ELSEVIER

Patient Education and Counseling 69 (2007) 84–92

Patient Education and Counseling

www.elsevier.com/locate/pateducou

# The influence of age on perceptions of anticipated financial inadequacy by palliative radiation outpatients

Richard B. Francoeur *

*Adelphi University School of Social Work, 1 South Avenue, Box 701, Garden City, NY 11530, United States*

Received 13 April 2007; received in revised form 16 July 2007; accepted 22 July 2007

**Abstract**

*Objective:* A consistent body of knowledge suggests that with advancing age, adults tend to report lower financial strain from their *current* economic condition. But are more negative perceptions shifted onto their expectations about their *future* economic condition? This study of seriously ill outpatients investigates whether advancing age is related to more negative expectations of future health-related financial strain, in which illness progression would necessitate greater health care consumption.

*Methods:* Ordinal probit multivariate regression was conducted on survey findings from 268 outpatients initiating palliative radiation for recurrent cancer. Half were retirees age $\geq 65$. Age comparisons are reported when there was no recent work transition.

*Results:* As age advances (from 40 to 84), outpatients incurring low objective financial stress were more likely to reveal that their health insurance and finances would be less adequate to meet future health needs.

*Conclusion:* Previously, these outpatients were reported to minimize perceptions of current financial strain as age advances. Therefore, older outpatients may cope with *current* circumstances by displacing perceptions of financial inadequacy onto plausible *future* situations of cancer progression demanding greater healthcare consumption.

*Practice implications:* Financial strain may be hidden in older outpatients initiating palliative radiation. These outpatients appear at risk of foregoing appropriate healthcare. Targeted screening and advocacy are warranted.

© 2007 Elsevier Ireland Ltd. All rights reserved.

*Keywords:* Cancer; Economic burden; Financial strain; Elderly; Palliative care

## 1. Introduction

Advances in treatment have led to improvements in the 5-year survival rate for many types of cancer, resulting in higher rates of cancer recurrence and in revisited challenges for biopsychosocial adaptation [1]. Although all stages of disease progression require some degree of pain and symptom palliation, longer and more extensive palliative care is often necessary when cure is no longer an option, cancer is recurrent, cancer is managed as a chronic condition, or residual symptoms and treatment side effects impair quality of life in cancer survivors in remission. As a result, escalating numbers of patients and families will experience cancer recurrence and burdens from repeated, and even cyclical, periods of heightened costs. Costs common to patients across private and public healthcare systems include not only caregiver and patient wage losses, but also such often unconsidered out-of-pocket costs as transportation expenses for frequent outpatient visits and those that result from diminishing local access to services, such as home healthcare and housekeeping assistance [2].

Screening for financial burden incurred by older patients and their spouses poses unique challenges. In outpatient palliative radiation settings, it may be more difficult to identify older patients at risk of financial burden, because relative to younger patients, they appear to minimize how frequently they experience difficulties paying bills. Outpatients with similar levels of objective financial stress were compared. Across each of three levels of overall financial stress (low, mean, and high), the tendency to minimize or ‘‘accommodate’’ increased as age advanced [3,4].

### 1.1. The paradox: perceptions of current versus future financial strain

It is important to note that various theoretical perspectives and descriptive and empirical findings suggest that older adults

* Tel.: +1 917 254 7271; fax: +1 516 877 4392.
*E-mail address:* francoeur@adelphi.edu.

0738-3991/$ – see front matter © 2007 Elsevier Ireland Ltd. All rights reserved.
doi:10.1016/j.pec.2007.07.005

actually may adapt or accommodate more readily than younger adults to their *current* economic situations.

A consistent body of social stratification theory and empirical findings from general samples consisting largely of healthy adults suggests that interactions of age, gender, and ethnicity reflect a hierarchy of increasing levels of restrictions or barriers to socioeconomic resources and opportunities. These restrictions or barriers become increasingly pronounced in older, female, and minority subgroups. Disadvantages from age-related characteristics and from specific life events (e.g., retirement) cumulate over the life course, such that older adults appear to be at greater risk for deprivation, which may peak within marginalized subgroups [5–7]. Of the key social structural variables, age has derived the most consistent and robust empirical support for the phenomenon of *accommodation* in maintaining subjective global well-being, and more specifically, subjective economic well-being, despite reductions in objective conditions [8–11].

Related and intertwining explanations for accommodation with advancing age include theories involving adaptation-level processes [8] as well as perceptions about relative deprivation and social comparisons [8,9,12–14].

Adaptation-level processes experienced by older adults involve widely shared expectancies among this age group or cohort that arise from situations which become increasingly prevalent, familiar, or stable. These processes may unfold in different ways, but are similar in that they foster adaptation. Notably, out-of-pocket medical expenses and health insurance premiums account for *a greater proportion of the household budget* for the elderly than for younger people [15], which may be one reason why older adults accommodate more readily to illness-related financial stress. Generally speaking, the elderly may express more satisfaction with their life conditions because they have had *more time to become accustomed to them* than younger adults [16,17]. In addition, as age advances, the tendency for stressful life events and chronic life situations to *decline in number* (even if not in severity or intractability) may contribute to the higher satisfaction of the elderly across life domains, including finances and standard of living [16].

Notions of relative deprivation are salient as well. Morgan [18] theorizes the elderly

> . . .may be less and less likely to compare themselves with "all others" and more likely to compare themselves with others of the same age, others of the same age who are worse off, or even others of the same age who have died (anything being better than that alternative) (p. 102)

Taken together, these perspectives suggest that the longer older adults are exposed to fears of chronic illness, widowhood, and poverty, the more they might adapt or accommodate to these fears by making more favorable comparisons relative to their peers and by minimizing their perceptions of *current* situations associated with these fears (which could differ from how they perceive *future* situations to be associated with these fears). Older adults contending with resource deprivation may exert more control over their level of expectations. There is empirical support [19–21] that as individuals age, they "*. . .tend increasingly to rely on the management of meaning of difficult situations* rather than the management or change of the situations themselves" ([22], original emphasis, p. 242) (Appendix A.1 discusses relative deprivation and *heightened* expectations in younger adults with cancer).

Thus, as age advances, the tendency to accommodate to *current* financial conditions, demonstrated for instance by perceiving less difficulty paying bills, may be part of instrumental and psychological coping strategies to deal with worry and fear that financial resources will be inadequate to meet *future* needs.

## 2. Methods

### 2.1. Research question and hypothesis

Relative to retired outpatients, younger outpatients and their families are more likely to depend upon wages, which would appear to be an important factor in explaining why younger outpatients perceive greater financial strain than retired outpatients when equivalent levels of financial stress are incurred. However, this factor may also mean that clinicians find it easier to identify outpatients who are experiencing a crisis of work and wage loss issues than those with other forms of serious financial burden that may be silently endured and perhaps accommodated through sacrifices in the current consumption of necessities.

Patient perceptions about their *future* economic conditions may provide an important clue. If older outpatients hold more negative perceptions about their *future* economic condition than the younger outpatients, they could actually be experiencing *higher* financial strain overall. After recent work transitions experienced by younger outpatients (i.e., unemployment, work leave) are accounted for, would an indicator of financial inadequacy to meet future economic conditions reveal *less* minimized or accommodated responses, and even an opposite pattern of inflated or exacerbated perceptions, by older outpatients who are not in the workforce?

This question suggests an age-related hypothesis that can be tested using a conservative statistical approach because the hypothesis does not exclude more pronounced perceptions of financial strain by younger outpatients with no recent work transition, a subgroup likely to worry about the potential for future economic disruptions from illness-related work transitions. A conservative test of this age-related hypothesis could suggest whether an indicator of financial strain may be more sensitive in screening older outpatients than younger outpatients who did not recently experience a work transition.

### 2.2. Sample

The current study, using the same sample, extends the analyses by Francoeur [3,4] in which older outpatients initiating palliative radiation were found to perceive less difficulty paying bills than younger outpatients incurring the same level of overall financial stress. The sample is targeted to

Table 1
The subcomposites of the objective family financial stress (OFFS) index

| Description | Relevance | Components |
|---|---|---|
| 1. Relative objective family financial stress due to out-of-pocket medical expenses | A measure of income adequacy that reflects situations of: (a) *high* total out-of-pocket outlays and income losses (e.g., completely uninsured expenses); as well as (b) *low* total out-of-pocket outlays that nonetheless represent financially catastrophic costs for low-income families (e.g., underinsured expenses) | Divides the total out-of-pocket costs in the past month due to medical expenses by a U.S. derived income equivalence scale (IES). This IES, which equals total family income divided by the 0.38 power of family size, converts income into a measure of income adequacy that reflects family size and economies of scale or consumption [24,25]. The incorporation of family size to adjust for economies of scale in consumption is an improvement over cruder indices of out-of-pocket costs adjusted solely for family income regardless of family size[a] |
| 2. Objective family financial stress due to medical bills management | Broadly reflects the financial stress of surveilling, monitoring, organizing, and interpreting various medical bills and insurance coverage statements | Eleven dichotomous variables over the previous 4 months reflecting whether the patient incurred medical expenses pertaining to doctor bills, nursing home expenses, medications, private duty or hired nurses, home health aides, special equipment and supplies, special foods or supplements, hospital bills, ambulance services, health insurance premiums, and all other[b] |
| 3. Extent of wage loss due to the outpatient's illness(es) | A proxy for family stress due to the share of *marital and household* wages lost due to the outpatient's illness(es) | The variable ''number of weeks of lost patient wages over the past 4 months due to the patient's illness(es),'' a proxy variable for the share of lost *outpatient* wages (but not lost total family wages)[c] |
| 4. Diversity of financial resources tapped due to the outpatient's illness(es) | Reflects the number of family instrumental coping strategies to limit the extent of illness-related objective financial stress (and, subsequently, strain) | These dichotomous measures of family instrumental coping strategies pertain to whether: (1) savings were used due to the illness; (2) money was borrowed due to the illness; (3) a house or property was sold due to the illness; (4) the patient acquired a second job; (5) application was made for unemployment compensation; (6) bills were not paid; (7) standard of living was reduced (doing without); (8) extras were sacrificed; (9) other family instrumental coping strategies were adopted |
| 5. Employment status changes by the outpatient and spouse caregiver | Coded so that resumed employment reflects reduced objective financial stress (i.e., a positive stressor) and a job ending (quit, retired, laid off, terminated) reflects increased stress (i.e., a negative stressor) | Added *z*-scores from the variable, ''change in patient's employment status over the past 4 months,'' and from a similar variable, ''change in spouse caregiver's employment status over the past 4 months'' |
| 6. Overall finances trend | Reflects overall change in financial stress in the previous subcomposites as well as the change in stress due to other sources of reduced financial resources, non-medical sources of financial stress, and positive stress (medical and non-medical) due to improvements in personal finances | A global variable regarding overall change (positive, neutral, negative) in personal finances during the past 4 months. One of five questions within a survey section regarding stressful life events[d] |

[a] In about one-quarter of the observations, an important confluence of missing data in the income variable affects the first subcomposite of the OFFS index. A missing data dummy variable for the first subcomposite is included as a control variable within the regression model. The model is estimated twice using (1) all 267 respondents and mean-substituted values for missing data; (2) 200 respondents without missing data. The missing data dummy variable does not become statistically significant in either analysis. The age predictor is statistically significant only within the full-data run, however interpretation of Fig. 1 is minimally affected.

[b] The summation of these 11 dichotomous variables reflects the number of family financial stresses contributing to out-of-pocket illness expenditures. However, there is no theoretical rationale that the family financial stress of surveilling, monitoring, organizing, and interpreting financial statements is a linear function (and not a nonlinear function) of the actual *number* of sources of financial stress. Thus, cut points were imposed on the calculated, summative variable to create a new ordinal grouping variable, the *variety* of sources of objective financial stress, that classifies patients into three categories (low, moderate, and high) [26].

[c] Very few spouse caregivers (less than 7) report that they lost wages over the past 4 months due to the patient's illness(es). Thus, the measure of total family financial stress due to the share of *patient* wages lost should strongly overlap, and reflect, family stress due to the share of *marital and household* wages lost due to the patient's illness(es).

[d] The failure to reflect overall changes in personal finances could confound the curvilinear and moderator relationships between objective family financial stress and subjective patient financial strain.

268 adults with recurrent cancer who were outpatients initiating palliative radiation during 1992–1993 to reduce bone pain, a setting in which financial and employment concerns become important factors [23]. About half of all outpatients referred from five urban hospitals in a northeastern U.S. city agreed to participate. Outpatients were eligible when they were age 30 or over, not receiving curative care, not terminally ill, and had a prognosis of at least 1 year. Each outpatient was interviewed at

home, and the healthcare team and medical record were consulted for medical information.

### 2.3. Measures and statistical model

The objective financial stress variables within the survey comprise an overall index of objective family financial stress [3,4]. Specifically, the variables comprise six $z$-score categories or subcomposites (see Table 1), which are summed to obtain the overall objective family financial stress index (OFFS). Note that the financial shock regarding loss of a job is captured within subcomposite 5 (Employment Status Changes by the Outpatient or Spouse Caregiver), and other financial shocks unrelated to health are reflected within subcomposite 6 (Overall Finances Trend). Virtually all of the financial variables incorporated within the OFFS index reflect the period of the previous 4 months.

In contrast to the use of an *index* to measure objective family financial stress, the outcome variable consists of a *single subjective item* of financial strain, reported by the patient, over the past month: Inadequacy of Health Insurance and Financial Resources to Meet Future Health Needs [27,28]. This item has three ordinal categories: 'Inadequate,' 'Adequate,' 'More than adequate,' which were reverse-coded in the analyses.

The Work Transition dummy variable permits the distinction of an important subgroup for the analyses. First, note that 29 outpatients reported a recent work transition, which involved either taking work leave or becoming unemployed, and no patient returned back to work. The remaining 238 outpatients, comprising 89% of the sample, were either actively working or outside the workforce. Also note that age is measured continuously in years.

The full data were analyzed, including the 29 outpatients reporting a recent work transition, to properly account for effects related to whether a recent work transition was experienced, and to fully exploit statistical power. Ordinal probit regression predicted financial inadequacy in patient subgroups (65+ versus younger) that experienced or did not experience a recent work transition. Secondary predictors, including other demographic factors, are specified to prevent over-determination of effects to age and recent work transition (Appendix A.2 discusses model specification and regression further).

## 3. Results

### 3.1. Descriptive analyses

Univariate statistics for the sample were reported previously [23]. The sample consists of an approximately equal breakdown by gender and by age (under 65 versus 65 and older). White Americans comprise 88% of the sample, and African–Americans comprise the remaining 12%. The mean age was 62 (range: 30–90).

The major diagnoses of recurrent cancer were: breast (22%), lung (20%), head and neck (14%), gynecologic (10%), prostate (9%), and colorectal (5%). Outpatients had been treated with surgery (61%), radiation (31%), or both (8%), and concurrent treatments included chemotherapy (34%).

Of the outpatients who reported their family income (range: <$5000 to >$ 75,000), 18% fell in the lowest of all six income categories (<$5000–$9999), while 53% fell in the lowest two categories (<$5000–$19,999). The major sources of health insurance were: Medicaid (13.1%), Medicare Part A (47.4%), Medicare Part B (43.3%), Supplemental Insurance (16.4%), Blue Cross Only (5.6%), Blue Cross/Shield/Major Medical (38.4%), Commercial HMO (17%), Other Commercial Insurance (21.6%), and Other Insurance (12.7%). In excess of 20% of all elderly outpatients with Medicare Parts A and B were not insured by Medicaid, Supplemental Insurance (Medigap), or remaining categories of insurance for at least partial coverage of out-of-pocket medical expenses.

Over the previous 4 months, the outpatients reported a mean of 22 disability days in which they were unable to perform usual daily activities (e.g., employment, housework). This measure may reflect job insecurity (potentially reflecting wage losses) as well as needs for homemaker and home health services (potentially increasing out-of-pocket costs). To distinguish both facets of disability, the dummy variables for disability days and work transition were specified separately in the multivariate analysis.

Sixty-five younger adult outpatients were not in the workforce (44 homemakers, 18 on disability pensions, 3 on public assistance). Seventy-three younger adults were in the workforce (44 employed either part- or full-time, 21 on-leave, 3 unemployed and looking for work, 5 unemployed and not looking for work). Of the 44 employed outpatients, 34 claimed that the illness forced them to miss work days, 23 claimed that they had to reduce the number of hours worked, 7 claimed that they had to take on lighter work duties, and 3 claimed that they had turned down a job (more than one response is possible). Of the 29 outpatients who were on-leave or unemployed, 8 were unemployed, with 7 attributing it to the illness (Appendix A.3 discusses income from sale of a home).

Finally, age and OFFS were determined to be negatively correlated (Pearson $r = -0.2495$, one-tailed $p < 0.001$). Younger patients were more likely to report OFFS above the mean ($t_{265} = 3.87$, $p < 0.001$).

### 3.2. Multivariate analysis

An ordinal probit regression was conducted to test the relationship between OFFS and perceptions of financial inadequacy. Secondary variables, such as demographic variables and disability days, were specified to properly account for other influences on this relationship. Curvilinear and interaction terms involving the co-moderators, patient age and recent work transition, were then specified (Table 2).

The regression involving the work transition co-moderator in Table 2 is used to derive the simple slopes plot in Fig. 1, which comprises 238 outpatients (89% of the sample). Fig. 1 pertains to all outpatients who did not experience a recent work transition (i.e., those who did not become unemployed, did not take work leave, or who remained outside the workforce).

Table 2
Ordinal probit regression of financial inadequacy on objective family financial stress, moderated by age and work transition

| *X* variables | Inadequacy of insurance/finances to meet future health needs | |
|---|---|---|
| | *b* | S.E. |
| Sex | −0.096 | 0.191 |
| Education | −0.011 | 0.053 |
| Marital | 0.068 | 0.186 |
| Work transition | 0.174 | 0.467 |
| Employed | 0.062 | 0.229 |
| Age | 0.022* | 0.010 |
| Missing (first subcomposite of OFFS) | −0.050 | 0.192 |
| OFFS | −0.120 | 0.308 |
| Disability days | −0.067 | 0.178 |
| Age$^2$ | 0.374*** | 0.117 |
| OFFS$^2$ | 0.0037 | 0.0026 |
| Age × OFFS | −0.00058 | 0.00057 |
| Age × work transition | −0.135** | 0.056 |
| Work transition × OFFS | 0.018 | 0.035 |
| Age × work transition × OFFS | 0.036* | 0.018 |

*Note*: OFFS: objective family financial stress index. *$p < 0.05$, **$p < 0.02$, ***$p < 0.01$.

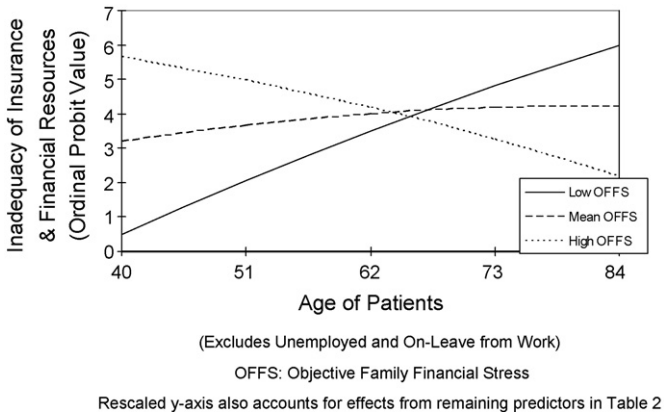



Fig. 1. Inadequacy of insurance and financial resources as age advances for three levels of objective family financial stress (outpatients without recent work transition).

Overall, for some contexts of outpatients not experiencing a work transition, older patients accommodated more than younger patients, but for other contexts, an opposite response pattern resulted, one of age-related inflated perceptions or exacerbation (Appendix A.4 provides more details about the ordinal probit regression and the derivative simple slopes plot).

## 4. Discussion and conclusion

### 4.1. Discussion

#### 4.1.1. The relationship between age and anticipated financial inadequacy depends on the level of objective financial stress

Note the three separate curves for OFFS (low, mean, and high) in Fig. 1. The curves are criss-crossed. With advancing age, outpatients with *high* financial stress hold minimized perceptions or accommodate, in contrast to those at *low* financial stress whose perceptions of financial inadequacy appear inflated or exacerbated as age advances.

At *low* OFFS, perceptions of anticipated financial inadequacy that worsen with age may mean that healthcare-related consumption judged to be unaffordable may be curbed or foregone by older outpatients or by others acting on their behalf (e.g., family members, physicians, insurers) because it would generate excessively high financial stress. Patients and others may well assume that continued disease progression will necessitate greater healthcare consumption. Therefore, older outpatients incurring low financial stress may sense that their access to potentially greater quantities of healthcare (while maintaining other necessities) may become threatened in the future since they will still only be able to afford to incur low levels of financial stress despite their greater healthcare need. This awareness may exacerbate psychological burden, which may manifest as distress or denial, as other oncology researchers have noted [29,30].

On the other hand, at *high* OFFS, increased adaptation or accommodation with advancing age may reveal an increasing tendency, as age advances, to take on high financial stress when it is judged to be affordable (such that adaptation and accommodation can be maintained). Thus, as age-related transitions (e.g., retirement, death) are approached, outpatients incurring high OFFS hold more positive perceptions about the adequacy of their insurance and financial resources to meet future health needs (Appendix A.5 discusses additional comparisons between the OFFS curves and suggests implications of high OFFS for younger outpatients).

Note the "cross-over" effects around retirement age (65 years old). Hazelrigg and Hardy [28] argue that as the retirement transition is anticipated with advancing age, the relationship between higher income and perceived income inadequacy is increasingly *accommodated*. Applied to the current context, this process describes the relationship between *high* OFFS and financial inadequacy as age advances. A quite different process occurs in outpatients with *low* OFFS who reveal steady increases in perceived financial inadequacy with advancing age; the relationship becomes increasingly inflated or *exacerbated*. The intersection of the two lines suggests that for outpatients with no recent work transition, as age advances, out-of-pocket costs in the future may be curbed by patients, family members, and health professionals after a threshold when they become unaffordable. This threshold may coincide with serious medical and supportive care needs during periods of fixed retirement income.

#### 4.1.2. Scope and limitations of findings

Prior analyses with this sample reveal that as age advances, outpatients with low OFFS also perceive greater financial inadequacy when another dummy variable of high versus low disability days is tested as a co-moderator along with the age variable [4]. As would be expected, a comparison of the age-financial inadequacy-OFFS trend graphs for work transition and disability days reveal similar, although not identical, co-moderating influences. These similarities further attest to the

validity of the current analyses, which should be replicated in other samples (Appendix A.6 argues in support of these cross-sectional analyses over longitudinal analyses).

A limitation centers on the use of age as a proxy measure for the more relevant, unmeasured domain of individual and family life stage. For some outpatients, age may not be an adequate indicator of individual and family life stage. For example, an employed 65-year old, remarried man with a 42-year-old wife and children who are minors is likely to view his future life from the perspective of an earlier individual and family life stage, compared to a 65-year-old man who is widowed, retired, and has adult children who are married.

Poor health (30.9%) and time limitations (28.7%) were cited as reasons for non-participation [23]. It is reassuring that non-participation was not associated with gender. We must be cautious about generalizing the findings on account of the moderate participation rate and to non-cancer disease groups. The targeting of the sample to the initial period of palliative radiation, when outpatients were deemed to be beyond the point of cure is an advantage; the targeted sample may constrain sample heterogeneity because outpatients were likely to be at similar phases of disease progression and disability. Finally, although all variables are self-reported, the risk of spurious findings from magnified forms of shared method variance would appear to be low, as explained in Appendix A.7.

### 4.2. Conclusion

As age advances (from 40 to 84), outpatients incurring low objective financial stress revealed worse perceptions about the adequacy of their health insurance and finances to meet future health needs. Previously, these outpatients have been reported to minimize perceptions of current financial strain (which may involve efforts to limit consumption) as age advances. Therefore, older outpatients may cope with *current* circumstances by displacing perceptions of financial inadequacy onto plausible *future* situations of cancer progression that demand greater healthcare consumption.

The fact that the single perceptual item of anticipated financial inadequacy was sufficiently sensitive to confirm this hypothesis suggests that it may be useful in screening hidden financial strain experienced by older outpatients that may be missed using common screening approaches with item(s) about current economic conditions (which should remain sufficient for younger outpatients, however; see Appendix A.5).

### 4.3. Practice implications

Several studies reveal older patients with cancer as less likely to receive palliative home care services than younger patients [32–36]. It is unclear whether younger patients have greater needs for these services or clinicians are less aware of needs by older patients (the latter could be attributed to silent accommodation by older patients who may be foregoing needed care). In the U.S., elders with advanced cancer, such as those initiating palliative radiation, would meet the frailty requirement to apply for additional Medicare coverage from the Program of All-Inclusive Care for the Elderly (PACE), which covers a wide range of supportive services, such as home care, not covered by traditional Medicare. There appears to be much untapped scope for covering frail older adults under PACE [37], and stronger ties with community- and hospital-based agencies reimbursable by PACE should be elicited by oncology programs and supportive care clinicians.

Supportive care clinicians also need to develop a more sophisticated understanding about how objective and perceptual financial factors may trigger or sustain psychological distress and coping issues for individual patients and their families (for an explicit discussion of the relevant concepts, see [38]). Even when patients have adequate coverage of out-of-pocket costs, psychoeducation may help alleviate fears and distress from the misperception that illness progression will automatically generate excessive financial burden for them and their families. These fears and distress could be more prevalent among older patients, as the current study would suggest.

Strategies to address these fears and distress, perhaps in concert with advocacy efforts with private health insurers or to enroll older patients in PACE, could foster acceptance of palliative services, including underutilized options such as palliative home care.

In addition to these issues, future research should validate the use of the single item measure of financial inadequacy to screen older outpatients initiating palliative care. Moreover, future research should investigate whether (1) patients enrolled in PACE anticipate considerably less financial inadequacy than traditional Medicare patients without Medigap coverage; (2) clinicians who screen for anticipated financial strain become more aware, in actual practice situations, of older patients' current and anticipated needs; and (3) these clinicians become more likely to refer such older patients to palliative home care. Future research that focuses on the last two areas could help disentangle whether older patients with cancer typically are referred less frequently than younger patients to palliative home care because clinicians have lower awareness of elders' needs or because younger patients have greater actual needs.

The outpatients in this study had recently initiated palliative radiation to relieve bone pain and were receiving home care; most had completed curative modalities of radiation or chemotherapy. Note, however, that some outpatients continued receiving expensive third and fourth line curative chemotherapy. In lung cancer, these practice patterns could as much as *double* the costs of care without prolonging life [39]. In comparison, a substantial or complete transition from curative to palliative care for lung cancer would result in considerable cost savings to the healthcare system. And yet, when health insurance provides less coverage for new types of expenses during palliative care, patients may end up incurring higher out-of-pocket costs, or foregoing care, despite major cost savings to the healthcare system!

The bias for prolonging aggressive care appears especially entrenched when clearer communication is needed between oncologists and patients. In their review of communication in cancer care, Thorne et al. [40] emphasize that

(1) practice patterns of extended aggressive care may be related to difficulties that physicians encounter in discussing prognosis and the need for palliative care due to patient denial [41,42] and
(2) some of these practice patterns reflect denial responses by oncologists [43].

Therefore, clinicians providing supportive care should strive to educate and support oncologists when palliative care may be appropriate, and to advocate that health insurers cover out-of-pocket expenses for patients who exercise the option of palliative care. Health insurers may be persuaded by the argument that this policy will save money in the long run. Such advocacy should educate health insurers about the dilemma that patients may seek to receive aggressive care longer, or their physicians may avoid referrals to palliative care, if anticipated uncovered expenses are judged to prevent compliance with care needs and become sources of patient and family distress. This area is ripe for future research, guided by a cognitive phenomenological perspective in which cognitive appraisal processes by each of these actors to regulate their own individual stressful person–environment relationships may be amenable to cognitive restructuring or reframing in order to attain better individual and system-wide outcomes [38,44].

## Acknowledgments

The author thanks Richard Schulz, M.D., Professor of Psychiatry and Director of Gerontology, University of Pittsburgh, for access to these secondary data, which were provided without patient identifying information. The primary data (Hospice Program Grant, CA48635, National Cancer Institute) were collected with patient informed consent and approved by the University of Pittsburgh Internal Review Board. The author was funded by a Social Work Leadership Development Award (Project on Death in America, Open Society Institute), the National Institute of Mental Health, and the Hartford Social Work Faculty Scholar Program.

## Appendix A

### *A.1. Relative deprivation and younger adults*

Although younger adults too may be more likely to compare themselves with others of the same age, coping with advanced, recurrent cancer is a much less common, off-sequence life event for younger adults and is likely to be embedded in contexts of child and family responsibilities. These factors could predispose younger patients, and others on their behalf, to continue aggressive, curative treatment for longer periods despite perceived efficacy, cost, or family financial burden.

### *A.2. Regression and model specification clarifications*

In contrast to classical regression, ordinal probit regression accounts for the rank-ordering of information across the three categories of financial inadequacy ('Inadequate,' 'Adequate,' 'More than adequate') without assuming that these categories have interval-level properties, which is especially untenable with only three response categories.

The curvilinear and buffering processes involving the continuous variable for age could differ based on whether a work transition was recently experienced. No patient indicated a recent early retirement as a result of advanced cancer. Therefore, the model specifies interactions involving the co-moderators of age and recent work transition based on either work leave or becoming unemployed (but not early retirement).

### *A.3. Income from sale of a home*

None of the participants sold a home over the prior 4-month period. Participants who might have faced the option of selling their home ultimately made other decisions, such as borrowing money. Thus, the major decision to sell a home does not introduce a potential source of confounding into the study.

### *A.4. The ordinal probit regression and the simple slopes plot*

The interactions involving continuous variables from this regression cannot be interpreted directly but require examination of a *post hoc* simple slopes plot. The individual coefficients of interaction terms involving continuous variables cannot be interpreted directly because the overall interaction effect is represented not only by the coefficients of interaction terms but by their lower-order components. Instead, multiple follow-up re-estimates of the regression were conducted, each time holding constant one of the component variables that comprise the interaction in order to estimate a series of simple slopes, which are ultimately plotted in Fig. 1. The figure labels (low OFFS, mean OFFS, and high OFFS) denote the three curves that result when objective family financial stress is held constant at one standard deviation below the mean, at the mean, and at one standard deviation above the mean, respectively. Interpretations of the interaction are based on this graph (and not on individual *b* coefficient values from the regression equation).

Regression findings involving the 29 outpatients reporting a recent work transition are not probed because there are insufficient data points to generate a separate plot that is reliable and representative, especially since different dynamics may be involved in outpatients who became unemployed, versus those who took work leave, which cannot be captured with the current data. In addition, compared to the entire sample, the large subgroup of outpatients that did not experience a recent work transition yields a more congruent comparison across age, because the small numbers of outpatients experiencing a work transition were exclusively younger adults under age 65.

Although Fig. 1 pertains only to outpatients who did not experience a recent work transition, the use of the *full* data (i.e., all 268 patients) in the ordinal probit regression that serves as the basis for this simple slopes plot affords an important insight. The fact that two of the three interactions involving the work

transition variable are statistically significant suggests that recent work transitions contribute independently to perceptions of financial inadequacy in younger outpatients, and if unaccounted, such perceptions could contribute to the masking of age-related differences across outpatients.

### *A.5. Additional comparisons of OFFS curves in Fig. 1*

As OFFS falls from high to mean (average) levels in Fig. 1, financial inadequacy increases at a lower and lower rate as age advances. But then, this continually diminishing process continues to the point that it actually reverses direction (i.e., into continual acceleration). That is, as OFFS falls from the mean to low OFFS, financial inadequacy actually reverses direction and increases at a higher and higher rate as age advances. Indeed, outpatients at pre-retirement age who anticipate fixed incomes upon retirement (which also may support retired spouses) may face pressures to save at higher rates and to forego current consumption, resulting in low OFFS. This pattern of adaptation, especially of foregoing current consumption and limiting OFFS, may well continue into retirement.

Note as well that at *high* OFFS, the accommodation process by older outpatients is *reversed* for younger outpatients who tend to take on high financial stress even when it is not affordable. These younger outpatients may be at greater risk for distress and coping difficulties from taking on unaffordable financial stress. Common screening approaches that include item(s) about current economic conditions should already be sufficient to identify these younger outpatients with high OFFS.

### *A.6. The advantage of cross-sectional over longitudinal analyses*

The cross-sectional data preclude conclusions about causal direction, although regression modeling of the unique association between OFFS and financial inadequacy (after accounting for associations of financial inadequacy with other variables) appears more appropriate than longitudinal modeling because the relationships between specific financial stressors and perceptions of financial inadequacy are likely to be highly cyclical and mutually reinforcing. Longitudinal data are unlikely to capture the uneven successions of this cyclical process across myriad financial stressors that range from rare through repetitive events to enduring conditions [31]. Therefore, cumulative and residual financial stress and perceptions of financial inadequacy might best be viewed as cofactors (rather than risk factors) that are mutually influential within a given period.

### *A.7. Risk for spurious findings from shared method variance*

As Table 1 reveals, this study relies on the summation of many separate survey items representing *different* dimensions from each other in order to create each of the six subcomposites of objective financial stress (which in turn are added to create the overall OFFS index). (A common illustration of an additive index is the index of socioeconomic status, which is based on the sum of items representing the different dimensions of social status and economic status.)

Therefore, each subcomposite is likely to be multidimensional, in contrast to a derivation based on factor analysis in which each subscale of items taps a unidimensional latent construct (it follows that Cronbach alpha coefficients for subscales derived from factor analysis do not apply to the subcomposites in the current study). Subscales based on factor analysis of survey items are likely to magnify shared method variance because all items within a subscale tap the same unidimensional latent construct. In contrast, in the creation of an additive index, because the survey items comprising any given subcomposite represent different dimensions, the directions and magnitude of error are likely to differ across these items as well (with some errors tending to cancel each other out). Remaining shared error in the subcomposite (or subindex) would be expected to be lower in magnitude than in a subscale based on factor analysis, reducing the risk of spurious findings from magnified forms of shared method variance.

## Conflict of interest

There are no conflicts of interest.

## References

[1] Cohen H. Geriatric principles of treatment applied to medical oncology: an overview. Sem Oncol 1995;22:1–2.
[2] Zarit S. Family care and burden at the end of life. CMAJ 2004;170: 1811–2.
[3] Francoeur RB. Use of an income equivalency scale to understand age-related changes in financial strain. Res Aging 2002;24:445–72.
[4] Francoeur RB. Cumulative financial stress and strain in palliative radiation outpatients: the role of age and disability. Acta Oncol 2005;44:369–81.
[5] Crystal S, Shea D. Cumulative advantage, cumulative disadvantage, and inequality among elderly people. Gerontologist 1990;30:437–43.
[6] Dannefer D. Cumulative advantage/cumulative disadvantage and the life course: cross-fertilizing age and social science theory. J Gerontol 2003;58B:S327–37.
[7] Duncan G. The volatility of family income over the life course. In: Baltes P, Featherman D, Lerner R, editors. Life-span development and behavior. Hillsdale, NJ: Erlbaum Associates; 1988. p. 317–58.
[8] Campbell A, Converse P, Rogers W. The quality of American life: perceptions, evaluations and satisfactions. New York: Russell Sage; 1976
[9] Carp F, Carp A. Test of a model of domain satisfactions and well-being: equity considerations. Res Aging 1982;4:503–22.
[10] Fletcher C, Lorenz F. Structural influences on the relationship between objective and subjective indicators of economic well-being. Soc Indicat Res 1985;16:333–45.
[11] O'Rand A, Henretta J. Age and inequality: diverse pathways through later life. Boulder, CO: Westview; 1999.
[12] Liang J, Fairchild T. Relative deprivation and perception of financial adequacy among the aged. J Gerontol 1979;34:746–59.
[13] Liang J, Kahana E, Doherty E. Financial well-being among the aged: a further elaboration. J Gerontol 1980;35:409–20.
[14] Usui W, Keil T, Durig K. Socioeconomic comparisons and life satisfaction of elderly adults. J Gerontol 1985;40:110–4.
[15] Rasell E, Bernstein J, Kainan T. The impact of health care financing on family budgets. Int J Health Serv 1994;24:691–714.

[16] Herzog A, Rodgers W. Age and satisfaction: data from several large surveys. Res Aging 1981;3:142–65.
[17] Norris F, Murrell S. Older adult family stress and adaptation before and after bereavement. J Gerontol 1987;42:606–12.
[18] Morgan J. Health, work, economic status, and happiness. In: Cutler N, Gregg D, Lawton M, editors. Aging, money, and life satisfaction: aspects of financial gerontology. New York: Springer; 1992. p. 101–34.
[19] Brandtstadter J, Baltes-Gotz B. Personal control over development and quality of life perspectives in adulthood. In: Baltes P, Baltes M, editors. Successful aging: perspectives from the behavioral sciences. Cambridge, UK: Cambridge University; 1990. p. 197–224.
[20] Heckhausen J, Schulz R. A life-span theory of control. Psychol Rev 1995;102:284–304.
[21] Lerner M, Gignac M. Is it coping or is it growth? A cognitive–affective model of contentment in the elderly. In: Montada L, Filipp S, Lerner M, editors. Life crises and experience of loss in adulthood. Hillsdale, NJ: Erlbaum; 1992. p. 321–37.
[22] Pearlin L, Skaff M. Stress and the life course: a paradigmatic alliance. Gerontologist 1996;36:239–47.
[23] Schulz R, Williamson G, Knapp J, Bookwala J, Lave J, Fello M. The psychological, social, and economic impact of illness among patients with recurrent cancer. J Psychosoc Oncol 1995;13:21–45.
[24] Bradbury B. Family size equivalence scales and survey evaluations of income and well-being. J Social Policy 1989;18:383–408.
[25] Leclere F, Jensen L, Biddlecom A. Health care utilization, family context, and adaptation among immigrants to the United States. J Health Soc Behav 1994;35:370–84.
[26] Wyszewianski L. Financially catastrophic and high-cost cases: definitions, distinctions, and their implications for policy formulation. Inquiry 1986;23:382–94.
[27] Williamson G, Schulz R. Physical illness and symptoms of depression among elderly outpatients. Psychol Aging 1992;7:343–51.
[28] Hazelrigg L, Hardy M. Perceived income adequacy among older adults: issues of conceptualization and measurement, with an analysis of data. Res Aging 1997;19:69–107.
[29] Stommel M, Given CW, Given BA. The cost of cancer home care to families. Cancer 1993;71:1867–74.
[30] Lauzier S, Maunsell E, de Koninck M, Drolet M, Hebert-Croteau N, Robert J. Conceptualization and sources of costs from breast cancer: findings from patient and caregiver focus groups. Psycho-Oncology 2005;14:351–60.
[31] Pearlin L. Chapter 1: some conceptual perspectives on the origins and prevention of social stress. In: Workshop on ''Social Stressors, Personal and Social Resources and their Health Consequences'', Bethesda, MD: National Institute of Mental Health Office of Prevention and Special Projects; 1995.
[32] McCusker J. The use of home care in terminal care. Am J Prev Med 1985;1:42–52.
[33] Costantini M, Camoirano E, Madeddu L, Bruzzi P, Verganelli E, Henriquet F. Palliative home care and place of death among cancer patients: a population-based study. Palliat Med 1993;7:323–31.
[34] Addington-Hall J, Altmann D. Which terminally ill cancer patients in the United Kingdom receive care from community specialist palliative care nurses? J Adv Nurs 2000;32:799–806.
[35] Grande GE, McKerral A, Todd CJ. Which cancer patients are referred to Hospital at Home for palliative care? Palliat Med 2002;16: 115–23.
[36] Grande GE, Farquhar MC, Barclay SIG, Todd CJ. The influence of patient and carer age in access to palliative care services. Age Ageing 2006;35: 267–73.
[37] Eng C. Future consideration for improving end-of-life care for older persons: Program of All-Inclusive Care for the Elderly (PACE). J Palliat Med 2002;5:305–9.
[38] Francoeur RB. Reformulating financial problems and interventions to improve psychological and functional outcomes in cancer patients and their families. J Psychosoc Oncol 2001;19:1–20.
[39] Hoverman JR, Robertson SM. Lung cancer: a cost and outcome study based on physician practice patterns. Dis Manage 2004;7:112–23.
[40] Thorne SE, Bultz BD, Baile WF, and the SCRN Communication Team. Is there a cost to poor communication in cancer care? A critical review of the literature. Psycho-Oncology 2005;14:875–84.
[41] Back AL, Arnold RM, Tulsky JA, Baile WF, Fryer-Edwards KA. Teaching communication skills to medical oncology fellows. J Clin Oncol 2003;21:2433–6.
[42] Baile WF, Lenzi R, Parker P, Buckman R, Cohen L. Oncologists' attitudes toward and practices in giving bad news: an exploratory study. J Clin Oncol 2002;20:2189–96.
[43] de Haes H, Koedoot N. Patient centered decision making in palliative cancer treatment: a world of paradoxes. Patient Educ Couns 2003;50: 43–9.
[44] Lazarus RS, Folkman S. Stress, appraisal and coping. New York: Springer; 1984.