Psychological Adaptive Mechanism Maturity, Age, and Depression Symptoms in Advanced-Stage Cancer Patients

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ABSTRACT

Background: Previously, we reported that the maturity of Psychological Adaptive Mechanism (PAM; alternatively ego defense mechanism) endorsement, but not depression symptom severity, predicted 5-year survival rates in adult cancer patients. That study controlled for age as a significant variable. In this investigation, we hypothesized that greater PAM maturity would correlate significantly with age and with fewer depression symptoms in a larger sample.
Methods: In this cross-section study, adult cancer outpatients (N=293) completed the Defense Style Questionnaire (DSQ), the Beck Depression Inventory (BDI), and provided additional clinical data. Spearman's correlation and multiple regression modeling provided statistical tests of the study hypotheses.
Results: Contrary to our hypothesis, DSQ PAM maturity endorsement did not correlate significantly with increasing age. Greater PAM maturity ratio on the DSQ ($p<0.0001$) and current antidepressant use ($p<0.05$), however, both provided inverse associations with total BDI symptom frequency ($p<0.01$). Age was inversely associated with BDI mood ($p<0.0001$) and somatic scores ($p<0.04$). Items that worsened BDI symptom frequency included self-reported mood-altering anti-cancer medications and any psychiatric history. Cancer stage, time since diagnosis, and chemotherapy treatment did not correlate with DSQ or BDI scores. Multiple regression analysis found that the correlated items accounted for 17.2% of the variance in mood symptoms and 4.9% in somatic symptoms. Specifically, adaptive maturity and age, associated with fewer depression symptoms, while cancer medications affecting mood, and a previous psychiatric history each predicted higher frequency of depression scores.
Conclusion: The results suggest that PAM maturity predicts fewer depression symptoms while younger age predicts more depression symptoms in this clinical sample. Centrally acting cancer medications, any history of psychiatric disorder, and, possibly antidepressant medications, increased depression symptom frequencies. Further research should target factors that improve PAM maturity as a potential treatment target, especially in younger age groups.

Introduction: In a previous study, we reported that the Maturity level of Psychological Adaptive Mechanisms (PAMs; alternately, "ego defense mechanisms") independently predicted survival in a small sample of late stage cancer patients scoring at the extremes on the Defense Style Questionnaire (DSQ) while extreme scores on the Beck Depression Inventory (BDI) did not [1]. In that sample, half of those who endorsed Mature adaptive styles survived for five years whereas half of those endorsing Immature PAMs survived only 18 months. The study identified age as a significant confounding variable for which our statistical analysis controlled in arriving at those final survival data. The relationship between PAMs and age in this setting remains poorly understood, however, and to the best of our knowledge no studies have examined hierarchical PAM maturity effects in relation to age and depression in cancer patients. [2]

Method: This cross-section study analyzed data collected during summer months from 1999 through 2010. Participants provided demographic and medical data, which included type and stage of cancer and time since cancer diagnosis. Diagnosis and staging were verified by medical record..
Study Measures:

Defense Style Questionnaire: The DSQ was first developed by Bond and validated in subsequent studies as a qualitative and quantitative measure of PAMs. It is a 40 item questionnaire that lists behavioral strategies by which individuals adapt to stressful events in their lives.

Beck Depression Inventory:. The BDI was developed by Beck and colleagues and validated by several studies as a tool for measuring frequency and severity of depressive symptoms. In the revised version of the BDI used here, mood symptoms can be separated from somatic symptoms and analyzed separately.

Table 1:

Age, Gender, and Cancer Stage distribution of study sample (N=293)

	n	%
Age		
<40	25	8.5
40-59	138	47.1
60-79	121	41.3
>79	6	2.1
Data Missing	3	1.0
Gender		
Females	156	53.2
Males	137	46.8
Stage		
I	20	6.8
II	25	8.5
III	65	22.2
IV	174	59.4
Data missing or N/A	9	3.1
Total	293	100

Table 3
Multiple Regression for Age, Mature/Immature ratio, Medications affecting mood, and prior Psychiatric History[a], and BDI cognitive scores[b]

Variables	*Adj. R^2*	*ΔR^2*	*F*	*B*	*SE*	β	sig.
(Constant)	.172	.183	15.87	10.615	1.131		.000
Age				-.079	.017	-0.257	.000**
Mature/Immature ratio				-1.329	.282	-0.254	.000**
Medications affecting mood				.881	.428	0.121	.041**
Psychiatric Hx				1.654	.610	0.159	.007**

a. Predictor Variables: Age, Mature/Immature ratio, Medications affecting mood, Psychiatric History.
b. Dependent Variable: BDI Cognitive scores.

Table 4

Multiple Regression for Age, Mature/Immature ratio, Medications affecting mood, and prior Psychiatric History[a], and BDI somatic scores[b]

Variables	*Adj. R^2*	*ΔR^2*	*F*	*B*	*SE*	β	sig.
(Constant)	.049	.062	4.72	8.920	1.085		.000
Age				-.028	.016	-.103	.077
Mature/Immature ratio				-.930	.271	-.198	.001**
Medications affecting mood				.803	.411	.123	.052*
Psychiatric Hx				-.034	.586	-.004	.954

a. Predictor Variables: Age, Mature/Immature ratio, Medications affecting mood, Psychiatric History.
b. Dependent Variable: BDI Cognitive scores.

Results: Results revealed that both lower PAM maturity and younger age predicted depression mood symptoms in cancer patients, supporting our hypothesis that increasing age and PAM maturity are independently associated with fewer mood symptoms. However, contrary to our hypothesis, age alone did not directly associate with PAM maturity scores. To our knowledge, this is the first study that has investigated lack of an association between age and PAM maturity specifically in cancer patients.
Clinical Application: Statistical models presented above accounted for a total of about one-fifth of the variance in BDI mood and somatic symptoms in this study. Future research should focus on identifying these variables and how they affect younger versus older adult cancer patients' depression. For everyday clinical use, three of the associated variables bear mention. First, the self-report of cancer therapy medications affecting mood appeared to influence the production of depression symptoms. While this warrants further analysis, our first impression suggests that untreated glucocorticoid effects may contribute a significant clinical share. Second, any psychiatric history appeared to contribute its weight in ways that require further delineation of specific histories and conditions. Last, and most surprising on its face, the presence of an antidepressant medication appeared to increase, rather than lessen, the BDI symptom frequencies. The relationship may not have been causal, however, since more depression symptoms indicate antidepressant intervention clinically and antidepressant effectiveness is outside the scope of this study.

An overall suggestion from this study's data, therefore, may serve to sharpen the focus of improving depression treatment in cancer patients 1) who show less mature PAMs, 2) who are younger rather than older, 3) who report mood changes on the anti-neoplastic medications, and 4) who report a pre-existing psychiatric history. Improved clinical care will require PAM characterization of subgroups of cancer patients for whom specific treatments, such as supportive or other forms of psychotherapy, can result in significant improvement during cancer diagnosis and treatment.

Conclusions: While age alone does not predict PAM maturity in the setting of cancer, both advanced age and greater PAM maturity, independently, lessen the risk of depression in cancer patients. While age is independent of treatment, PAMs invoke the possibility of active treatment aimed at increasing PAM maturity and lessening the effects both of cancer and the depression related to it. Effecting positive changes in PAM maturity point toward targeted psychotherapy as a potential specific treatment in cancer conditions. Whether achieved through experience or psychological treatment, PAM maturity can lessen the psychological damage of cancer and in so doing potentially prolong survival.

References:

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