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Attitude Toward Own Aging and Mental Health in Post-menopausal Women

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Abstract

Introduction—Attitudes toward own aging (ATOA) refers to expectations about the personal experience of aging. As of now, there is limited literature that addresses the impact of ATOA on indicators of psychological, physical, and social health. In this study, we examine associations between ATOA and several measures associated with successful aging.

Methods—A detailed cross-sectional survey questionnaire on successful aging was completed by 1,973 older women enrolled in the San Diego site of the Women's Health Initiative study. ATOA was measured using the Philadelphia Geriatric Morale Scale (PGMS)

Results—The final sample consisted of 1151 women. The mean ATOA score was 3.8 indicating generally positive ATOA. Positive ATOA score was significantly associated with younger age, lower income, being married, higher SF-36 Physical Composite scores, higher SF-36 Mental composite scores, lower depression scores, and higher resilience scores. Approximately 40% of variance in ATOA scores was explained by successful aging-related domain scores.

Conclusions—Better physical and emotional functioning, greater resilience and lower depression are associated with more positive ATOA. Associations with sociodemographic traits are complex. Modifying ATOA may have potential to impact a broad range of health and successful aging related outcomes.

Keywords

Attitude toward aging; Depression; Health; Social status; Spirituality; Personal mastery; Optimism

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Introduction

Existing evidence indicates that older persons who hold more negative views regarding their experience of aging have greater morbidity (Barker et al., 2007), depression (Barker et al., 2007), neuroticism (Moor and Zimprich, 2006) poorer function (Barker et al., 2007; Levy et al., 2002), and higher mortality rates (Levy et al., 2002; Rakowski and Hickey, 1992; Uotinen et al., 2005) than those who view their aging more positively (Levy and Langer, 1994). Studies also indicate that sociodemographic variables such as age (Levy and Langer, 1994), ethnic/cultural factors (Goodwin et al., 1999; Levy and Langer, 1994; Sarkisian et al., 2006; Westerhof and Barrett, 2005) as well as education (Sarkisian et al., 2006), and socioeconomic status influence aging attitudes (Barrett, 2003).

As opposed to expectations toward aging (Sarkisian et al., 2002), attitude toward own aging (ATOA) refers to expectations about the personal experience of aging. Sarkisian and colleagues noted that better mental and physical health was associated with positive aging expectations, whereas advanced age and greater depression predicted negative aging attitudes, but that gender, income, education, religiosity, medical comorbidity, and global functioning were not related to aging perceptions. Prior work indicates that perceived social support affects ATOA (Harrison et al., 2008). In addition, experimental manipulations of ATOA indicate that such attitudes are malleable, and they have direct impact on performance of physical and cognitive tasks (Levy et al., 2002). Taken together, these studies provide support for positive associations between physical health and ATOA. However, there is discrepant evidence as to whether age itself predicts positive or negative views on aging, and few studies have examined the association of ATOA on indicators of psychological, physical, and social health while adjusting for covariates.

We attempted to address some of the limitations in the literature by using cross-sectional data from a study of successful aging in post-menopausal women and conducting a multivariate analysis of correlates of ATOA. We assessed contemporaneous measures of self-perception of aging, age identity (difference between chronological age and how old a person feels), several validated measures of psychological status (optimism, personal control, depression, anxiety, and perceived stress,), social status and support, various physical measures, and self-rated health

Based on our review of the literature on ATOA, we tested the following hypothesis: Higher socioeconomic status, better physical and mental health-related quality of life, and greater emotional support would be associated with more positive ATOA, whereas older age, depression, and anxiety would be associated with more negative ATOA. In addition, we explored whether religiosity and resilience were related to ATOA.

Methods

Sample

Study participants came from the San Diego clinical center of the Women's Health Initiative (WHI), a large NIH-funded multi-center study of the predictors of morbidity and mortality among post-menopausal women (Langer et al., 2003). Details of WHI study design have been reported previously (Women's Health Initiative, 1998). The San Diego site of the WHI enrolled 5,608 post-menopausal women, who were invited at their final clinic visit or via mail to participate in a survey questionnaire study of successful aging. In 2005, all subjects who were still active participants in the study were invited to participate in a mailed survey study. A total of 3653 surveys were mailed out and 2017 surveys were returned. The response rate for the survey was thus 55%.

After excluding subjects with major preponderance of missing data, the final sample the current study consisted of the 1,151 subjects. There were no sociodemographic differences between survey non-responders, responders whose data were not utilized, and the final sample included in this study. We have previously reported on the relationship of successful aging with subsyndromal depression (Vahia et al., 2010) in community-dwelling older women using this dataset. The study was approved by the UCSD Institutional Review Board.

Variables

Dependent Variable: Attitude toward own aging (ATOA)—The five-item “Attitudes Toward Own Aging” (ATOA) subscale of the Philadelphia Geriatric Morale Scale (Lawton, 1975; Liang and Bollen, 1983) was used to assess self-perception of aging. The ATOA subscale consists of the following items:

1. Things keep getting worse as I get older,
2. I have as much pep as I did last year,
3. As you get older, you are less useful,
4. As I get older, things are better than I thought they'd be, and
5. I am as happy now as when I was younger.

Respondents are asked to indicate whether they agree (score=1) or disagree (score=0) with these statements. Items 1 and 3 are reverse scored (agree=0; disagree=1) such that the total score ranges from 0 (most negative ATOA) to 5 (most positive ATOA).

Independent Variables

Sociodemographic Variables: Age and self-reported race/ethnicity information were obtained through the successful aging questionnaire. Race was coded as a dichotomous variable (1=white; 0=all other racial categories) because of the heavy preponderance of white participants.

Psychosocial Variables: Education and income data were obtained from the baseline WHI questionnaire, collected approximately 5-7 years before other measures. Education was coded as an ordinal variable ranging from 1 (no schooling) to 11 (doctoral degree). Scores above 6 indicate some college coursework. Income was coded from 1 (less than \$10,000/yr) to 8 (>\$150,000), with unequal spacing between categories.

Emotional Support: Perceived emotional support from family and friends was assessed using 6 items (each of which was rated as: never, a little, sometimes, frequently), with 3 two-item subscales described previously (Seeman et al., 2002): emotional support (ESS), instrumental support (ISS), and negative emotion (NSS). Subscale scores reflected the average score of the two items comprising them, and ranged from 0 to 3.

Other Measures: Physical and mental health-related quality of life was assessed using the Medical Outcomes Study 36-item Short Form (MOS-SF 36) (Ware, 2003). Scores on mental and physical health domains range from 0 (worst) to 100 (best)

Depression was measured using the Center for Epidemiological Studies Scale for Depression (CES-D) (Radloff, 1977). A CES-D cutoff of ≥ 16 has been shown to correspond adequately with a clinical diagnosis of MDD (Vahia et al., 2010). Anxiety was measured using the Brief Symptom Inventory Anxiety Scale (BSIAS) (Derogatis and Melisaratos, 1983). Religiosity was assessed with a single question assessing the frequency

of religious service attendance (range: 0-5, with higher values indicating greater frequency). Subjects' level of resilience was evaluated using the Connor-Davidson Scale for Resilience (CD-RISC) (Connor and Davidson, 2003).

Statistical Analyses: We first computed descriptive statistics on sociodemographic and successful aging-related variables. Internal consistency of the ATOA and other scales in our sample was assessed with Cronbach's α . We then performed a linear regression with the ATOA scale as the dependent variable, first determining whether the ATOA scale met normality assumptions for this analysis. Independent variables included sociodemographics and successful aging-related variables. Despite the ordinal scale of the ATOA measure, bootstrap analyses confirmed the normality of the coefficient estimates from the regression analyses. As a sensitivity analysis, we repeated the regression analysis using multiple imputations for missing data. Significance of all findings was set at a two-tailed p-value of 0.05.

Results

Our final sample consisted of 1,151 women. Sensitivity analyses for impact of missing data using multiple imputations showed no substantive differences from the results presented here. There were no sociodemographic differences between the subjects included and those excluded. Our sample had a mean age of 72 years, 77% had attended at least some college, and the sample was predominantly white (94%). The mean ATOA score was 3.8 (SD=1.3; median=4), indicating a generally positive ATOA. The mean ATOA also compared favorably to ATOA scores reported in previous literature in different populations (Lawton, 1975). On individual items, 197 (17%) of participants agreed that things got worse as they got older, whereas 722 (63%) agreed that they had at least as much pep as they had had the preceding year. On the item asking whether participants felt less useful as they got older, 975 (85%) disagreed. On the other items, 919 (80%) agreed that things were better than they thought as they got older, and 901 (78%) agreed that they were at least as happy as they were when they were younger. Descriptive statistics are summarized in Table 1.

The α coefficient for the ATOA scale in our sample was 0.79, indicating acceptable internal consistency reliability. Cronbach's α for all other measures was above 0.8, indicating acceptable internal consistency. In preliminary adjust correlations, the following variables were significantly associated with ATOA: age ($r=-0.20$, $p<0.001$), income ($r=0.07$, $p=0.001$), SF-36 Physical Composite ($r=0.43$, $p<0.001$), SF-36 Mental Composite ($r=0.32$, $p<0.001$), spirituality ($r=0.07$, $p<0.001$), BSIAS Anxiety Score ($r=-0.2$, $p<0.001$). CESD Total score ($r=-0.46$, $p<0.001$), CD-RISC total score ($r=0.38$, $p<0.001$). After regression analyses, seven variables emerged as significantly associated with more positive ATOA (Table 2): younger age, lower income, being married, higher SF-36 Physical Composite scores, higher SF-36 Mental composite scores, lower depression (CES-D) scores, and higher resilience (CD-RISC) scores.

This model explained approximately 40% of the variance in ATOA.

Results were not substantially altered when multiple imputations was used for missing data.

Discussion

Using cross-sectional data from community-dwelling post-menopausal women, we undertook a study to evaluate correlates of ATOA, which has been linked with a number of health outcomes. Regarding our hypothesis, we noted that while higher physical and mental health-related quality of life and greater resilience were associated with better ATOA,

emotional support was not. Somewhat surprisingly lower, rather than higher, socioeconomic status was associated with more positive ATOA. In addition, as proposed, older age and more severe depressive symptoms were associated with negative ATOA. We found no associations with anxiety symptoms. Since the predictive variables together explained only about 40% of the variance in ATOA, our results suggest that aging self-perception is only partially accounted for by the more commonly investigated variables in aging studies.

Our finding of independent effects of depression and mental health related quality of life (on SF-36) likely reflects the added explanatory value of the mental health-related quality of life beyond just depression, and reflects its ability to capture vitality and role functioning elements of the ATOA scale. These results are consistent with the work by Sarkisian (2002). Whether treatment for depression alters self-perceptions of aging remains unknown. However, if depression alters ATOA, the impact on older adults' likelihood of engaging in health maintenance activities (e.g., physical exercise) in light of negative ATOA, may be diminished. Worse ATOA is predictive of worse health behaviors (Levy and Langer, 1994). We speculate that negative ATOA may form a link in the causal chain between depression and poor health outcomes in older adults, which would need to be confirmed in a prospective study.

In regard to sociodemographic variables, the finding that being married is associated with better ATOA is consistent with a large body of literature that demonstrates better overall outcomes in married older adults than unmarried adults (Jang et al., 2009). A somewhat surprising finding was that personal income was inversely related to ATOA. The relationship between income, health and well-being is complex (Pham-Kanter, 2009), and our finding is a likely reflection of the subjectivity of self-rated health and well-being

Finally, our findings lend further support to the view that older age is associated with more negative ATOA, consistent with Sarkisian et al. (2002). Our findings seem to conflict with Barrett's (2003) conclusion that older age is associated with more youthful age identity, which might be regarded as an indicator of a more positive ATOA. Differences in content and assessment methodology between age identity and ATOA may help explain the apparently contradictory impact of age on these related measures.

Also of note were our non-significant results. Our finding that emotional support was not associated with positive ATOA contradicts the results of the only other study reporting on the relationship between social support and aging self-perception (Harrison et al., 2008). However, that study was restricted to persons with multiple sclerosis, and differences in needs of the two study populations may explain this difference. This finding also suggests that positive ATOA is dependent on one's own ability to remain independent rather than reliance on emotional supports. The finding that higher religiosity was not a significant determinant of ATOA adds to the growing literature on spirituality/religiosity and health (Crowther et al., 2002). It is possible that the broader domain of spirituality (not measured in our study) rather than just religious attendance may reflect ATOA (Crowther et al., 2002).

The limitations of our study must also be considered in interpreting these findings. Our sample consisted only of women, who were predominantly white with relatively high educational and socioeconomic status, limiting generalizability to the broader geriatric population. However, previous research on successful aging in global populations, suggests that rates of successful aging in western and Chinese populations may in fact be comparable (Li et al., 2006). ATOA has not been studied to a great extent in other populations, especially Asian populations and our findings need to be replicated in order to determine whether the comparability of general rates of successful aging is reflected ATOA as well.

Other limitations of this study include our selection of variables and hypothesis based on literature review, and since there is not a unifying model for how ATOA impacts other age-associated variables (e.g., disability), we used an exploratory approach to identify the individual contributions of these variables on ATOA. Our analysis was cross-sectional, and future work will be needed to better understand how ATOA influences or is influenced by factors such as depression. Finally, we tested only for bivariate interactions among the various determinants of ATOA, and thus cannot exclude complex three-way interactions among the variables in our model. Prospective longitudinal studies, in samples including men, are needed to validate our model linking ATOA to key health outcomes.

In conclusion, our findings suggest that negative ATOA among seniors is associated with depression and poor physical function. However, there is a substantial proportion of unexplained variance in ATOA, and so it is not likely to be subsumed under other more commonly assessed aspects of the aging experience. Since there are experimental approaches to modifying ATOA (Burbank et al., 2006) the impact of altering ATOA on broader health domains should be studied. Alternatively, whether treatments for risk factors for poor ATOA, such as depression, can improve ATOA, and whether improving ATOA relates to greater engagement in positive health behaviors, should be a focus for future research.

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Table 1
Descriptive Statistics on Sample (n=1151)

Variable	Range	Mean, or N (%)	Standard Deviation
Age, yrs	57-91	72.1	7.2
Race (% white)		1082 (94%)	
<u>Education (highest level attained)</u>			
Did not graduate high school		30 (2.6%)	
High School graduate/GED/vocational school		125 (10.9%)	
Vocational/training school after high school		88 (7.6%)	
Some college		412 (35.8%)	
College graduate		122 (10.6%)	
Graduate school/advanced degree		374 (32.5%)	
<u>Income (in thousands of dollars/yr)</u>			
<20		149 (12.9%)	
20≤ and <35		238 (20.7%)	
35≤ and <50		238 (20.7%)	
50≤ and <75		275 (23.9%)	
75≤ and <100		112 (9.7%)	
≥100		113 (9.8%)	
Philadelphia Geriatric Morale Scale Attitude to Own Aging Subscale (ATOA)	0-5	3.8	1.3
Emotional Support Scale, Emotional Support Subscale (ESESS)	0-3	2.5	0.5
Emotional Support Scale, Instrumental Support Subscale (ESISS)	0-3	1.8	0.8
Emotional Support Scale, Negative Emotion Subscale (ESNSS)	0-3	0.8	0.7
MOS-SF 36 Physical Component Score (PCS)	8-68	43.4	11.3
MOS-SF 36 Mental Component Score (MCS)	5-74	56.6	7.4
Brief Symptom Inventory Anxiety Subscale score	0-20	1.3	2.2
Center for Epidemiologic Studies Depression (CES-D) score	0-45	6.5	6.2
Frequency of church/service attendance	0-5	2.4	1.8
Connor Davidson Resilience Scale (CD-RISC)	0-100	76.1	12.6

Table 2
Regression Coefficients of Determinants of Attitudes to Own Aging

Variable	Coefficient Estimate	Standard Error	t-statistic	p-value
(Constant)	0.003	0.025	0.128	0.898
Age	-0.014	0.004	-3.17	0.001
Race (white)	-0.037	0.122	-0.30	0.762
Education	0.001	0.028	0.043	0.966
Income	-0.058	0.028	-2.11	0.035
Marital Status (being married)	0.196	0.072	2.72	0.007
ESS Emotional Support subscale	-0.006	0.006	-1.07	0.287
ESS Instrumental Support subscale	0.001	0.003	0.325	0.746
ESS Negative Emotion subscale	-0.005	0.004	-1.28	0.201
SF-36 Physical Composite	0.047	0.003	14.89	<0.001
SF-36 Mental Composite	0.046	0.006	7.49	<0.001
BSIAS	0.013	0.016	0.83	0.405
CES-D	-0.034	0.007	-4.87	<0.001
Frequency of church attendance	0.009	0.016	0.58	0.561
CD-RISC	0.013	0.003	4.98	<0.001

$R^2 = 0.402$; Adjusted $R^2 = 0.394$; Residual standard error = 1.008.

F-statistic: 54.57 on 14 and 1044 DF, p-value < 0.001

^b CES-D = Center for Epidemiologic Studies Depression (CESD) Scale

SF-36 = Medical Outcomes Study Short Form-36 (MOS SF-36),

ESS = Emotional Support Scale

BSIAS = Brief Symptom Inventory Anxiety Subscale

CD-RISC = Connor Davidson Resilience Scale