Published in final edited form as:

Support Care Cancer. 2016 September ; 24(9): 3987–3996. doi:10.1007/s00520-016-3219-x.

Cancer Patient Age and Family Caregiver Bereavement Outcomes

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Abstract

Purpose—This study drew on life course theory to argue that the strains of cancer caregiving and bereavement are modified by the age of the patient. We expected that caregivers of middle-aged patients would be more distressed than caregivers of older patients.

Methods—This panel study conducted 199 interviews with family caregivers of advanced cancer patients; first following diagnosis and again shortly after the patient's death.

Results—Among caregivers of middle-aged patients (40–59), grief mediated the relationship between baseline caregiving and bereavement depressed mood, with grief increasing risk of depression in bereavement. Among caregivers of young-old patients (60–79), grief had a suppressor effect on the relationship between caregiving and bereavement depressed mood, showing greater distress during caregiving than at bereavement.

Conclusions—Caregiving for middle-aged cancer patients may increase the risk for severe grief and depression, whereas caregivers of young-old cancer patients appeared to experience relief at bereavement. After bereavement, continued observation may be warranted for caregivers of a middle-aged patient; grief, added to the ongoing demands of their lives (which may include those left behind by a middle-aged patient), may put such caregivers at risk for greater psychological and emotional distress.

Keywords

Cancer caregiving; patient age; life course; bereavement; grief; depression

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Disclosures: None

Introduction

The average age of cancer onset is 67 [1], therefore most cancer caregivers are caring for someone elderly. Cancer can strike at any age, however, potentially producing widely divergent consequences for the patient's family. This study argues that the timing of an advanced cancer diagnosis in the patient's life course affects the caregiver's adjustment to bereavement. Analyses investigated whether family caregivers of middle-aged patients differed from caregivers of older patients in the impact of caregiving strains on grief severity and depressive symptoms after the patient's death. A moderation effect of patient age group on caregiver bereavement outcomes was expected, with caregivers of middle-aged patients showing both more severe grief and greater risk of depression at bereavement than caregivers of older patients.

Cancer Patient Age and Caregiver Distress

Cancer patient age has been shown to have consequences for the patient [2,3,4]. In particular, patient age group, including middle age (40–59), young old age (60–79), and old age (80+), has been shown to affect the cancer patient's illness experience [5,6,]. For example, among middle-aged patients, advanced cancer and death interrupt on-going family concerns and life plans, and potentially spark financial upheaval. While terminal illness may be less unexpected among the elderly, however, cancer care is more likely to be complicated by comorbidities and other impairments compared to younger patients.

Such differences result in different caregiving burdens [7–8], yet few studies directly connect patient age to caregiver wellbeing [9]. Other patient characteristics, symptoms and emotional states have been shown to exacerbate caregiving and bereavement [10–13], and some studies imply patient age impact on caregiver outcomes, such as finding that both younger patients and younger caregivers are more distressed than older ones [14–15], and that caregiver quality of life reflects patient quality of life, both of which are related to age [16–18]. Finally, some studies indicate that demands more characteristic of the middle-aged (e.g., employment or children in the home) can exacerbate caregiver distress [19–20]. Nonetheless, whether the age of the dying patient might complicate caregiver emotional outcomes has not been specifically examined.

Life course and cancer caregiving

The concept of “linked lives” in life course research provides support for an effect of patient age on caregivers [21], arguing that individual lives are embedded in relationships. Changes occurring to one person, therefore, have repercussions for significant others. Therefore, “transitions” (significant life changes) for one person produce transitions for others close to that person and can have substantial effects on the life course [21–22]. A person's transition into the role of cancer patient is also a transition for the person who then becomes a caregiver.

The patient's age at diagnosis will affect the character of transitions into both patienthood and caregiving. Transitions into caregiving for middle-aged patients may be complicated by the strains of managing the patients' obligations as well as the burden of care itself [23];

these burdens (e.g., parenting and breadwinner) may even persist even after the patient dies. Older patients are less likely to have such work or family obligations, and more likely to have economic security (retirement income, Medicare, etc.). Nonetheless, as people age their health and functioning decline, and the burdens of care may be greater during caregiving for an older patient - but more likely to end with the patient's death. This suggests a moderation effect by patient age: consequences for caregivers of middle-aged patients will follow a different pattern than for caregivers of older patients. Specifically, the distress of middle aged patient caregivers may persist into bereavement, while that of older patient caregivers will likely fade.

This study built on an earlier mediating model [24] that examined only caregiver, rather than patient characteristics. The current analysis extended that by focusing on family caregivers of middle-aged (age 40–59) and young-old (age 60–79) cancer patients and examined the relationship between caregiving, grief and change in depressive symptoms at bereavement. This study hypothesized that the mediating effect of caregiver grief between cancer caregiving and bereavement depressed mood (BDM) would be moderated by patient age group, with potentially more severe bereavement outcomes for caregivers of middle aged patients.

Methods

Study data came from a large randomized controlled trial evaluating longitudinal effects of a coping and communication support intervention for advanced cancer patients and their family caregivers [25–27]. This study was conducted in two cancer clinics in large tertiary care hospitals serving many disadvantaged and underserved patients. IRB approval was obtained and all patients provided informed consent. Recently diagnosed late-stage cancer patients were enrolled and randomized into intervention and control groups. Eligible patients were diagnosed with Stage IV [or Stage III lung, pancreatic or liver] cancer within the past year, were 40 years or older, cognitively intact (brief screening and no diagnosis), and English speaking. During a scheduled appointment in the cancer clinic, consenting patients completed a baseline interview with trained research assistants. Average time between diagnosis of late-stage cancer and recruitment was less than three months. Patients identified the person they most depended upon for assistance with care and gave contact permission. Caregivers were then approached in the clinic or by phone, and those who consented completed a baseline telephone interview.

Approximately 71% of all eligible patients participated, for a sample of 559 patients, who identified 514 primary caregivers of which 462 (90%) agreed to participate. Non-kin (e.g., neighbor, friend) were excluded from this analysis of family caregivers (N=42). Another 23 (4.9%) fell in categories too small to provide meaningful comparisons on the effects of ethnicity, so were excluded here. The final baseline sample for this analysis was 397 white and African American family caregivers. Caregivers who could be located were contacted 2–5 months after the death of the patient and re-consented for another telephone interview. 199 caregivers fully completed the bereavement interview.

Measures

Wellbeing (FACT-G and FACIT-Sp) and Patient Personal Problems were asked only of patients. Depressed mood (POMS) was asked of both patients and caregivers, and all other items were asked only of caregivers. Higher scores on all measures were congruent with the variable name (e.g., more disability, more social support). Scales are described in Table 1.

Independent Variables

Functional Assessment of Cancer Therapy – General Version (FACT-G) [28] measured cancer patient quality of life. *Functional Assessment of Chronic Illness Therapy—Spiritual Well-Being (FACIT-Sp)* incorporates spiritual wellbeing in patient quality of life [29]; scored like the FACT-G.

Functional Difficulties Index (FDI) [30] measured caregiver disability/impairment as ability to perform functions such as standing, lifting and walking. *Medical Outcomes Study on Social Support (MOSSS)* [31] measured caregiver perception of how often he or she had emotional support. *Caregiver Reaction Assessment (CRA)* [32] measured perceived caregiver burden. Three subscales contributed to the model: Family Abandonment, the sense of being left by other family members to provide all caregiving tasks; Impact on Health, perceived health deficits due to caregiving; and Impact on Schedule, perceived difficulty of managing health care needs and related arrangements.

Patient Behavior and Personal Problems. Patient personal problems were asked of patients and patient behavior problems of caregivers. A single item from the *Caregiver Load* scale [33] measured Patient Behavior Problems: caregiver time spent managing patient behavior problems. The Distress Thermometer Checklist [34], completed by the patient, provided a checklist of personal problems, including practical, family, emotional, and communication concerns.

Caregiver characteristics included: age, gender, race/ethnicity, annual income, employed outside home. Living together was a proxy for relationship closeness, as the low-income sample had very low rates of actual marriage.

Dependent Variables

Short Form of Profile of Mood States POMS [35], subscale of Depression-Dejection. Lacking a clinical cut point, it was considered a measure of depressed mood, or risk of depression. Questions included: “In the past week have you felt: [unhappy, discouraged, worthless, blue, etc.].

Bereavement Experience Questionnaire BEQ-24 [36] measured three dimensions of grief: existential loss/emotional needs: “Since the death of my relative/friend: I felt life has no meaning; I lost interest in my work; guilt/blame/anger: Since the death...: I felt guilty about things I did/said before the death; I felt angry at the deceased; and preoccupation with thoughts of the deceased: Since the death...: I yearned for the deceased person; I felt the deceased was/is guiding me. Items were summed and averaged with high scores indicating more severe grief.

Analysis

Analyses controlled for the effect of the RCT intervention (not shown, no effect). Twenty-seven cases were missing data, but no more than two items. Mean imputation addressed missing values on independent variables rather than deleting cases from a small sample. Mean imputation reduces the effect of independent variables, producing more conservative results [37]. Thirteen cases were excluded for missing data on an outcome variable, leaving a final sample of 186. All variables were assessed to see if they met the assumptions of linear regression and no assumptions were violated. Using Mplus Version 6 [38], we conducted path analysis with OLS regression. We ran a single analysis of the entire sample tested for significance of group coefficients, constraining other parameters to be equal. For clarity, results for each group were reported in separate tables and figures, although they stemmed from the same regression model. Statistical power was therefore based on the entire sample size which is large enough, given the current number of predictors, according to recommendations for adequate power [39–40]. Specified groups were caregivers of middle-aged cancer patients (aged 40–59) [MACPs], and caregivers of young-old cancer patients (aged 60–79) [YOCPs]. Using multiple group analysis provided clearer results than multiple interaction effects. The model regressed BDM on overall grief (intervening), the baseline independent variables, and the moderating variable of patient age group. Grief and BDM were measured at the same time point, but including the predictor baseline depressed mood as a control assessed the influence of grief on the change in depressed mood from baseline to bereavement.

The model was estimated using maximum likelihood. Chi-square showed a well-fitting model ($X^2=1.015$, $p=.602$), confirmed by a CFI score of 1.00 and a TLI score of 1.11 [not shown in tables]. No modifications were made to the model after variables were trimmed to the maximum of 18 allowable for acceptable statistical power.

Results: Caregiver Transition Effects on Bereavement Outcomes

The description of the sample is found in Table 2. T tests and Chi square tested for differences between age groups. Among caregiver characteristics, the only significant difference between groups was caregiver age. YOCP caregivers were 9 years older on average (YOCP=58.7, MACP=49.9 years, $t=-4.56$, $p=.000$). Average age for patients (YOCPs=68.5, MACPs=53.3, not shown) indicated that MACP's were much closer in age to their caregivers.

All other significant differences between groups were in patient characteristics. MACPs had both more personal problems compared to YOCPs ($t=4.77$, $p=.000$) and more behavior problems ($t=2.19$, $p=.030$). MACPs also scored significantly lower on two of the three wellbeing indicators: emotional ($t=-3.92$, $p=.000$), and physical ($t=-2.85$, $p=.005$) and had more severe scores on depressed mood ($t=2.74$, $p=.007$).

MACPs: Grief as a Mediator of Depressed Mood

Table 3 shows MACP caregivers' results. Column 1 (C1) shows direct effects of baseline variables on caregiver grief at bereavement. Column 2 (C2) shows direct effects of baseline

variables on caregiver BDM, with grief omitted from the analysis. Column 3 (C3) shows direct effects of baseline variables on BDM with grief included in the analysis. Column 4 (C4) shows indirect effects of baseline variables on BDM through grief (intervening variable).

Two patterns show that among MACP caregivers, grief acted as a mediator between baseline factors and BDM. *First, all significant direct predictors of grief (C1) had significant indirect effects on bereavement depressed mood (C4) (regardless of whether or not they had direct effects) (C4).* Thus older age directly predicted lower grief ($-.007$, $p < .01$) and indirectly through grief lowered BDM ($-.093$, $p < .01$). Employment directly increased grief ($.169$, $p < .05$) and indirectly increased BDM (2.172 , $p < .05$). Caregiver disability increased grief directly ($.046$, $p < .001$) and indirectly increased BDM ($.592$, $p < .001$). Social support predicted higher grief ($.012$, $p < .005$) and indirectly higher BDM ($.151$, $p < .05$). Caregiver depressed mood at baseline predicted increased grief directly ($.021$, $p < .001$) and increased BDM indirectly ($.268$, $p < .001$). Finally, patient's physical wellbeing at baseline directly predicted higher grief ($.035$, $p < .001$) and indirectly predicted more BDM ($.449$, $p < .001$).

When including variables reaching only marginal significance (possibly due to small sample size), the same pattern holds for income, directly increasing grief ($.099$, $p < .01$) and indirectly increasing BDM at bereavement ($.046$, $p < .01$), and health burden, increasing grief ($.030$, $p < .01$) and indirectly increasing BDM ($.385$, $p < .01$).

The second pattern supporting a mediation effect appears when comparing columns 2 and 3. *Many significant direct effects of baseline variables on BDM (C2) disappeared when grief was added to the analysis (C3).* The C2 effects that disappeared in C3 included income ($.646$, $p < .05$), living with the patient (2.038 , $p < .05$), having a disability/functional impairment ($.730$, $p < .001$), and patient's physical well-being ($.473$, $p < .001$).

Only two variables had significant direct effects on BDM without mediation by grief (C2). Both were burden measures: scheduling burden decreased BDM ($-.370$, $p < .001$) and family abandonment ($.353$, $p < .001$) increased it. Grief suppressed the impact of patient's spiritual wellbeing on caregiver's BDM, mostly due to the opposing directions of effects on BDM (C3, $-.111$, $p < .05$) and grief (C1, $.007$, ns).

Finally, baseline caregiver depressed mood had consistently strong positive direct effects on both grief (C1, $.021$, $p < .001$) and BDM (C3, $.166$, $p < .01$). The indirect effect of baseline depressed mood through grief (C4, $.268$, $p < .001$) was larger than the direct effect on BDM, congruent with the substantial direct effect of FCG grief on BDM (12.855 , $p < .001$) (C3).

YOCP caregivers: Grief as a Suppressor of BDM

Results shown in Table 4. *Among YOCP caregivers, grief was a suppressor variable, not a mediator, and when its variation was accounted for in C3 of Table 4, many more baseline variables emerged as significant predictors of BDM.* In C3, being African American predicted more BDM (2.352 , $p < .05$) even though grief itself was not significantly associated with ethnicity. Scheduling burden ($-.232$, $p < .05$), family abandonment ($-.272$, $p < .05$), patient's behavior problems ($-.887$, $p < .05$) and patient's spiritual well-being ($-.133$, $p < .05$),

all predicted lower depressed mood at bereavement when grief was included (C3). Of these, only patient's behavior problems also significantly predicted grief (C1, .123, $p<.001$).

The suppressor effect of grief reflected the fact that most significant effects between baseline variables and outcome variables show opposite direction effects on grief and BDM (C1 and C3). This pattern holds for ethnicity, living with the patient, health burden, family abandonment, patient behavior problems and patient's spiritual well-being. The exceptions were scheduling burden predicting lower levels of BDM (C3, $-.232$, $p<.05$), patient's personal problems predicting less grief (C1, $-.021$, $p<.05$) and indirectly lower BDM (C4, $-.231$, $p<.05$), and baseline depressed mood predicting more severe outcomes in all models.

Finally, all four baseline variables predicting grief directly (C1) significantly predicted BDM indirectly (C4). Three variables increased severity of both grief and BDM: living with the patient (direct, $.258$, $p<.001$; indirect, 2.773 , $p<.01$), baseline depressed mood (direct, $.026$, $p<.01$ indirect, $.284$, $p<.001$), patient behavior problems (direct, $.123$, $p<.001$; indirect, 1.322 , $p<.01$). Patient's personal problems decreased grief directly ($-.021$, $p<.05$) and BDM indirectly ($-.231$, $p<.05$).

Patient Age as Moderator

The path diagrams show the moderating effect of patient age for MACP caregivers and YOCP caregivers. Figure 1 shows the significant effects of MACP baseline variables on both grief and BDM, while Figure 2 shows the significant effects of these variables for YOCP caregivers.

In Figure 1, among MACP caregivers, most baseline variables predict increased grief, with only a few directly predicting BDM. This pattern is even stronger if marginal relationships are included. The pattern is quite different among YOCP caregivers in Figure 2: there are more significant paths from baseline to BDM than to grief, and even if the marginal effects are included, the paths are divided about equally. In addition, unlike Figure 1, in Figure 2, eight of the fifteen relationships are negative, showing that the baseline variables reduce, rather than increase YOCP caregiver distress at bereavement. Thus different patterns hold in each group: a mediating effect of grief among MACP caregivers, and a suppressor effect of grief among YOCP caregivers.

Discussion

This study argued that the wellbeing effects of cancer caregiving and bereavement would differ by patient age group, and results confirmed this. Other than caregiver age, the only differences between the caregiver groups at baseline were the problems, wellbeing, and depressed mood of patients, with MACPs scoring worse than YACPs on all measures. These findings lend credence to our argument that the life course transitions of the patient influence the wellbeing of the caregiver [21]. While we cannot ascertain whether cancer is more stressful in midlife [9], or if the chaotic lifestyle of the patient made them more susceptible to cancer at an early age [41], it is evident that MACP caregivers cared for more stressed and unhappy patients. The lack of difference in bereavement outcome scores

between groups indicates that findings are not due to either caregiver group being more distressed, it is the pattern of sources and kind of caregiver distress that differs.

MACP caregiver distress appeared in the mediation effect of grief on depressed mood: few baseline variables directly increased BDM, but affected it primarily by increasing grief severity, which in turn was associated with worse BDM. Moreover, the positive relationships between baseline variables such as caregiver strains, and grief and BDM may indicate a risk for severe grief and risk of depression among bereaved MACP caregivers. These results support life course predictions about the importance of order and timing of life events and transitions: terminal illness and death among the middle-aged are not normative life course events; illness and death occurred too young, before expected mid-life role obligations had been entirely fulfilled [22]. Indeed, the higher problems and distress of the MACPs may be left for the caregiver to deal with, potentially disrupting the caregiver's life course trajectory and producing more enduring distress. This possibility should be explored in future research.

By contrast, YOCP caregivers felt more depressed by strains during caregiving than they did after the patient's death. Such negative relationships have been described as indicating a pattern of "relief" from the burdens of caregiving [42–44]. YOCP caregiver outcomes reflected the more normative timing of terminal illness predicted by life course theory [22]. This was further supported by the better emotional wellbeing and lower depressed mood of YOCPs themselves at baseline; older terminally ill patients appeared less distressed than middle-aged ones. Findings indicated that caring for an older, frailer person may complicate care, but with fewer unmet obligations or economic consequences of illness, the burdens of YOCP care were more likely to end with death [23]. Thus YOCP caregivers showed a reduction in depressive symptoms from baseline, supporting the relief model of caregiver bereavement [42–44]. Previous research has shown that most cancer caregivers appear to experience more relief than severe grief [42], and given that most advanced cancer patients are over 60 years of age, current findings fit well with that research.

There were also intriguing differential effects of baseline variables. Patient personal and behavioral problems affected outcomes for YOCP caregivers, (with two of the three effects indicating relief). The lack of MACP problems effect was surprising, given they had more problems than YOCPs. MACP caregivers appeared more affected by their own concerns, including employment and disability. Family abandonment's strong prediction of worse BDM supported this view, especially given that the same arrow indicated relief among YOCP caregivers. However, the puzzling finding that socioemotional support increased grief (but not BDM) among MACP caregivers seems to contradict this; perhaps expressing feelings increases awareness of them. This merits further study. Also needing further exploration is the finding that YOCP African American caregivers had higher BDM than whites. While our prior research shows a higher premium placed on family relationships among African Americans [44], it does not explain why it would not hold for MACP caregivers as well. Understanding this combination of findings will require further research into the context of the lives of cancer patients and caregivers, including patient and caregiver obligations, supports, and post-bereavement life course trajectory effects on the caregiver.

Limitations

First, the sample's low median income reflects the population of cancer patients, but may be different from the samples of other studies. Second, depressed mood is measured at the same time point as grief. Controlling for baseline depressed mood accounted for change in depressed mood from baseline to bereavement, but direction of effect cannot be assured. Third, results generalize only to caregivers of adults with late stage incurable cancer and short prognosis (~one year).

Conclusion

Degree of caregiver distress during caregiving may not always be predictive of distress after bereavement. Many caregivers, especially those caring for YOCPs, are likely to resume a normal life after the passing of their loved one. However, after bereavement, continued observation of those who cared for a MACP may be warranted; grief, added to the ongoing demands of their lives (which may include those left by a MACP), may put such caregivers at risk for greater psychological and emotional distress.

Acknowledgments

The authors would like to gratefully acknowledge the funding sources for this project: National Cancer Institute, R01-CA10282; Veterans Administration Health Services Research & Development Merit, IIR-03-255; American Cancer Society, ROG-04-090-01.

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Baseline Variables Bereavement

Emotional Outcomes at

Caregiver Characteristics

Figure 1. Effects of Caregiving for Middle Aged Patients on Caregiver Grief and Depressed Mood in Bereavement¹

¹Only independent variables with significant effects are shown. See Table 3. Effects are shown above relevant arrow.

+ = $p < .10$, * = $p < .05$, ** = $p < .01$, *** = $p < .001$

Baseline Variables Bereavement

Emotional Outcomes at

Caregiver Characteristics

Af.American

Income

Living w/ Pt

Depressed Mood (BDM)

Health Burden

Scheduling Burden

Family Abandonment

Baseline Depressed Mood

Patient Characteristics

Behavior Problems

Personal Problems

Emotional Wellbeing

Spiritual Wellbeing

Bereavement

Significant Effects
Marginal Effects
Negative Relationship

Grief

Figure 2. Effects of Caregiving for Young Old Patients on Caregiver Grief and Depressed Mood in Bereavement¹

¹Only independent variables with significant effects are shown. See Table 4. Effects are shown above relevant arrow.

****+ = $p < .10$, * = $p < .05$, ** = $p < .01$, *** = $p < .001$

Table 1

Description of Scales and Indices

Name of Measure	Scoring	Items and Range	Alpha
FACT-G: Emotional Wellbeing	0=not at all - 4=very much *	5 items, 0–20	.75
FACT-G: Physical Wellbeing	0=not at all - 4=very much *	7 items, 0–28	.76
FACIT-Sp	0=not at all - 4=very much *	12 items, 0–48	.87
FDI	0=no difficulty - 3=unable to do	11 items, 0–33	.82
MOSSS	1=none of the time - 5=all of the time	8 items, 8–40	.96
CRA: Family Abandonment	1=strongly agree - 5=strongly disagree **	5 items, 5–25	.85
CRA: Impact on Health	1=strongly agree - 5=strongly disagree **	4 items, 4–20	.90
CRA: Impact on Schedule	1=strongly agree - 5=strongly disagree **	5 items, 5–25	.82
POMS	0=Not at all - 5=Very much	8 items, 0–40	.91
BEQ-24	0=Not at all - 4=Very much ***	24 items, 1–4	.91

* higher scores = more wellbeing

** higher scores = more burden

*** scores summed and averaged

Description of the Sample

Table 2

Caregiver & Patient Characteristics	Middle Aged Pts (MACPs) N= 88		Young-Old Pts (YOCs) N=98		Difference By Group
Baseline Caregiver Variables	N	[%]	N	[%]	χ^2 [p]
Gender					
-Female	73	[83.0%]	78	[79.6%]	.343 [.558]
-Male	15	[17.0%]	20	[20.4%]	
Income					
-\$0-9,999	10	[11.4%]	7	[7.1%]	7.41 [.388]
-\$10,000-14,999	8	[9.1%]	12	[12.2%]	
-\$15,000-19,999	8	[9.1%]	7	[7.1%]	
-\$20,000-29,999	17	[19.3%]	23	[23.5%]	
-\$30,000-39,999	12	[13.6%]	7	[7.1%]	
-\$40,000-49,999	10	[11.4%]	6	[6.1%]	
-\$50K or more	19	[21.6%]	32	[32.7%]	
Employed					
-Yes	41	[46.6%]	39	[39.8%]	.873 [.350]
-No	46	[52.3%]	58	[59.2%]	
Race/Ethnicity					
-African American	27	[30.7%]	21	[21.4%]	2.07 [.150]
-White	61	[69.3%]	77	[78.6%]	
Living with Patient					
-No	42	[47.7%]	35	[35.7%]	2.75 [.097]
-Yes	45	[51.1%]	62	[63.3%]	
	Min/Max	Mean	[SD]	Mean	[SD]
Age (years)	23-86	49.93	[12.70]	58.70	[13.32]
Disability/Impairment	0-22	3.38	[3.59]	2.88	[3.97]
Social Support	8-40	32.21	[7.00]	31.37	[6.95]
Impact on Health	4-18	8.24	[2.57]	7.90	[2.73]
Family Abandonment	5-24	10.60	[3.79]	10.32	[4.26]
					t (df=184) [p]
					-4.56 [.000]
					.894 [.372]
					.821 [.413]
					.877 [.382]
					.413 [.680]

Caregiver & Patient Characteristics	Middle Aged Pts (MACPs) N= 88	Young-Old Pts (YOCs) N=98	Difference By Group
Scheduling Burden	5-25 14.06	14.19 [4.44]	-.219 [.827]
Baseline Depressed Mood	0-30 6.31	5.46 [6.37]	.877 [.382]
Baseline Patient Variables			
Patient Problem Checklist	0-38 11.27	6.72 [5.18]	4.77 [.000]
Patient Behavior Problems	1-5 2.60	2.19 [1.20]	2.19 [.030]
Emotional Wellbeing	4-24 16.52	19.24 [3.95]	-3.92 [.000]
Physical Wellbeing	6-28 18.52	20.73 [5.22]	-2.85 [.005]
Spiritual Wellbeing	8-43 28.48	29.51 [7.03]	-.951 [.343]
Patient Depressed Mood	0-32 9.91	6.66 [7.31]	2.74 [.007]
Outcome Caregiver Variables			
Grief	1-3.8 1.65	1.62 [.44]	.471 [.639]
Bereavement Depressed Mood	0-30 6.87	6.80 [6.91]	.067 [.947]

Abbreviations: N=sample size, χ^2 =chi square coefficient, t=t test coefficient, p=p value.

Table 3

Direct and Indirect Effects of Baseline Variables and Grief on Caregiver Bereavement Depressed Mood among Caregivers of Middle-Aged Patients

Baseline Variables	Caregiver Outcomes: Middle Aged Patients N=88			
	C1: Grief	C2: BDM w/o Grief	C3: BDM w/ Grief	C4: BDM Indirects
	b (se)	b (se)	b (se)	b (se)
Caregiver Variables				
Age	-.007 (.003)**	-.056 (.046)	.036 (.030)	-.093 (.037)**
Gender (Female)	-.018 (0.94)	-.910 (1.592)	-.678 (1.045)	
Race/Eth (Af. Amer.)	.036 (.073)	1.734 (1.220)	1.276 (.778)	
Income	.032 (.018) ⁺	.646 (.304)*	.240 (.195)	.046 (.239) ⁺
Employed	.169 (.070)*	.967 (1.175)	-1.205 (.770)	2.172 (.926)*
Living w/ Patient	.099 (.060) ⁺	2.038 (.995)*	.763 (.638)	1.275 (.780)
Disability/ Impairment	.046 (.011)***	.730 (.186)***	.138 (.129)	.592 (.153)***
Social Support	.012 (.005)**	.079 (.076)	-.072 (.050)	.151 (.060)*
Health Burden	.030 (.017) ⁺	.360 (.281)	-.024 (.181)	.385 (.221) ⁺
Scheduling Burden	-.001 (.009)	-.382 (.151)*	-.370 (.096)***	
Family Abandonment	.019 (.010) ⁺	.602 (.170)***	.353 (.110)***	.249 (.134) ⁺
Baseline Depressed Mood	.021 (.005)***	.434 (.090)***	.166 (.061)**	.268 (.073)***
Patient Variables				
Behavior Problems	.042 (.025)	.687 (.424)	.153 (.275)	
Personal Problems	.006 (.005)	.066 (.080)	-.006 (.051)	
Emotional Wellbeing	-.017 (.009) ⁺	-.054 (.153)	.165 (.099) ⁺	-.219 (.120) ⁺
Physical Wellbeing	.035 (.008)***	.473 (.138)***	.024 (.095)	.449 (.114)***
Spiritual Wellbeing	.007 (.004)	-.020 (.074)	-.111 (.048)*	
Baseline Depressed Mood	.005 (.006)	-.002 (.101)	-.065 (.064)	
Caregiver Grief				
	NA	NA	12.855 (1.139)***	
Adj R2	.29***	.53***	.66***	

⁺ p<.10,

* p<.05,

** p<.01,

*** p<.001

Abbreviations: DM=depressed mood, AA=African American, N=sample size, b=unstandardized regression coefficient, se=standard error

Table 4

Direct and Indirect Effects of Baseline Variables and Grief on Caregiver Bereavement Depressed Mood among Caregivers of Young-Old Patients

Baseline variables	Caregiver Outcomes: Young-Old Patients N=98			
	C1: Grief	C2: BDM w/o Grief	C3: BDM w/ Grief	C4: BDM Indirects
	b (se)	b (se)	b (se)	b (se)
Caregiver Variables				
Age	.000 (.003)	.0100 (.048)	.013 (.034)	
Gender (Female)	-.144 (.095)	-1.912 (1.427)	-.360 (1.006)	
Race/Ethnic (Af. Amer)	-.105 (.097)	1.223 (1.461)	2.352 (1.028) *	
Income	-.021 (.022) ⁺	-.039 (.328)	-.154 (.230)	
Employed	.137 (.096)	.205 (1.436)	-1.265 (1.018)	
Living w/ Patient	.258 (.086) **	1.739 (1.289)	-1.034 (.944)	2.773 (.966) **
Disability/ Impairment	.002 (.010)	.114 (.156)	.095 (.108)	
Social Support	.003 (.006)	.085 (.088)	.057 (.062)	
Health Burden	-.003 (.018) ⁺	.607 (.264) *	.641 (.185) ***	-.034 (.190)
Scheduling Burden	-.004 (.011)	-.273 (.159) ⁺	-.232 (.111) *	
Family Abandonment	.009 (.011) ⁺	-.175 (.161)	-.272 (.112) *	.098 (.116)
Baseline Depressed Mood	.026 (.006) ***	.513 (.094) ***	.229 (.071) ***	.284 (.073) ***
Patient Variables				
Behavior Problems	.123 (.036) ***	.435 (.546)	-.887 (.405) *	1.322 (.409) **
Personal Problems	-.021 (.010) *	-.263 (.151) ⁺	-.032 (.112)	-.231 (.109) *
Emotional Wellbeing	-.015 (.012) ⁺	-.298 (.176) ⁺	-.137 (.124)	-.161 (.128)
Physical Wellbeing	-.003 (.009)	-.036 (.138)	-.009 (.098)	
Spiritual Wellbeing	.005 (.006)	-.079 (.093)	-.133 (.065) *	
Baseline Depressed Mood	-.003 (.007)	-.082 (.097)	-.051 (.069)	
Caregiver Grief	NA	NA	10.763 (1.067) ***	
Adj R2	.51 ***	.51 ***	.81 ***	

⁺ p<.10,

* p<.05,

** p<.01,

*** p<.001

Abbreviations: DM=depressed mood, AA=African American, N=sample size, b=unstandardized regression coefficient, se=standard error.