



Brief Original Report

Satisfaction with aging and use of preventive health services

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ABSTRACT

Objective. Preventive health service use is relatively low among older age groups. We hypothesized that aging satisfaction would be associated with increased use of preventive health services four years later.

Method. We conducted multiple logistic regression analyses on a sample of 6177 people from the Health and Retirement Study, a nationally representative study of U.S. adults over the age of 50 (M age = 70.6; women n = 3648; men n = 2529).

Results. Aging satisfaction was not associated with obtaining flu shots. However, in fully-adjusted models, each standard deviation increase in aging satisfaction was associated with higher odds of reporting service use for cholesterol tests (OR = 1.10, 95% CI = 1.00–1.20). Further, women with higher aging satisfaction were more likely to obtain a mammogram/x-ray (OR = 1.17, 95% CI = 1.06–1.29) or Pap smear (OR = 1.10, 95% CI = 1.00–1.21). Among men, the odds of obtaining a prostate exam increased with higher aging satisfaction (OR = 1.20 95% CI = 1.09–1.34).

Conclusion. These results suggest that aging satisfaction potentially influences preventive health service use after age 50.

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Older adults are less likely to use preventive health services than younger or middle-age adults. Their rates of cancer screenings, flu shots, mammograms, and pap smears are typically below recommended levels (Pham et al., 2005; Wooten et al., 2012). Less than 30% of adults aged 50–64 and less than 50% of adults over the age of 65 are up-to-date with core preventive services (Center for Disease Control and Prevention, 2011; Department of Health and Human Services, 2010). Research suggests that increasing the uptake and expanding the delivery of cost-effective preventive services would reduce morbidity and mortality in older adults (Farley et al., 2010). Contemporary efforts to maximize the use of these services emphasize the importance of an integrated multi-pronged approach (Krist et al., 2013; Litaker et al., 2005). Strategies focus on policy initiatives to enhance access to services, improving physicians' attitudes and delivery of preventive care, and community-based programs.

In addition to health care system factors, research suggests that the knowledge and beliefs of older adults should not be overlooked. Wooten et al. (2012), for example, report that in addition to level of education, race and ethnic group, beliefs about the effectiveness of influenza vaccines and perceived risk of susceptibility to disease are associated with vaccination behaviors. An analysis of multiple individual determinants of flu vaccination uptake among 20,453 older adults

surveyed in 14 European countries and Israel revealed that, besides socio-demographic and health factors, people who have a healthy lifestyle that includes physical exercise and not smoking were more likely to demand a flu shot (Schmitz and Wübker, 2011). Further, fatalistic beliefs about cancer, fear, skepticism about the benefits of screening, and personal perceptions of low risk have also been linked with low rates of cancer screening and engagement in a lifestyle of preventive behavior in older adults (Ferrante et al., 2011; Niederdeppe and Levy, 2007). Together, these studies indicate that identifying personal beliefs and attitudes associated with increased preventive health service use may open innovative avenues of inquiry, which will in turn help increase preventive care behaviors in older adults.

We examined the association between preventive service use and aging satisfaction, a personal attitude that has been of great interest in the psychological literature. In the literature, aging satisfaction is also called self-perceptions of aging and attitudes toward one's own aging (e.g., Kleinspehn-Ammerlahn et al., 2008; Lawton, 1975; Levy, 2009; Sargent-Cox, Anstey and Luszcz, 2012). Aging satisfaction measures a person's evaluation of his or her own aging process, including changes in feelings of usefulness, energy level, and quality of life (Lawton, 1975). Although aging satisfaction is associated with life satisfaction, the two constructs do not correlate strongly and exhibit unique variation among individuals (Liang and Bollen, 1983; Montepare and Lachman, 1989). Aging satisfaction is associated with many positive health outcomes in older adults.

People with high aging satisfaction at baseline report better functional health (i.e. absence of disability with daily tasks) over an 18-

Abbreviations: HRS, Health and Retirement Study.

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year follow-up period (Levy et al., 2002a). Studies of older adults that model the interactions between changes in health and changes in aging satisfaction over time suggest that the effect of aging satisfaction on health is stronger than the reverse (Sargent-Cox et al., 2012; Wurm et al., 2007). Further, aging satisfaction has been linked with longevity (Kotter-Grühn et al., 2009; Levy et al., 2002a, 2002b; Maier and Smith, 1999; Sargent-Cox et al., 2014). In a 23-year follow-up study, Levy et al. (2002a, 2002b) found that people with higher aging satisfaction at baseline (M age = 63) lived an average of 7.5 years longer than those with lower aging satisfaction. In a study among the oldest of old Germans, Kotter-Grühn et al. (2009) found that people with more positive self-perceptions of aging at baseline (M age = 85) survived two years longer over a 16 year follow-up period. These effects were robust and remained after adjusting for age, gender, socioeconomic status, diagnosis of dementia, and physician-based diagnoses of chronic illness.

Might these links between higher aging satisfaction, better health, and survival exist because people with higher aging satisfaction invest in maintaining their health by using preventive care services (Bradford, 2010; Ehrlich and Chuma, 1990)? We are aware of only one other study that has examined the association between aging satisfaction and preventive care (Levy and Myers, 2004). This study used a sample of older adults aged 50–80 and controlled for relevant confounding factors such as age and self-rated health. The researchers found that older adults with higher aging satisfaction practiced more preventive health behaviors (e.g., including eating a balanced diet, exercising, and following directions when taking medications) over an 18-year follow-up period. However, the study did not examine the association between aging satisfaction and use of preventive health services.

The current study aimed to expand upon this important prior research by examining the association between aging satisfaction and preventive health services. We hypothesized that older adults with higher aging satisfaction would use more preventive services including: flu shots, cholesterol tests, mammograms, pap smears, and prostate exams. In the analyses, we adjusted for age, gender, race/ethnicity, marital status, education level, and wealth. We also adjusted for eight major chronic illnesses because they also predict the use of preventive services (Lin et al., 2004).

Methods

Study design and sample

We performed our prospective analyses on a sample drawn from the 2008 wave of the Health and Retirement Study (HRS). HRS is an ongoing nationally representative biennial panel study of US adults over the age of 50 sponsored by the National Institute on Aging (grant number NIA U01AG009740) and conducted by the University of Michigan (<http://hrsonline.isr.umich.edu/>). Since 2008, HRS has included a measure of aging satisfaction in a self-administered psychosocial questionnaire given to participants who complete the core face-to-face interview. In a rotating design, a random 50% of the HRS longitudinal panel is interviewed in person each wave in order to collect physical measures (such as waist size, blood pressure), biomarkers, and psychosocial data (Sonnegg et al., 2014). The remaining 50% of the panel is interviewed by telephone, but their data was not used in this study because they were not asked questions about aging satisfaction. Among people in 2008 who completed the core face-to-face interview, were age eligible, and were not in a nursing home, the completion rate for the leave-behind questionnaire was 89% (Smith et al., 2013).

The HRS protocols are approved by the University of Michigan Health Services Institutional Review Board. Participants are read a confidentiality statement when first contacted by telephone and are informed of the voluntary nature of their participation on the psychosocial questionnaire. Before release, the HRS data are subject to a three-stage iterative process to ensure data confidentiality. Because the present study used de-identified and publicly available data, the Institutional Review Board at the University of Michigan exempted it from review.

The final analytic sample consisted of 6177 respondents who were assigned non-zero weights for the 2008 psychosocial questionnaire. In order to identify visits that were made in the service of primary prevention, the number of

respondents in our analyses changed depending on which preventive service we examined. For example, the Pap smear analyses used data only from women with no history of cancer. Sensitivity analyses comparing models with and without adjustment for the relevant disease (e.g., including and excluding women with a history of cancer in the Pap smear exam analyses) indicated little difference in the estimated association between aging satisfaction and use of preventive services.

Measures

Preventive health service measurement

The outcome variables were measured in 2012. Each respondent was asked gender-specific questions regarding use of preventive health services over the last two years (yes/no). In total, HRS asked about five preventive health services recommended by either the United States Preventive Services Task Force (USPSTF) or the Centers for Disease Control (CDC). Respondents were asked: In the last two years, have you had any of the following medical tests or procedures: A flu shot? A blood test for cholesterol? A mammogram or x-ray of the breast to search for cancer? A Pap smear? An examination of your prostate to screen for cancer?

Satisfaction with aging

Aging satisfaction was measured using five items derived from the Attitudes Toward Own Aging subscale from the Philadelphia Geriatric Center Morale Scale (Lawton, 1975; Liang and Bollen, 1983). Using a 6-point Likert scale, respondents in HRS indicated the degree to which they endorsed the following five items: "Things keep getting worse as I get older," "I have as much as pep as I did last year," "The older I get, the more useless I feel," "I am as happy now as I was when I was younger," and "As I get older, things are better than I thought they would be." The appropriate items were reverse scored, then all of the scores were averaged — with higher scores reflecting higher aging satisfaction (Cronbach's $\alpha = 0.73$; $M = 4.01$, $SD = 1.11$). The aging satisfaction scores were then standardized ($M = 0$, $SD = 1$) so that the outcome odds ratio could be interpreted as the result of a one standard deviation increase in aging satisfaction.

Covariates measurement

All of the covariates were collected at baseline in 2008. Covariates included: age, gender, race/ethnicity (Caucasian-American, African-American, Hispanic, Other), (married/not married), educational attainment (no degree, GED or high school diploma, college degree or higher), total wealth (<25,000; 25,000–124,999; 125,000–299,999; 300,000–649,999; >650,000 — based on quintiles of the score distribution in this sample), and an index of major chronic illnesses that ranged from 0 to 8 (See Table 2 notes for the list of all illnesses). Self-reported health measures used in HRS have been rigorously assessed for their validity and reliability (Fisher et al., 2005).

Statistical analysis

We conducted unadjusted and adjusted multiple logistic regression analyses to test whether aging satisfaction was associated with preventive health services. With the exception of descriptive analyses, our analyses used procedures to account for the complex multistage probability HRS survey design and were weighted to be nationally representative of the population over 50. Stata 13. StataCorp. (2013) was used for all analyses.

Missing data analysis

For all study variables, the overall item non-response rate was only 4.45%. However, the missing data were distributed across variables, resulting in a 20.71% loss of respondents when complete-case analyses were attempted. Therefore, to examine the impact of missing data on our results and to obtain less biased estimates, multivariate normal multiple imputation procedures were used to impute missing data. Missing values were imputed multiple ($M = 10$) times using the "mi estimate" command in Stata. Sensitivity analyses showed that the pattern of significance before and after the implementation of multiple imputations was the same except for cholesterol tests, which was marginally non-significant ($p = .055$) before multiple imputation, but marginally significant after multiple imputation ($p = .042$). Parameter estimate changes, before and after imputation, ranged from 0% to 5.85%. We therefore used the dataset with multiple imputation for all logistic regression analyses reported here because this technique provides a more accurate estimate of association

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