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The Relationship of Preparation for Future Care to Depression and Anxiety in Older Primary Care Patients at Two-Year Follow-up

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Abstract

Background—Preparation for Future Care needs (PFC) has been hypothesized to help older adults adjust to inevitable life and health transitions and thereby decrease the likelihood of developing depression or anxiety.

Methods—190 primary care patients aged ≥ 65 years completed semi-structured research interviews and mail-back surveys at study intake and two years later. Interviews included the Structured Clinical Interview for DSM-IV, the Hamilton Depression Rating Scale, Clinical Anxiety Scale and a measure of PFC. Multiple regression analyses were used to determine the independent association of PFC at intake with depression and anxiety severity at two-year year follow-up.

Results—Patients who had made more concrete plans at intake were less likely to meet criteria for depression diagnosis at follow-up. They also had lower anxiety severity scores. Patients who had avoided thinking about future care needs had greater depression symptom severity at follow-up. Findings were independent of potential confounds, including illness burden.

Conclusions—Failure to prepare for future care is a novel putative risk marker for depression and anxiety in older adulthood. Clinicians should be aware that the lack of care planning and frank avoidance may pose a risk for depression and anxiety older their patients. Future research should explore the mechanisms of care planning's effects on subsequent mood.

Keywords

Decision-Making; Long-term Care Planning; Depression; Anxiety; Future-Orientation; Aging; Primary Care

Introduction

In the United States, 38% of older adults experience a physical, cognitive or sensory disability (1). Among disability-free individuals aged 70, 20% to 35% can expect to develop disabling conditions over the next 20 years (2). Thus, future care needs can be anticipated as a result of common disease trajectories (3). Whereas lack of planning may lead to crisis decision-making and increase the risk of inappropriate residential or care arrangements (4–

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6), preparing for future care needs can mitigate the myriad effects of disability on patients and their families (7–11).

However, no studies have investigated whether planning for future care is related to subsequent mental health. We studied the relationship of five PFC processes (12) -- *Awareness* for potential future needs, *Gathering Information* about options, *Decision-Making* about care preferences, and performing *Concrete Planning* steps and *Avoidance* of future care needs -- to depression and anxiety.

We tested two hypotheses: First, individuals who report higher levels of Gathering Information, Decision-Making and Concrete Planning will exhibit fewer depression and anxiety symptoms at the 2-year follow-up interview. Second, individuals who report greater Avoidance will exhibit greater depression and anxiety at follow-up. Awareness of future care needs can lead to increased distress (13), but it can also exert positive effects if it leads to further PFC activity, such as making concrete plans. Consequently, we did not offer hypotheses about Awareness.

We chose to focus on older patients in primary care settings because of the well-established importance of these settings in improving mental health treatment at a population level (14,15). Most older adults seek care for psychiatric symptoms in the primary care office rather than in mental health facilities (16,17,18). Approximately 6–9% of primary care patients suffer from major depression (19). Anxiety disorders are also common in primary care seniors, with a collective point prevalence of 19.5% (20); many do not meet diagnostic criteria for well-established anxiety disorders and may receive a diagnosis of anxiety disorder not otherwise specified (21).

Methods

Sample

Primary care patients 65 years of age or older who presented for care on selected days at private and hospital-affiliated internal medicine practices and hospital-affiliated geriatric clinics in the Rochester, NY area were approached to participate in an observational longitudinal study (22–25). Of 1500 older adults approached between June 2001 and June 2005, 747 provided written informed consent, and were asked to complete and mail back the 29-item PFC survey (12) and several other instruments. All patients presenting for care on selected study recruitment days and capable of giving informed consent were eligible for enrollment. Of the enrolled subjects, 385 provided complete data on PFC, depression, and anxiety measures at study entry. Two-year follow-up interviews for individuals with baseline PFC data were available for 190 participants, and included a repeat assessment for depression, anxiety, and PFC. Descriptive Measures included age, gender, education, and a Folstein Mini-Mental State Exam.

Dependent Measures

Depression Diagnosis—Enrolled subjects participated in semi-structured interviews, based on the Structured Clinical Interview for DSM-IV (SCID)(26), administered by trained raters in the subjects' homes or in research offices at the UR Medical Center. Depression diagnoses were assigned at consensus conferences of investigators and raters, as described elsewhere (24,25). Diagnostic categories were major depression (current or partially remitted), minor depression (current or partially remitted, based on criteria in the DSM-IV Appendix), or non-depressed (all others). In the current analyses, we created an “any depression” group, which included all current or partially remitted major or minor depression.

Depression Symptom Severity was assessed using the 24-item Hamilton Depression Rating Scale (HDRS), administered as a semi-structured interview (27,24). The HDRS has shown adequate validity in older adults (28) and shows acceptable internal consistency for our data ($\alpha=.80$). Due to the skewed distribution of this variable, we performed a log-transformation.

Anxiety Symptom Severity—We used the Clinical Anxiety Scale (29). The scale ranges from 0 to 24 and had an alpha of .73 in our sample. The prevalence of diagnosable anxiety disorders (based on the SCID) was too low for meaningful analyses.

Independent Measures

Preparation for Future Care—Sörensen and Pinquart's (12) Preparation for Future Care Needs measure assesses two health cognitions (Avoidance, Awareness) and 3 health planning behaviors (Gathering Information, Decision-Making, Concrete Planning) with items rated on a 5-point Likert scale. The 5-item subscales have acceptable internal consistency in the current sample. *Awareness* of future care needs assesses older adults' consciousness of the risks for disability and need for future assistance (6 items, $\alpha = .80$; Example: "Talking to other people has made me think about whether I might need help or care in the future"). *Avoidance* assesses their tendency to shun thoughts of future frailty (5 items $\alpha = .75$; Example: "I try not to think about things like future loss of independence"). *Gathering Information* focuses on assessing the current situation, possible future goal states, and options for reaching these goals (6 items; $\alpha = .82$; "I have been following the public discussion in the media to learn more about care options"). *Decision-Making* involves weighing different options and gaining clarity about one's preferences, such as whether in-home care is preferable to assisted living, and why (6 items, $\alpha = .78$; Example: "I have compared different options of obtaining help or care in the future and have decided which would work for me and which would not"). The *Concrete Planning* Scale assesses timely plan initiation and communication of care preferences to relatives (6 items; $\alpha = .69$; "I have identified how I want to be cared for and taken concrete steps to ensure that those options are available"). For the analyses we used the average score across all items, ensuring comparability of values across the subscales.

Covariates

Gender and education were included as covariates in all models.

Medical Burden was assessed with the Cumulative Illness Rating Scale (CIRS (30)), a well validated instrument completed by a physician based on the subject interviews and review of the primary care charts (31). Higher CIRS scores reflect greater disease burden.

Analytic Plan

All variables were inspected for outliers and non-normal distributions. HDRS scores were subjected to a logarithmic transformation due to non-normality. Bivariate correlations of the PFC variables were inspected for multicollinearity. We performed Pearson correlations for all continuous variables, point-biserial correlations for continuous-categorical variable pairs, and phi-coefficients for categorical variable pairs.

We conducted bivariate correlations, one logistic regression analysis (for depression diagnosis), and two multiple regression analyses (for anxiety and depression severity) in which we first entered gender, education, and medical burden as covariates. In the logistic regression we also entered baseline depression diagnosis as a covariate. In the multiple regressions for anxiety severity and HDRS, we entered baseline clinical anxiety scale scores, and baseline HDRS scores respectively as covariates. Age was entered into initial analyses, but did not appreciably alter the results. As can be seen in Table 1, it had inconsistent

bivariate relationships with the outcomes. Also, multivariate relationships with the outcome variables were non-significant. Thus it was omitted in favor of a more parsimonious model. In the last step of model-building, the five PFC subscales were entered simultaneously.

Results

Longitudinal and Sample Characteristics

The return rate for the questionnaire packet at baseline was 54% (N=747) and 52% of these (N=385) had complete data on the PFC survey. Logistic regression indicated that those who returned the questionnaires did not differ significantly from those who did not with regard to age education, illness burden or gender, but they were less likely to live alone (OR=.51, $p=.015$, $df=1$). Participants ranged in age from 65 to 94 years, and were predominantly white (96%), female (61%) and married (57.5%) or widowed (27%). Table 1 presents means, standard deviations, and ranges of the study variables for this sample. The two-year follow-up interviews were completed by 331 subjects (86.0%). Logistic regression indicated that two-year follow-up responders did not differ significantly from non-responders with regard to age, education, illness burden, living alone or gender. Of these responders, 190 (57%) had complete data on the PFC measure at intake and diagnostic interview and control variables at intake and follow-up; major depression was present for 3.0% and minor depression was present for 4.0%. Mini-Mental State Exam scores for the participants in our analyses ranged from 17 to 30; all subjects capable of giving informed consent were eligible for study participation.

Selected bivariate correlations are shown in Table 1. Correlations between predictors (not shown) did not warrant concerns about multi-collinearity. Awareness at study entry was positively associated with greater depression severity and greater anxiety at two year follow-up. Decision-Making at study entry correlated with greater depression and more anxiety. No bivariate associations with depression or anxiety severity were found for Avoidance or Gathering Information.

Table 2 shows the results of the logistic regression examining the association of intake PFC variables with depression diagnosis (major or minor) at two years, adjusting for baseline depression, gender, education, and medical burden. Consistent with Hypothesis 1, more baseline Concrete Planning was significantly related to a lower likelihood of being diagnosed with major or minor depression at two-year follow-up, even after adjusting for depression diagnosis at baseline (Table 2). The hypothesized associations with Gathering Information, Decision-Making and Avoidance were not supported.

Table 3 shows the regression results for severity of depression and anxiety symptoms, as predicted by the PFC variables and covariates. Greater Avoidance was significantly associated with greater depression severity at two years, independent of baseline HDRS levels. Greater Concrete Planning was related to lower anxiety scores at two year follow-up independent of baseline anxiety, but not depression severity. The hypothesized associations with Gathering Information and Decision-Making were not supported.

Because previous research identified socio-economic status as a correlate of PFC, we were concerned that this might present a confound. Data on income and assets are not reliably available here; we did not inquire about assets and nearly 40% of the sample did not respond to the income item. Nonetheless, a preliminary comparison by independent samples t-test of individuals in the highest and lowest quartiles of concrete planning revealed significant differences between the groups in annual household income ($t=-2.023$, $p<.045$, $df=137$).

Discussion

This is the first longitudinal study to examine the hypothesized protective effects of PFC. Patients who make more concrete plans are less likely to develop a depression diagnosis two years later. They also experienced lower levels of anxiety. These results are independent of potential confounds, such as gender, education, and illness burden. Our first hypothesis was thus partially confirmed. Older adults who take concrete steps in their care preparation may be at an advantage with regard to coping with difficult and new situations, reducing the risk of depressive episodes that can occur when faced with health challenges and inevitable life transitions. An important task for future research is to determine why some older adults make more concrete plans. These individuals may have more knowledge of the aging process or of available services (12), may be more future-oriented in their thinking (32,33), may have greater financial literacy (34) or access to more economic resources with which to plan (35,36). Consistent with qualitative findings that indicate control of decision-making for elders who are moving to assisted living is influenced by socioeconomic status (37), we found that income levels differed for those who reported high versus low levels of planning. Further research on the determinants of concrete planning is warranted.

Gathering Information and Decision-Making were not protective with regard to depression or anxiety, though Decision-Making was related to negative outcomes in bivariate analyses. It is quite possible that Gathering Information uncovers options for care that are unattainable for the older adult, thus rendering Decision-Making less useful or potentially irrelevant. Constraints due to finances (38), culture (39–42), or family dynamics (43) may limit options for older adults, which may lead to feasible but undesirable decisions.

Our second hypothesis also was confirmed partially: Avoidance was associated independently with greater depression symptoms after two years, but not with depression diagnosis or anxiety symptoms. This is consistent with other studies in which older caregivers who used avoidant coping also were more depressed (44). Other findings indicate that Avoidance of future care needs may have short-term emotional benefits by reducing immediate discomfort around future care considerations (13,45), but our results suggest that continued Avoidance heightens long-term risk of depressive symptoms. In bivariate analyses, another component of PFC, Awareness, was associated positively with anxiety and depression severity and depression diagnosis, but this association disappeared after controlling for other PFC components, suggesting that the anxiety caused by becoming aware of future care needs was mitigated by the positive effects of Concrete Planning.

Interpretation of our findings should be tempered by recognition of some study limitations. Our study group was largely white; findings may not generalize to other populations. All of the PFC measures were based on self-report; research is needed using behavioral indicators of PFC. Also, given that we had five predictors with three outcome variables, and relatively small effect sizes, the possibility of Type I error must be considered. Finally, the results for Concrete Planning and Avoidance were not consistent across all outcome variables. Replication of these findings is necessary. Strengths of this study were its focus on a novel topic of considerable clinical and public health significance and its short-term longitudinal design.

Conclusions

Failure to prepare for future care is a novel putative risk marker for depression and anxiety in older adulthood. Clinicians should recognize that lack of future care planning, in addition to its other potential effects during the aging process, may pose a risk factor for future depression and anxiety among older adults. Epidemiologic studies should examine this issue

across a broader range of populations. Our findings suggest that a lifetime style of proactive coping can be protective. Interventions to enhance proactive coping could enhance planning and self-care. Clinical trials designed to examine whether implementing a systematic approach to care planning (46–48) can prevent such psychiatric outcomes are therefore warranted.

Preparation for Future Care is multifaceted both in its structure and in its effects on mental health. One implication of these findings for interventions is that Awareness, Decision-Making, and Gathering Information may not be beneficial by themselves. However, for adults who cannot rely on others to compile and process information, they may be vital to making well-considered and well-tailored decisions. Nevertheless, it is probably necessary to activate older adults to make future care decisions and even take concrete steps toward implementing them, before long-term benefits of PFC emerge. Future investigations will need to ascertain whether early coaching in future care planning can prevent incidence of depression specifically after residential transitions, for example to assisted living or nursing home care. In addition, future studies could identify combinations of health conditions associated with greater probability for changes in health status in order to identify groups at greatest need for planning(49). Finally, studies should aim for a better understanding of how the individual components of PFC contribute and interact in preventing distress and facilitating positive adjustment.

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Table 1

Means, Standard Deviations, Ranges, and Correlations

	Baseline Assessment					24 month follow-up		
	MEAN (SD)	Age	Gender	Educ.	Med Burden	Depression Severity	Dep DX	Anxiety Severity
Age	74.9 (6.67)		-.10	-.17	.28	.13 [*]	.00	-.06
Gender (1=female, 2=male)	n/a	-.10 ^a	--	-.19 ^a	-.06 ^a	-.21 ^{**a}	-.01 ^b	-.16 ^{*a}
Years of Education (Range: 4–17)	14.31 (2.33)	-.17 ^{**}	-.19 ^{**a}	--	-.11 [*]	-.17 ^{**}	-.11 ^a	-.03 ^a
Medical Burden (CIRS) at Baseline (Range:1 to 19)	7.41 (2.89)	.28 ^{**}	-.06 ^a	-.11 [*]	--	.39 ^{**}	.26 ^{**a}	.22 ^{*a}
Awareness (Range: 1–4.83)	2.75 (.83)	.15 ^{**}	-.14 ^{**a}	-.02	.18 ^{**}	.24 ^{**}	.24 ^{**a}	.13 ^{*a}
Avoidance (Range:1–5)	2.89 (.86)	.10	-.10 ^{*a}	-.18 ^{**}	-.05	.12	-.03 ^a	.03 ^a
Gathering Information (Range: 1–4.86)	2.81 (.87)	.02	-.08 ^a	-.12 [*]	.07	.06	.10 ^a	.03 ^a
Decision Making (Range: 1–5)	2.91 (.87)	.08	-.15 ^{**a}	.02	.18 ^{**}	.16 [*]	.17 ^{**a}	.14 ^{*a}
Concrete Planning (Range: 1–5)	3.06 (.87)	.18 ^{**}	-.11 ^{*a}	.02	.18 ^{**}	-.02	-.02 ^a	.01 ^a
Depression Severity (HDRS) at Baseline (Log-transformed for analyses, Range:0–3.61)	8.47 (6.01)	.11 [*]	-.29 ^{**a}	.16 ^{**}	.39 ^{**}	.57 ^{**}	.56 ^{**a}	.40 ^{**a}
Anxiety Severity at Baseline (Range:0–14)	1.67 (2.16)	-.08	-.20 ^{*a}	-.07	.18 ^{**}	.37 ^{**}	-.31 ^{**a}	.47 ^{**a}

Notes: HDRS= Hamilton Depression Rating Scale. Dep Dx=Depression Diagnosis (0=no; 1=yes). CIRS=Cumulative

Illness Rating Scale; possible range was 1–58. Possible range for Preparation for Future Care variables was 1–5; possible range for anxiety severity was 0–24.

**
=p<.01,

*
=p<.05

Pearson correlations were performed for all continuous variable pairs.

^a point-biserial correlations for continuous-categorical variable pairs,

^b phi-coefficients for categorical variable pairs.

Table 2

Logistic Regression Predicting the Presence of Any Depression Diagnosis at 24 months

Variables in the Equation	Wald	df	Sig.	OR	CI
Gender	1.388	1	.239	.534	.188, 1.516
Years of Education	.076	1	.783	.967	.762, 1.227
Medical Burden	6.464[*]	1	.011	1.276	1.057, 1.540
Baseline depression diagnosis (any)	41.282^{***}	1	.001	77.430	20.545, 291.822
Avoidance	.245	1	.620	1.175	.620, 2.229
Awareness	2.113	1	.146	1.649	.840, 3.237
Gathering Information	1.646	1	.200	1.701	.755, 3.832
Decision Making	.166	1	.684	.848	.383, 1.875
Concrete Planning	4.125[*]	1	.042	.478	.235, .975

=p<.001,

*
=p<.05.

Table 3

Linear Regression of Depression and Anxiety Severity at 24 months

	Depression Severity at 24 months			Anxiety Severity at 24 months		
	Standardized Beta	T	Sig	Standardized Beta	T	Sig
Gender	.001	.013	.990	-.093	-1.482	.140
Years of Education	-.020	-.320	.750	-.075	-1.208	.229
Medical Burden	.257	4.118***	.001	.171	2.739**	.007
Depression severity at Baseline ^a	.431	6.266***	.001	--	--	--
Anxiety Severity at Baseline ^a	--	--	--	.517	8.114***	.001
Awareness	.079	1.104	.271	-.032	-.438	.662
Avoidance	.148	2.337*	.021	-.062	-.971	.333
Gathering Information	.093	1.093	.276	.115	1.316	.190
Decision Making	.051	.619	.537	.137	1.637	.103
Concrete Planning	-.104	-1.399	.164	-.236	-3.075**	.002

=p<.001,
**
=p<.01,
*
=p<.05.

Depression severity was assessed by the Hamilton Depression Rating Scale; Anxiety severity was assessed by the Clinical Anxiety Scale.

^aControlling for baseline depression severity did not affect anxiety results and controlling for baseline anxiety severity did not affect depression results. Therefore, these variables were not included in our final equations. Degrees of Freedom for both models= 189.