76)	2.30 (0.72)	2.07 (0.82)	$F = 6.83^{***}$
Income/needs ratio (%)				
<1.25	9	9	13	
⩾1.25	91	91	87	$\chi^2 = 3.71$
Race/ethnicity of reference person (%)				
Caucasian	91	86	90	
African American	4	6	5	
Hispanic	4	4	5	$\chi^2 = 15.0^{**}$
Education of reference person (%)				
High school or less	66	74	76	
More than high school	34	26	24	$\chi^2 = 16.2^{***}$
Region of residence (%)				
South	37	50	41	
Non-south	63	50	59	$\chi^2 = 22.8^{***}$
MSA status (%)				
Live in MSA	77	68	77	
Live in non-MSA	23	32	23	$\chi^2 = 16.2^{***}$
Health insurance (%)				
Has no insurance	2	4	3	
Has one policy	44	37	42	
Has two or more policies	54	59	55	$\chi^2 = 32.7^{***}$
Medicare coverage (%)				
Yes	72	83	77	
No	28	17	23	$\chi^2 = 24.9^{***}$
Payment source (%)				
Some payment made by non-health insurance source outside of the household	14	17	30	
No payment made by a non-health insurance source outside of the household	86	83	70	$\chi^2 = 31.8^{***}$

[a] Percentages may not sum to 100% because of rounding.
[b] ANOVA is used to test for statistical differences in the continuous variables across the three groups while cross tabulation analyses are used to test for statistical differences across the three groups when the variables in question are categorical.
$^{**}p < .05$.
$^{***}p < .01$.

Table 2
Weighted descriptive statistics on monthly medical expenditures for continuously married and about-to-be widowed households measured in dollars[a]

Expenditure category		Mean ($)	Median ($)	95 Percentile ($)	Maximum ($)
Total medical expenditures[b]	Married—good health	684	350	2682	13,483
	Married—poor health	1069	558	3917	9355
	Widowed	2531	1630	7709	43,915
Total out-of-pocket medical expenditures[c]	Married—good health	139	94	402	1896
	Married—poor health	259	163	759	6599
	Widowed	228	134	832	6796

[a] All expenditure figures are measured in 2001 dollars.
[b] The F-statistic associated with the mean differences in total medical expenditures by group is 109.26 ($p < .0001$).
[c] The F-statistic associated with the mean differences in total out-of-pocket medical expenditures by group is 26.17 ($p < .0001$).

3.2. Multivariate results

We turn now to the multivariate regressions. The independent variables in these descriptive regressions include the socio-demographic characteristics identified in Table 1. Table 3 reports results from the multivariate regressions for total medical expenditures and out-of-pocket medical expenditures. The key independent variables in each of these regressions are the group membership dummies. In the total expenditures equation, both the about-to-be widowed and continuously married, poor health groups spend significantly more on health care than the continuously married couples where the reference person is in good health. Interestingly, households where a spouse is about to die spend $1834 more per month on health care while households where the reference person is in poor health but does not die spend only $369 more per month on health care, *ceteris paribus*. Further tests, that are not shown but are available upon request, reveal that these coefficients are significantly different from one another.

In the out-of-pocket spending equation, both groups again have significantly elevated monthly health care expenditures relative to the omitted category. Specifically, out-of-pocket expenditures in households where a spouse is about to die are $87 more per month than they are for the continuously married group where the reference person is in good health, *ceteris paribus*. The estimated coefficient is even larger, at $118, for the continuously married, fair/poor health group. The group membership coefficients in these two equations suggest that both total spending and out-of-pocket spending are significantly higher in those households where a spouse is about to die relative to an otherwise similar household where the spouse is in good health. The statistically significant coefficient associated with being continuously

Table 3
Weighted parameter estimates of the generalized least squares regression coefficients for total medical expenditures and out-of-pocket medical expenditures measured in dollars (t ratios in parentheses)

Independent variables	Total medical expenditures ($)	Out-of-pocket medical expenditures ($)
Intercept	65.1 (0.12)	−4.04 (−0.05)
Age of reference person	−7.20 (0.82)	1.17 (0.92)
Family size	112 (1.12)	12.9 (1.27)
Income/needs ratio < 1.25 (1 = yes)	335 (1.61)	−0.47 (−0.02)
Reference person is African American (1 = yes)[a]	−292 (−2.90)***	−19.7 (−0.41)
Reference person is Hispanic (1 = yes)[a]	3.80 (0.03)	−63.4 (−3.10)***
Reference person has post-high school education (1 = yes)	188 (1.56)	34.5 (1.57)
Couple resides outside of the south (1 = yes)	−66.5 (−0.69)	−28.6 (−1.12)
Couple resides in a metropolitan statistical area (MSA) (1 = yes)	−293 (−2.33)**	27.5 (1.05)
Reference person has no health insurance (1 = yes)[b]	−92.4 (−0.38)	7.25 (0.22)
Reference person has two or more health insurance policies (1 = yes)[b]	563 (5.90)***	1.19 (0.03)
Reference person has Medicare coverage (1 = yes)	−435 (−2.31)**	23.7 (0.55)
Payment from other sources (1 = yes)	364 (2.76)**	27.7 (0.97)
Continuously married/reference person in fair or poor health (1 = yes)[c]	369 (2.73)***	118 (2.49)***
Spouse about to die[c]	1834 (5.44)***	87.2 (2.75)***
F-statistic	20.65***	5.54***
Adjusted R^2	0.11	0.027

[a] The omitted group in this series of dummy variables are those households where the reference person is Caucasian.

[b] The omitted group in this series of dummy variables are those households where the reference person had one health insurance policy.

[c] The omitted group in this series of dummy variables are those households where the couple was continuously married throughout the panel and the reference person's health was reported to be either good, very good, or excellent.

**$p < .05$ and ***$p < .01$.

married and in poor health also suggests that these expenditure pattern differences may begin long before the death.

Several other variables are also associated with total medical expenditures. In particular, total expenditures are higher if the reference person has post-high school education, two or more health insurance policies, and/or receives some health care related payments from other sources. Overall medical expenditures are lower if the reference person has Medicare coverage or is African American rather than Caucasian and/or if the couple resides in a MSA. The only other variable that affects out-of-pocket health care spending is ethnicity/race. If the reference person is Hispanic, the household spends $63 less per month on health care than do households where the reference person is Caucasian, *ceteris paribus*.

Medicare is the largest health insurance program for older Americans. As such it is interesting to note that Medicare participants have significantly lower total medical expenditures but have no difference in out-of-pocket expenditures compared to

Table 4
Weighted parameter estimates of the generalized least squares regression coefficients for total medical expenditures and out-of-pocket medical expenditures measured in dollars by Medicare status of the reference person (t ratios in parentheses)

Independent variables	Has Medicare coverage ($N = 1761$)		Does not have Medicare coverage ($N = 607$)	
	Total expenditures ($)	Out-of-pocket expenditures ($)	Total expenditures ($)	Out-of-pocket expenditures ($)
Intercept	−17.1 (−0.02)	45.3 (0.37)	−476 (−0.54)	−17.7 (−0.20)
Age of reference person	6.56 (0.61)	1.05 (0.63)	13.3 (0.99)	1.26 (1.32)
Family size	40.8 (0.56)	15.0 (0.86)	180 (1.01)	11.2 (0.87)
Income/needs ratio <1.25 (1 = yes)	424 (1.78)*	10.5 (0.29)	−100 (−0.28)	−30.1 (−0.91)
Reference person is African American (1 = yes)[a]	−354 (−2.89)**	−67.9 (−1.94)*	−336 (−1.51)	61.9 (0.60)
Reference person is Hispanic (1 = yes)[a]	−127 (−0.94)	−97.8 (−3.28)***	−27.1 (−0.10)	−12.2 (−0.47)
Reference person has post-high school education (1 = yes)	342 (2.20)**	29.4 (0.93)	−161 (−0.96)	57.6 (2.31)***
Couple resides outside of the south (1 = yes)	−122 (−1.03)	−31.1 (−1.00)	43.00 (0.30)	−10.2 (−0.38)
Couple resides in a metropolitan statistical area (MSA) (1 = yes)	−320 (−2.49)***	35.2 (1.08)	−215 (−0.58)	−6.86 (−0.41)
Reference person has no health insurance (1 = yes)[b]	—	—	−277 (−1.19)	−5.08 (−0.18)
Reference person has two or more health insurance policies (1 = yes)[b]	445 (5.33)***	−22.0 (−0.60)	769 (1.99)**	183 (0.89)
Payment from other sources (1 = yes)	262 (2.05)**	7.85 (0.23)	562 (1.28)	68.2 (2.28)***
Continuously married/reference person in fair or poor health (1 = yes)[c]	353 (2.13)**	123 (2.10)**	299 (1.75)*	96.7 (2.24)**
Spouse about to die[c]	1393 (6.41)***	57.2 (2.58)***	3277 (2.46)***	169 (1.72)*
F-statistic	10.70***	3.26***	4.89***	2.28**
Adjusted R^2	0.13	0.031	0.14	0.066

[a] The omitted group in this series of dummy variables are those households where the reference person is Caucasian.

[b] By definition, all reference persons in the Medicare sample had health care coverage through Medicare but many also had supplemental insurance coverage. Thus, for the Medicare sample, the omitted group consists of those households where the reference persons only had Medicare coverage. In the case of the sample where the reference persons did not have Medicare coverage, the omitted group in this series of dummy variables are those households where the reference person had one health insurance policy.

[c] The omitted group in this series of dummy variables are those households where the couple was continuously married throughout the panel and the reference person's health was reported to be either good, very good, or excellent.

*$p < .10$; **$p < .05$; ***$p < .01$.

non-Medicare participants. The difference in total expenditures may be a function of Medicare reimbursement rates to health care providers and/or coverage differences between Medicare and other types of health insurance.

To investigate the role that Medicare plays in altering health related expenditures more fully, we present separate regressions by Medicare status in Table 4. By estimating separate regressions, we allow for the possibility that participation in Medicare may interact with group membership to alter health-related expenditures. Table 4 reveals evidence of such an interaction. It shows that it is typically the younger, non-Medicare eligible households that spend more on health care when a spouse is about to die. Those about-to-be-widowed households where the reference person is not a Medicare recipient spend $3277 more per month on total health care and $169 more per month out-of-pocket than their continuously married, healthy counterparts. The corresponding estimate for households where the reference person is a Medicare recipient are also statistically significant, but the coefficients are much lower at $1393 more per month for total medical expenditures and $57 more per month for out-of-pocket expenditures.

To gain a sense of the extent to which spending differences vary by group membership in this sample, the out-of-pocket regressions are used to predict expenditures by group for the full sample and for the Medicare-specific sub-samples. Mean predicted out-of-pocket expenditures for these groups are presented in Fig. 1. This graph shows that both total expenditures and out-of-pocket expenditures are markedly higher for those couples where the reference person does not have Medicare coverage. This finding is consistent with the findings of Covinsky et al. (1994) who noted that younger households were more likely to report that they had lost savings because of rising health expenditures. If these monthly out-of-pocket expenditures continued for several years, they could certainly precipitate a decline in household financial assets that might not easily be reversed.

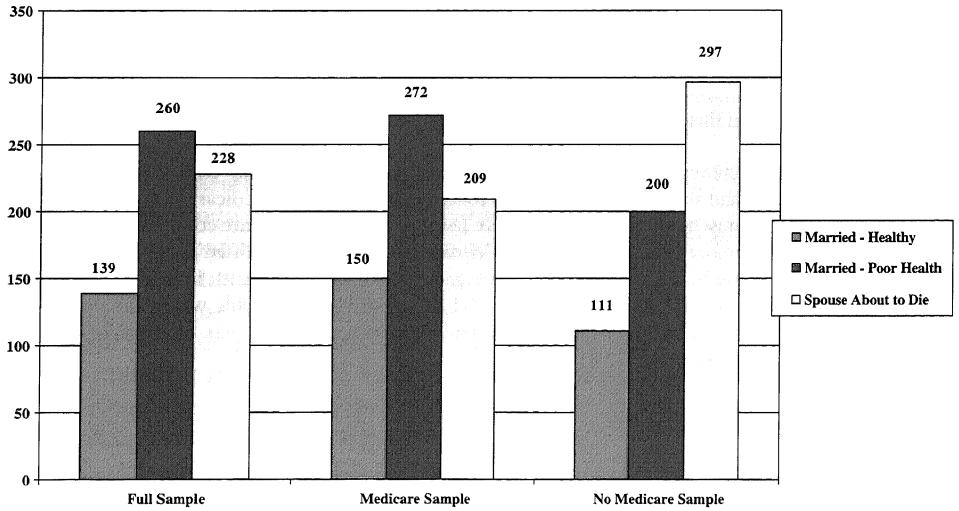

Fig. 1. Predicted mean monthly out-of-pocket health care expenditures measured in dollars by group.

4. Discussion

The discussion of this study's results must be prefaced with two caveats. First, readers should be reminded that the MEPS data we use exclude information on two potentially large components of health expenditures: health insurance premiums and nursing home costs. Second, because we could not ascertain the exact date of death, our calculation of the about-to-be widowed households' average monthly health care expenditures includes anywhere between 0 to 10.3 months of data after the spouse died. Both limitations suggest that our estimates of expenditure differences by household type should be conservative—particularly at older ages where there is less likely to be any employer subsidy of health insurance premiums and there is a higher probability that the to-be-deceased spouse will spend time in a nursing home.

Despite the likely undercounting of monthly health care expenditures during the pre-widowhood period, we nonetheless find that health care expenditures are substantially higher in about-to-be widowed households relative to their healthy, continuously married counterparts. This expenditure difference appears to be particularly acute for those who do not have Medicare coverage and therefore, it may contribute to the increased risk of post-widowhood poverty for these households.

The extent to which pre-widowhood out-of-pocket health care expenditures contribute to post-widowhood poverty is partially dependent on when before the death these expenditure patterns begin. Recall that in the current study, we calculate the mean monthly health care expenditures over an average of 10.6 months. Given this relatively short time frame, one cannot ascertain with certainty when these elevated expenditures began. In all likelihood, however, they may extend back in time. The positive statistically significant coefficients associated with being continuously married with the reference spouse in fair or poor health suggests that households with a chronically ill spouse may face elevated health care spending for an extended time prior to the death.

Our conclusion that elevated out-of-pocket health care spending prior to a spouse's death may be partially responsible for the increase in poverty rates post-widowhood is consistent with the findings of McGarry and Schoeni (2002). Yet, when we restrict our sample to only those who have Medicare coverage (making the sample similar in age to that of McGarry and Schoeni's), we find that the predicted differences in out-of-pocket health care expenditures between the groups are more modest than their findings. Our more modest difference may be a function of the fact that the MEPS structure does not allow us to look at expenditures on nursing home care while the AHEAD questions used by McGarry and Schoeni included nursing home expenditures. The probability of spending some time in a nursing home prior to death increases substantially with age (Hobbs and Damon, 1996) and thus the omission of this expenditure information is likely to bias our findings toward observing no difference in the analysis that focuses on Medicare recipients only. As a consequence, we focus the remainder of this discussion on the findings based on the sub-sample of non-Medicare recipients.

Our research shows that about-to-be widowed households where the reference person is not a Medicare recipient have high total and out-of-pocket health care

expenditures. These households are almost categorically younger than those households where the reference person is a Medicare recipient. As a consequence, the impending death comes at a non-normative time from a life course perspective. Their total and out-of-pocket health care expenditures may be elevated in part because of their Medicare ineligibility. In addition, given that they are younger, they are likely to have a higher expected present value of future earnings. Younger spouses also generally face a lower risk of treatment complications as they are more likely to be in better general health when a serious illness strikes. These considerations would lead younger couples to spend more on health care than older couples because of the higher expected net benefits of such "investments." It may also be that the types of life threatening illnesses—and their associated costs—vary by age.

Earlier work focusing exclusively on widows (Holden and Zick, 1998) has shown that the decline in needs-adjusted income at the time of widowhood is greater when the husband was working rather than retired prior to his death. It was argued that this sharp drop in needs-adjusted income occurs because of the joint effect of the husband's "forced" retirement (i.e., the loss of his wage income) and the relatively low probability of the young widow having immediate access to pension or Social Security survivors' benefits. Our current analysis suggests that yet another contributing factor may be the high out-of-pocket health care expenses faced by these younger, about-to-be widowed households.

Admittedly, elevated out-of-pocket health care expenditures are likely only one piece of the story for why widowed women in particular are at greater risk of falling into poverty. Recall that we found no statistically significant differences in expenditures by gender of the reference person. This means that regardless of whether it was the husband or the wife who was about to die, the health care expenditures were similar. But, the increase in health care expenditures in combination with the loss of the husband's earnings and/or his pension income may be sufficient to precipitate a significant decline in economic well-being for some widows.

In some instances, high out-of-pocket health care expenditures may force households to draw down on financial assets. Montalto (2001) reports median net financial assets for households where the respondent is age 55–64 (45–54) to be $32,771 ($20,500) in 1998. We find that for the non-Medicare sample, the 95th percentile for out-of-pocket health related expenditures is $967 per month for the about-to-be-widowed group but only $360 ($614) per month for the continuously married, good health (poor health) group. If these households at the tail of the distribution incur these high monthly out-of-pocket costs for an extended period of time, it could significantly impact their financial reserves.

The current work suggests that Medicare effectively reduces out-of-pocket health care expenditures at older ages for about-to-be-widowed households. It also suggests that policymakers who are concerned about reducing post-widowhood poverty should look closely at younger widows/ers who face the triple threat of large pre-widowhood health care expenditures, the loss of their spouse's labor income, and/or a pension/Social Security eligibility gap. Changes in Medicare eligibility rules and/or Social Security survivor benefit rules could reduce this threat.

Currently, an individual is eligible for Medicare Part A coverage if (1) the individual or his/her spouse worked for at least 10 years in Medicare covered employment and s/he is at least 65 years old, or (2) the individual has received Social Security or Railroad Retirement Board disability benefit for 24 months. In our sample of households where a spouse under age 65 was about to die, 65% reported their health to be fair or poor. Yet, only about 20% those in fair/poor health had Medicare coverage. If the Medicare eligibility requirement of receiving disability benefits for at least 24 months was reduced somewhat, this might help reduce out-of-pocket health care expenditures for younger widows/ers.

Similarly, Social Security survivors' benefits are paid out if (1) the widow or widower is age 60 or older at the time of the death, (2) the widow or widower is age 50 or older and disabled at the time of the death, or (3) the widow or widower is caring for a child under age 16. In our sample of couples where the husband or wife is about to die, 17% of the surviving spouses are under age 60 and the majority of these households have no minor child present. A downward adjustment of the age-eligibility for Social Security survivors' benefits might help this group cope with the economic aftermath of the widowhood event.

The findings of our study also have implications for educators who work with families on financial matters. Specifically, younger couples need to be sensitized to the fact that the onset of a chronic illness in later life may lead to a significant increase in health care related spending that, in turn, may tax their wealth holdings. Moreover, if the illness occurs prior to the age at which an individual is eligible for Medicare, the increase in out-of-pocket health care spending may be even more substantial. As a consequence, the decisions regarding savings and health insurance coverage that couples make when they are young can have significant consequences for economic well-being in later life.

In summary, the current analysis reveals that out-of-pocket health care spending is substantial in about-to-be-widowed households, particularly for those where the about-to-be-deceased spouse is not receiving Medicare benefits. This suggests that for some households the economic decline associated with widowhood may begin well before the actual death of a spouse. An extended period of high health care expenditures may reduce the household's financial assets. This decline in financial assets when coupled with (a) the loss of the deceased individual's labor income, and (b) being ineligible to receive Social Security survivors' benefits, may elevate the risk of post-widowhood poverty for young widows/ers. Policymakers and family economics educators should be cognizant of this possibility as they work to design policies and educational programs that will minimize the risk of post-widowhood poverty.

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