

# Hopelessness Predicts Mortality in Older Mexican and European Americans

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**Objective:** The purpose of this study was to evaluate the relationship between hopelessness and mortality in a biethnic cohort of older community-dwelling Mexican Americans, the most rapidly growing segment of the elderly, and European Americans. **Methods:** A total of 795 persons aged 64 to 79 years completed an English or Spanish version of the 30-item Geriatric Depression Scale on entering the San Antonio Longitudinal Study of Aging, an epidemiologic survey, between 1992 and 1996. Women constituted 58% and Mexican Americans 54% of this randomly selected sample. Subjects who answered “no” to the item “Are you hopeful about the future?” were classified as hopeless. **Results:** As of August 1999, 29% of the 73 hopeless subjects had died, compared with 11% of the hopeful, a highly significant difference. The mortality rates for cardiovascular disease and cancer were significantly greater among the hopeless subjects (7%) than among the hopeful (3%). Hopelessness predicted all-cause mortality in a Cox proportional hazards model adjusted for age, ethnic background, current smoking status, number of comorbid medical conditions, self-rated health, and frequency of social contacts (risk ratio = 2.23, 95% confidence interval = 1.33 to 3.76,  $p = .0026$ ). Neither sex nor probable depression was a significant predictor of mortality in this model. **Conclusion:** These findings, together with those of others, suggest that hopelessness is a significant predictor of mortality in older and middle-aged adults of various ethnic backgrounds. Further research is needed to evaluate the mechanisms that underlie this phenomenon and the effects of treating hopelessness on the quality and duration of subjects’ lives. **Key words:** hopelessness, Mexican American, European American, mortality, cardiovascular disease, cancer.

CI = confidence interval; EA = European American; GDS = Geriatric Depression Scale; HBA = home-based assessment; LOT = Life Orientation Test; MA = Mexican American; SAHS = San Antonio Heart Study; SALSAS = San Antonio Longitudinal Study of Aging.

## INTRODUCTION

Why do some people die while others, who may be no less ill or in no less physical danger, continue to live? One answer to this question may lie in the presence or absence of hope. The idea that hopefulness or optimism is a key to survival, or that hopelessness or pessimism predisposes to illness or mortality, has been advanced by many authors writing for general audiences (1–3) and in the clinical literature (4–7). This hypothesis has received further support from two large-scale population studies of hopelessness published in the past several years. Anda et al. (8) evaluated a cohort of 2832 participants in the US National Health Examination Follow-Up Study who were aged 45 to 77 years at baseline and were followed for a mean of 12.4 years. The majority (52.4%) of participants

were women, with 87.4% described as white and the remainder black. The authors did not specify whether any were of Hispanic origin. Those authors evaluated hopelessness at baseline by means of a single question, “[During the past month] have you felt so sad, discouraged, hopeless or had so many problems that you wondered if anything was worthwhile?,” with six response options ranging from “not at all” to “extremely so—just about given up.” After controlling for multiple demographic and known risk factors by means of the Cox proportional hazards model, the authors found a significant association between severe hopelessness (endorsement of the two highest options) and the risk of developing fatal ischemic heart disease (relative risk = 2.1, 95% CI = 1.1–3.9). It is not clear, however, whether their findings are specific to hopelessness because the item they used to assess this symptom also asked about depressed mood.

In the second study, Everson et al. (9) evaluated 2428 men from eastern Finland, aged 42 to 60 years at baseline, who participated in the Kuopio Ischemic Heart Disease Study. Subjects were followed for a mean of 6.0 years. Hopelessness at baseline was assessed by two questions, “I feel that it is impossible to reach the goals I would like to strive for” and “The future to me seems hopeless, and I can’t believe that things are changing for the better,” each of which had five response options ranging from “absolutely agree” to “absolutely disagree.” The authors combined the two items to construct a scale with a maximum score of 8; subjects with a score of 3 to 5 were considered moderately hopeless, and those who scored  $\geq 6$ , highly hopeless. Controlling for a variety of demographic and known risk factors by means of the Cox proportional hazards model, they found an increased risk of all-

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cause mortality for both men who were moderately hopeless (relative hazards = 1.82, 95% CI = 1.25–2.65) and those who were highly hopeless (relative hazards = 2.09, 95% CI = 1.30–3.34). They also found, after controlling for multiple risk factors, that moderately and highly hopeless subjects with a history of cardiovascular disease, diabetes, cancer, or respiratory disease had an increased risk of dying from both cardiovascular and noncardiovascular causes. They also found that mortality due to cancer was increased among moderately and highly hopeless men.

Several recent studies have used the Life Orientation Test (LOT) of Scheier and Carver (10) to assess the role of optimism and pessimism in health and mortality. In a group of 51 middle-aged men who had coronary artery bypass surgery, Scheier et al. (11) found that those who scored in the optimistic range on the LOT had better postsurgical outcomes. Schulz et al. (12), studying 238 female and male patients with advanced cancer, reported that pessimism scores on the LOT predicted mortality in those aged 30 to 59, but not in older subjects. Similarly, Robinson-Whelen et al. (13) noted that the LOT pessimism score predicted subsequent ill health in 113 predominantly female, middle-aged and older caregivers of persons with dementia as well as in 111 non-care-giving control subjects.

The results of these studies support the hypothesis that hopelessness and pessimism are associated with an increased risk of illness and mortality. Many unanswered questions remain, however. Of the two hopelessness studies, only that of Everson et al. (9) used questions specific to hopelessness, and it was limited to Finnish men aged 60 or younger at baseline. The LOT studies (11–13) also included primarily subjects of European origin. Thus, it is unclear whether hopelessness predicts mortality in older persons or individuals not of European origin. Studying these other groups could not only help in evaluating the generalizability of the hopelessness/health relationship but also might shed light on some of the mechanisms that underlie this phenomenon. The elderly would be very interesting to evaluate because the study of Schulz et al. (12) suggests that pessimism may not affect mortality in this age group. It is possible, as Schulz et al. suggest, that pessimism or hopelessness may be more normative in older persons. Studying members of various ethnic minority groups would also be of particular interest. Given the relative lower socioeconomic status of many minority group individuals, one might hypothesize that those who survive into old age would be a particularly hardy group and less susceptible to a health effect of hopelessness than similar members of the majority population.

To shed further light on the relationship between hopelessness and mortality, we evaluated data from a cohort of older, community-dwelling Mexican Americans (MAs) and European Americans (EAs). MAs are of special interest not only because they constitute the most rapidly growing segment of the elderly in the United States (14), but also because traditional MA culture is commonly viewed as having a more fatalistic (15, 16) and present-oriented (17) world view than EA culture. Although a fatalistic world view might well have a deleterious effect on health, present-time orientation could potentially mitigate some of these effects by making the future a lesser source of concern.

## METHODS

All study participants had completed a home-based assessment (HBA) as part of the San Antonio Longitudinal Study of Aging (SALSA), a community-based study of chronic disease and functional status (18). The SALSA sample consisted of elderly individuals who had previously participated in the San Antonio Heart Study (SAHS), a large prospective cohort study established in 1979 to investigate differences in the etiology and incidence of cardiovascular disease and diabetes mellitus between MAs and EAs. Subjects were enrolled in SAHS in two cohorts: from 1979 to 1982 and from 1984 to 1988. These samples are described in detail in Stern et al. (19) and Hazuda et al. (20). A total of 5158 subjects were enrolled, with an overall response rate of 65.3%.

To maximize sociocultural variation among MA participants in the SAHS, subjects were recruited from three types of neighborhood in the city of San Antonio: 1) low income, almost exclusively MA; 2) middle-income, ethnically balanced; and 3) high-income, predominantly EA. A random sample of households was selected in each type of neighborhood using the Polk directory, a city criss-cross directory. Only MAs were selected in the first type of neighborhood because so few EAs lived there. In the middle- and high-income neighborhoods, stratified random sampling was used to achieve enrollment of approximately equal numbers of the two ethnic groups. All 25- to 64-year-old men and nonpregnant women living in the selected households were considered eligible for the SAHS. For purposes of follow-up, only those individuals who completed a baseline clinic examination were considered part of the SAHS cohort.

From 1992 to 1996, efforts were made to contact all SAHS subjects who were currently or would shortly be between 65 and 79 years of age and to ask them to participate in SALSA. Of the 1247 subjects from the SAHS cohort who would have met these age criteria during the study period, 170 had died. Seventy-seven percent (833 of 1077 survivors) agreed to participate and completed the HBA as part of SALSA. A few subjects were interviewed slightly before their 65th birthday. Among the 23% of survivors ( $N = 244$ ) who did not complete the HBA, 28 had moved out of the area, 26 could not be located, and 190 declined to participate. There were no significant differences between those who completed the HBA and those who did not in age, gender, perceived health (self-assessment of the quality of one's health), or number of comorbid medical illnesses. However, completers were more educated (8.6 vs. 7.1 years of schooling,  $p \leq .001$ ) and, among Mexican Americans, were slightly more assimilated into American society.

Data collection in SALSA, consisting of the HBA plus a performance-based assessment given at the General Clinical Research Center of the University of Texas Health Science Center in San Antonio,

was carried out between April 1992 and April 1996. All subjects were between 64 and 79 years old at the time of their HBA. All rating instruments, which were administered by an interviewer, were translated into Spanish using standard cross-cultural techniques and administered orally in either English or Spanish according to the participant's stated language preference. Twenty-nine percent of the MAs were interviewed in Spanish.

Among the 833 persons who completed the HBA as part of SALSA, 795 subjects took the 30-item Geriatric Depression Scale (GDS) (21) and were included in this study. Those who responded "no" to the item "Are you hopeful about the future?" were classified as hopeless. The Spanish version of this question was "¿Tiene esperanzas acerca del futuro?," the literal translation of which is "Do you have hopes concerning the future?"

The data for this report are based on mortality statistics through August 1999, with a mean (SD) follow-up of 5.2 (1.5) years and a range of 0.2 to 7.4 years. To assess vital status, local newspaper obituaries were reviewed daily, vital statistics records of the San Antonio Metropolitan Health District were checked quarterly, and a search of the National Death Index was performed annually. Cause of death was determined by review of death certificates and was coded by a certified nosologist.

### Data Analysis

A stepwise regression method was used to explore the relationship between hopelessness and all-cause mortality using Cox proportional hazards models. Four sets of data were entered into the model hierarchically. First, demographic variables (age, sex, ethnic background, years of formal education, and monthly household income) were entered. Second, significant demographic variables from step 1 ( $p \leq .10$ ) were entered along with potential health risk factors. These consisted of systolic and diastolic blood pressure, body mass index, number of comorbid medical illnesses (assessed by asking participants if they had ever been diagnosed by a doctor with any of seven common medical conditions), and perceived health. Third, significant variables from step 2 were entered along with lifestyle risk factors. These included current smoking, current

drinking, probable alcoholism, and activity level (weekly energy expenditure based on self-estimated physical activity). Fourth, significant variables from step 3 were entered along with social protective or risk factors. These consisted of number of social contacts, social well-being (satisfaction with contacts), marital status, and whether the individual was living alone. Finally, hopelessness was added to the final model of significant variables in step 4 to determine whether it was a significant independent predictor of mortality. The final model before adding hopelessness included six variables: age, ethnic background, number of comorbid illnesses, perceived health, number of social contacts, and current smoking. All variables in this model were statistically significant ( $p < .05$ ).

A separate stepwise regression was also conducted for the MA subjects.

### RESULTS

Of the 795 participants, 248 (31.2%) were MA women, 213 (26.8%) EA women, 184 (23.1%) MA men, and 150 (18.9%) EA men. The mean (SD) age of the total group was 69.1 (3.3) years. Seventy-three subjects (9.1%) were classified as hopeless and 722 (90.9%) as hopeful. Rates of hopelessness were nearly identical in women (9.1%, 42 of 461) and men (9.3%, 31 of 334). Hopelessness was more common in MAs (10.0%, 43 of 432) than in EAs (8.3%, 30 of 363), but this difference was not statistically significant ( $\chi^2 0.675$ ,  $df = 1$ ,  $p = .411$ ). The prevalence of hopelessness among the four ethnic/gender groups ranged from 12.0% (22 of 184) for MA men to 9.9% (21 of 213) for EA women, 8.5% (21 of 248) for MA women, and 6.0% (9 of 150) for EA men ( $\chi^2 3.8$ ,  $df = 3$ ,  $p = .285$ ). As shown in Table 1, the hopeful and hopeless participants varied significantly on a number of demographic

TABLE 1. Comparison of Hopeless and Hopeful Subjects on Demographic and Health-Related Variables

Variable	Hopeless (N = 73)	Hopeful (N = 722)	p
Age, y	70.0 (0.40) <sup>a</sup>	69.0 (0.12)	.0091
Female, %	57.5	58.0	.934
Mexican-American, %	58.9	53.9	.411
Education, y	10.2 (0.52)	10.9 (0.17)	.1902
Household income (category: 1-15)	10.4 (0.34)	11.6 (0.11)	.0040
Comorbid illnesses, N	1.6 (0.14)	1.3 (0.04)	.0570
Systolic blood pressure (mm Hg)	130 (2.3)	133 (0.81)	.3100
Diastolic blood pressure (mm Hg)	64 (1.9)	66 (0.54)	.3162 <sup>b</sup>
Body mass index, kg/m <sup>2</sup>	28.7 (0.77)	28.4 (0.20)	.7350
High physical activity, %	27.8	47.6	.004
Current smoker, %	24.6	14.9	.034
Current drinker, %	36.6	40.8	.499
Probable alcoholic, %	14.5	11.6	.488
Geriatric Depression Scale score <sup>c</sup>	11.4 (0.72)	5.5 (0.17)	.0001
Social Well-Being Scale score	31.1 (0.59)	32.7 (0.15)	.0037
Social contacts, N	7.9 (0.45)	9.3 (0.14)	.0027

<sup>a</sup> Values shown for continuous variables are mean (SE); values shown for categorical variables are percentages.

<sup>b</sup> The statistical test for group differences for diastolic blood pressure was the Wilcoxon rank sum test because diastolic blood pressure was not normally distributed. Median diastolic blood pressure was 65 mm Hg for the hopeless subjects and 66 mm Hg for the hopeful.

<sup>c</sup> Includes hopelessness item.

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and health variables but showed no difference on other important variables, such as blood pressure, body mass index, current drinking status, and probable alcoholism.

As of August 1999, 28.8% (21 of 73) of the hopeless subjects had died, compared with 10.7% (77 of 722) of the hopeful, a highly significant difference ( $\chi^2$  20.1,  $df$  = 1,  $p$  = .001). The mortality rate for the four gender/ethnic groups ranged from 21.7% for the MA men to 10.9% for the MA women, 9.3% for the EA men, and 8.0% for the EA women ( $\chi^2$  20.5,  $df$  = 3,  $p$  = .001).

Among the subjects for whom death certificates were available (87 of 98), 25 died of cardiovascular disease and 25 of cancer. The mortality rates were identical for both diseases: 7.2% for the hopeless subjects and 2.8% for the hopeful ( $\chi^2$  4.0,  $df$  = 1,  $p$  = .045).

Table 2 shows the final Cox proportional hazards model, in which hopelessness was a highly significant predictor of all-cause mortality.

In the separate Cox analysis of MAs, hopelessness remained a strong predictor of all-cause mortality ( $p$  = .0293), together with age (.0067), comorbid illness (.0001), number of social contacts (.0138), and sex (.0111). These results differ from those for the total sample chiefly in that sex is included in the final model, whereas ethnicity (by definition), current smoking, and perceived health are not. Smoking may not be significant for the MAs both because MAs who smoke do so less intensively than EAs (22) and because the smaller size of the sample (ie, the fewer number of deaths) reduces our power to detect significant differences.

There was insufficient power to conduct a separate analysis for the EAs because of the smaller number of deaths in this group.

Mortality among MAs did not differ significantly according to whether they were first-, second-, or third-generation: 19% (11 of 58) vs. 15% (40 of 271) vs. 17% (16 of 96), respectively ( $\chi^2$  = 0.712,  $df$  = 2,  $p$  = .700). The mortality rate among the 29% of the MAs who were interviewed in Spanish was 20% (23 of 116),

**TABLE 2. Final Cox Proportional Hazards Model For All-Cause Mortality ( $N$  = 749, deaths = 84)<sup>a</sup>**

Variable	Risk Ratio	95% Confidence Interval	$p$
Age	1.129	1.056–1.206	.0003
Ethnic background	1.786	1.121–2.846	.0147
Comorbid illness, $N$	1.363	1.138–1.632	.0008
Perceived health	1.457	1.107–1.919	.0073
Social contacts, $N$	0.913	0.864–0.965	.0013
Current smoking	2.049	1.256–3.341	.0040
Hopelessness	2.234	1.325–3.765	.0026

<sup>a</sup> Data for all variables were not available for 46 of the 795 subjects.

compared with 14% (44 of 316) for those interviewed in English ( $\chi^2$  = 2.26,  $df$  = 1,  $p$  = .133).

One hundred thirty-nine subjects (17.5%) were classified as probably depressed based on a total GDS score of  $\geq 11$ , the usual cutoff point for a major depressive syndrome (21). Their mortality rate (22.3%, 31 of 139) was significantly greater than that for nondepressed individuals (10.2%, 67 of 656) ( $\chi^2$  15.5,  $df$  = 1,  $p$  = .001). Subjects with both hopelessness and probable depression had a significantly higher mortality rate than those with only one or none of these risk factors, as shown in Table 3. In a Cox model that controlled for age, sex, and household income, the risk of mortality increased significantly ( $p$  = .0001) as one went from category 1 (hopeful/not depressed) to category 2 (hopeful/depressed), category 3 (hopeless/not depressed), and finally category 4 (hopeless/depressed).

Probable depression alone was not a significant predictor of mortality in Cox proportional hazards models that used the same covariates as the hopelessness analysis (data not shown).

## DISCUSSION

### Relationship with Other Studies

Our findings confirm and extend the results of previous studies (8, 9) suggesting that, in a US sample comprising older women and men of Mexican and European origin, hopelessness is associated with an increased risk of all-cause mortality.

Similar to Anda et al., (8) we found a higher prevalence of hopelessness in a minority population, although the ethnic difference in a comparison with EAs was not significant. Consistent with the results of Fiscella and Franks (23) with African American subjects, we did not find that controlling for hopelessness significantly decreased the relative risk of mortality associated with MA ethnic background. Like Greene (24) but unlike Anda et al. (8), we did not find a higher prevalence of hopelessness in women. It is possible that the increased hopelessness in women observed by

**TABLE 3. Hopelessness, Probable Depression, and Mortality**

Category	Alive		Dead	
	$N$	%	$N$	%
Hopeful/not depressed	563	90.7	58	9.3
Hopeful/depressed <sup>a</sup>	82	81.2	19	18.8
Hopeless/not depressed	26	74.3	9	25.7
Hopeless/depressed	26	68.4	12	31.6
Total	697	87.7	98	12.3

<sup>a</sup> Probable major depressive syndrome (GDS  $\geq 11$ ).  $\chi^2$  = 27.9,  $df$  = 3,  $p$  = .001.

Anda et al. (8) may have been related to their assessment of this variable by means of a question that also included depressed mood.

#### Potential Limitations

We evaluated hopelessness with a single yes/no question, which prevented us from ascertaining whether severe as opposed to moderate hopelessness was associated with a greater increase in mortality, as suggested by Anda et al. (8) and Everson et al. (9). The hopeless subjects in our study, 9% of the total, may have been comparable in degree of hopelessness to Everson et al.'s (9) "severely hopeless" subjects, who constituted 11% of their population. Although the GDS has been reported to have high sensitivity and specificity for diagnosing a major depressive syndrome in a geriatric population (25), it is possible that the risk ratio for probable depression in our study might have been different had we diagnosed subjects by means of a psychiatric interview. Our findings with regard to hopelessness and mortality from cardiovascular disease and cancer need to be evaluated with caution in view of the fact that we assessed cause of death by review of death certificates, a method that may not always be reliable.

#### Relationships Among Hopelessness, Depression, and Mortality

Our finding that probable depression did not predict all-cause mortality after controlling for multiple risk factors differs from that of many authors (26–34) but is consistent with the findings of others (35–39). As Wulsin et al. (40) noted in their comprehensive review of the mortality of depression, the widely varying results in this literature may in part reflect many authors' failure to control for key risk factors. Differences in the populations studied and divergent definitions of depression may also contribute to the disparate results.

It is of interest that Everson et al., (9, 41) Anda et al. (8), and we all found hopelessness to be a stronger predictor of mortality than depressive symptoms or probable depression. Everson et al. (41) noted that men with a score in the fourth quartile on the depression scale of the Minnesota Multiphasic Personality Inventory were at increased risk of cardiovascular mortality compared with those with scores in the first quartile, but this difference became only marginally significant after controlling for multiple risk factors. Similarly, in Anda et al.'s (8) data, a four-item depressed affect subscale of the General Well-Being Schedule (42) was of only borderline significance (relative risk = 1.5,

95% CI = 1.0–2.3) after adjusting for multiple risk factors. These results, together with our findings (see Table 3), suggest that those depressed individuals who are both depressed and hopeless may have the greatest risk of mortality.

In a recent study that found depressive symptoms to predict mortality in a geriatric population (34), item analysis showed that the effect was due to motivation-related items. These authors' results may be consistent with our and others' findings on hopelessness.

#### Directions for Future Research

Both our and Everson et al.'s (9) data suggest that hopelessness is associated with an increased risk of dying of both cardiovascular and noncardiovascular causes, including cancer, whereas Anda et al.'s (8) data support an increased risk of fatal ischemic heart disease. Further research in various populations to evaluate which causes of death are increased in hopeless individuals would be very useful. Such data would help shed light on the mechanisms by which hopelessness is related to mortality. One potential mechanism is suicide, which is clearly increased in psychiatrically ill persons with symptoms of hopelessness (43, 44). Suicide is much less common, however, in epidemiologic cohorts. Indeed, we had no cases of suicide among the 87 deaths in our sample for which causes of death were available. As Schulz et al. (12) suggest, hopeless or pessimistic individuals may, like those with depression (45, 46), be less likely to engage in health-promoting behaviors, such as eating well, exercising, following their doctor's recommendations, and taking their medication as prescribed. They may also, like depressed persons (47), be more likely to engage in high-risk behaviors, such as substance-related behavioral disorders and unsafe sexual practices. Our data and that of Anda et al. (8) and Everson et al. (9) show, however, that hopelessness remains a significant predictor of mortality even after controlling for at least some key health-related behaviors, such as smoking and alcohol abuse. Similar to individuals suffering from depression (48–52), hopeless persons could also have biochemical and neurophysiologic abnormalities (such as abnormal platelet function, reduced heart rate variability, decreased immune function, decreased serotonergic function, and increased activity of the noradrenergic system and hypothalamic-pituitary-adrenal axis) that could help to explain their increased mortality. The report of Everson et al. (53) that hopeless men have greater progression of carotid atherosclerosis is a very promising finding in this area. Further imaging studies to evaluate changes in brain functioning

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associated with hopelessness, building on the work of Gottschalk et al. (54), could be very informative.

It would be useful, too, to explore further the relationships among hopelessness, optimism and pessimism, depression, and other proposed psychological risk factors for physical illness and mortality, such as vital exhaustion (55–57), hostility (58), and anxiety (59). Other useful areas for exploration include whether hopelessness predicts mortality in children, young adults, and persons over 80; the effect of hopelessness on the functional status and quality of life of physically ill persons; and the role of life experiences and genetic factors in the etiology of hopelessness. Assessing hopelessness by an instrument such as the Beck Hopelessness Scale (60), rather than by one or two questions, would likely facilitate future research.

More research into the causes of hopelessness is also needed. Individuals may experience hopelessness as part of a major depressive syndrome or as a relatively isolated symptom reflecting their current or past life situation. Economic hardship, social and cultural isolation, and loss of function due to poor health all may play a role in the etiology of hopelessness for some individuals, as might the loss of a spouse or a history of childhood abuse. It is possible that MAs, EAs, and other ethnic and racial groups might differ in the extent to which different etiologic factors play a role in the development of hopelessness. Tailoring the choice of treatment for hopelessness or the method of providing it to an individual's cultural background might prove very useful.

Prospective studies to evaluate the effects of treating hopelessness on the quality and duration of subjects' lives would be important. Both medication and cognitive-behavioral therapies, such as those of Beck et al. (61) and Seligman (3), would seem to be promising treatment modalities for hopeless individuals, though patients who suffer from hopelessness as part of severe melancholic depression might not be expected to respond well to cognitive-behavioral psychotherapies alone. It would be useful to explore whether depressed patients with and without hopelessness respond differentially to different therapeutic approaches. Both antidepressants and psychotherapy would be worth evaluating in hopeless individuals who have few other depressive symptoms.

### Implications for Clinical Practice

The fact that a single item can provide relevant information about the risk of mortality suggests that "Are you hopeful about the future?" might be a useful screening question to include in the evaluation of older patients. Our data also lend further support to

the time-honored advice that instilling hope is a key part of the clinician's armamentarium.

## CONCLUSION

These data, together with those of others, suggest that hopelessness is associated with increased mortality in older and middle-aged adults of various ethnic backgrounds. A better understanding of the mechanisms that underlie this phenomenon may help us to extend the duration and improve the quality of our patients' lives.

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## REFERENCES

1. Cousins N. Head first: the biology of hope. New York: EP Dutton; 1989.
2. Huntford R. Shackleton. New York: Carroll & Graf; 1985.
3. Seligman MEP. Learned optimism. New York: Alfred A. Knopf; 1991.
4. Engel GL. A life setting conducive to illness: the giving-up-given-up complex. *Ann Intern Med* 1968;69:293–9.
5. Peterson C, Seligman MEP, Vaillant G. Pessimistic explanatory style is a risk factor for physical illness: a thirty-five year longitudinal follow-up. *J Pers Soc Psychol* 1988;55:23–7.
6. Schmale AH Jr, Iker HP. Hopelessness as a predictor of cervical cancer. *Soc Sci Med* 1971;5:95–100.
7. Stein S, Linn MW, Stein EM. Psychological correlates of survival in nursing home cancer patients. *Gerontologist* 1989;29:224–8.
8. Anda R, Williamson D, Jones D, Macera C, Eaker E, Glassman A, Marks J. Depressed affect, hopelessness, and the risk of ischemic heart disease in a cohort of U.S. adults. *Epidemiology* 1993;4:285–94.
9. Everson SA, Goldberg DE, Kaplan GA, Cohen RD, Pukkala E, Tuomilehto J, Salonen JT. Hopelessness and risk of mortality and incidence of myocardial infarction and cancer. *Psychosom Med* 1996;58:113–21.
10. Scheier MF, Carver CS. Optimism, coping, and health: assessment and implications of generalized outcome expectancies. *Health Psychol* 1985;4:219–47.
11. Scheier MF, Matthews KA, Owens JF, Magovern GJ Sr, Lefebvre RC, Abbott RA, Carver CS. Dispositional optimism and recovery from coronary artery bypass surgery: the beneficial effects on physical and psychological well-being. *J Pers Soc Psychol* 1989;57:1024–40.
12. Schulz R, Bookwala J, Knapp JE, Scheier M, Williamson GM. Pessimism, age, and cancer mortality. *Psychol Aging* 1996;11:304–9.
13. Robinson-Whelen S, Kim C, MacCallum RC, Kiecolt-Glaser J. Distinguishing optimism from pessimism in older adults: is it more important to be optimistic or not to be pessimistic? *J Pers Soc Psychol* 1997;73:1345–53.
14. Days JC. Population projections of the United States by age, sex, race, and Hispanic origin: 1995 to 2050. US Bureau of the Census, Current Population Reports. Washington DC: US Department of Commerce, Bureau of the Census; 1996. Publication No.: P-25-1130.

15. Clark M. Health in the Mexican-American culture. Berkeley: University of California Press; 1959.
16. Madsen W. The Mexican-Americans of south Texas. 2nd ed. New York: Holt, Rinehart & Winston; 1973.
17. Kluckhohn FR. Dominant and variant value orientations. In: Kluckhohn C, Murray HH, Schneider JM, editors. Personality in nature, society and culture. New York: Knopf; 1953.
18. Hazuda HP, Wood RC, Lichtenstein MH, Espino DV. Sociocultural status, psychosocial factors, and cognitive functional limitation in elderly Mexican Americans: findings from the San Antonio Longitudinal Study of Aging. *J Gerontol Soc Work* 1998;30:99–121.
19. Stern MP, Rosenthal M, Haffner SM, Hazuda HP, Franco LF. Sex difference in the effects of sociocultural status on diabetes and cardiovascular risk factors in Mexican Americans: the San Antonio Heart Study. *Am J Epidemiol* 1984;120:834–51.
20. Hazuda HP, Mitchell BD, Haffner SM, Stern MP. Obesity in Mexican American subgroups: findings from the San Antonio Heart Study. *Am J Clin Nutr* 1991;53:1529S–34S.
21. Yesavage JA, Brink TL. Development and validation of a geriatric depression screening scale: a preliminary report. *J Psychiatr Res* 1983;17:37–49.
22. Mitchell BD, Stern MP, Haffner SM, Hazuda HP, Patterson JK. Risk factors for cardiovascular mortality in Mexican Americans and non-Hispanic whites: the San Antonio Heart Study. *Am J Epidemiol* 1990;131:423–33.
23. Fiscella K, Franks P. Does psychological distress contribute to racial and socioeconomic disparities in mortality? *Soc Sci Med* 1997;45:1805–9.
24. Greene SM. Levels of measured hopelessness in the general population. *Br J Clin Psychol* 1981;20:11–4.
25. Lyness J, Noel TK, Cox C, King DA, Conwell Y, Caine ED. Screening for depression in elderly primary care patients: a comparison of the Center for Epidemiologic Studies–Depression Scale and the Geriatric Depression Scale. *Arch Intern Med* 1997; 157:449–54.
26. Aromaa A, Raitasalo R, Reunanen A, Impivaara O, Heliovaara M, Knekt P, Lehtinen V, Joukamaa M, Maattela J. Depression and cardiovascular diseases. *Acta Psychiatr Scand Suppl* 1994;337: 77–82.
27. Barefoot JC, Schroll M. Symptoms of depression, acute myocardial infarction, and total mortality in a community sample. *Circulation* 1996;93:1976–80.
28. Bruce ML, Leaf PJ. Psychiatric disorders and 15-month mortality in a community sample of older adults. *Am J Public Health* 1989;79:727–30.
29. Black SA, Markides KS. Depressive symptoms and mortality in older Mexican Americans. *Ann Epidemiol* 1999;9:45–52.
30. Frasure-Smith N, Lesperance F, Talajic M. Depression and 18-month prognosis after myocardial infarction. *Circulation* 1995; 91:999–1005.
31. Morris PLP, Robinson RG, Andrzejewski P, Samuels J, Price TR. Association of depression with 10-year post-stroke mortality. *Am J Psychiatry* 1993;150:124–9.
32. Penninx BWJH, Guralnik JM, Pahor M, Ferrucci L, Cerhan JR, Wallace RB, Havlik RJ. Chronically depressed mood and cancer risk in older persons. *J Natl Cancer Inst* 1998;90:1888–93.
33. Whooley MA, Browner WS, for the Study of Osteoporotic Fractures Research Group. Association between depressive symptoms and mortality in older women. *Arch Intern Med* 1998;158: 2129–35.
34. Schulz R, Beach SR, Ives DG, Martire LM, Ariyo AA, Kop WJ. Association between depression and mortality in older adults: the cardiovascular health study. *Arch Intern Med* 2000;160: 1761–8.
35. Fredman L, Schoenbarch VJ, Kaplan BH, Blazer DG, James SA, Kleinbaum DG, Yankaskas B. The association between depressive symptoms and mortality among older participants in the Epidemiologic Catchment Area–Piedmont Health Survey. *J Gerontol* 1989;44:S149–56.
36. Parmelee PA, Katz IR, Lawton MP. Depression and mortality among institutionalized aged. *J Gerontol* 1992;47:P3–10.
37. Roberts RE, Kaplan GA, Camacho TC. Psychological distress and mortality: evidence from the Alameda County study. *Soc Sci Med* 1990;31:527–36.
38. Thomas C, Kelman HR, Kennedy GJ, Ahn C, Yang C. Depressive symptoms and mortality in older persons. *J Gerontol* 1992;47: 580–7.
39. Vaillant GE, Orav J, Meyer SE, Vaillant LM, Roston D. Late-life consequences of affective spectrum disorder. *Int Psychogeriatr* 1996;8:13–31.
40. Wulsin LR, Vaillant GE, Wells VE. A systematic review of the mortality of depression. *Psychosom Med* 1999;61:6–17.
41. Everson SA, Kaplan GA, Goldberg DE, Cohen RD, Tuomilehto J, Salonen JT. Depressive symptoms and risk of myocardial infarction and mortality [abstract]. *Am J Epidemiol* 1995;141:S37.
42. Dupuy HJ. A concurrent validation study of the NCHS General Well-Being Schedule. *Vital Health Statistics, Series 2, No. 73. DHEW Pub. no. (HRA) 78-1347. Washington DC: US Government Printing Office; 1977.*
43. Beck AT, Steer RA, Kovacs M, Garrison B. Hopelessness and eventual suicide: a 10-year prospective study of patients hospitalized with suicidal ideation. *Am J Psychiatry* 1985;142: 559–63.
44. Fawcett J, Scheftner WA, Fogg L, Clark DC, Young MA, Hedeker D, Gibbons R. Time-related predictors of suicide in major affective disorder. *Am J Psychiatry* 1990;147:1189–94.
45. Mazze RS, Lucido D, Shannon H. Psychological and social correlates of glycemic control. *Diabetes Care* 1984;7:360–6.
46. Blumenthal JA, Williams RS, Wallace AG, Williams RB, Needles TV. Physiological and psychological variables predict compliance to prescribed exercise therapy in patients recovering from myocardial infarction. *Psychosom Med* 1982;44: 519–27.
47. Glassman AH, Helzer JE, Covey LS, Cottler LB, Stetner F, Tipp JE, Johnson J. Smoking, smoking cessation, and major depression. *JAMA* 1990;264:1546–9.
48. Laghrissi-Thode F, Wagner WR, Pollock BG, Johnson PC, Finkel MS. Elevated platelet factor 4 and beta-thromboglobulin plasma levels in depressed patients with ischemic heart disease. *Biol Psychiatry* 1997;42:290–5.
49. Musselman DL, Tomer A, Manatunga AK, Knight BT, Porter MR, Kasey S, Marzec U, Harker LA, Nemeroff CB. Exaggerated platelet reactivity in major depression. *Am J Psychiatry* 1996;153: 1313–7.
50. Carney RM, Rich M, Tevelde A, Saini J, Clark K, Freedland KE. The relationship between heart rate, heart rate variability, and depression in patients with coronary artery disease. *J Psychosom Res* 1988;32:159–64.
51. Miller AH. Neuroendocrine and immune system interactions in stress and depression. *Psychiatr Clin North Am* 1998;21: 443–63.
52. Stratakis CA, Chrousos GP. Neuroendocrinology and pathophysiology of the stress response. *Ann N Y Acad Sci* 1995;771: 1–18.
53. Everson SA, Kaplan GA, Goldberg DE, Salonen R, Salonen JT.

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- Hopelessness and 4-year progression of carotid atherosclerosis: the Kuopio ischemic heart disease risk factor study. *Arterioscler Thromb Vasc Biol* 1997;17:1490–5.
54. Gottschalk LA, Fronczek J, Buchsbaum MS. The cerebral neurobiology of hope and hopelessness. *Psychiatry* 1993;56:270–81.
  55. Appels A, Hoppener P, Mulder P. A questionnaire to assess premonitory symptoms of myocardial infarction. *Int J Cardiol* 1987;17:15–24.
  56. Appels A, Mulder P. Fatigue and heart disease: the association between “vital exhaustion” and past, present, and future coronary heart disease. *J Psychosom Res* 1989;33:727–38.
  57. Kop WJ, Appels A, Mendes de Leon CF, de Swart HB, Bar FW. Vital exhaustion predicts new cardiac events after successful coronary angioplasty. *Psychosom Med* 1994;56:281–7.
  58. Barefoot JC, Dahlstrom WG, Williams RB. Hostility, CHD incidence, and total mortality: a 25-year follow-up study of 255 physicians. *Psychosom Med* 1983;45:59–63.
  59. Kawachi I, Colditz GA, Ascherio A, Rimm EB, Giovannucci E, Stampfer MJ, Willett WC. Prospective study of phobic anxiety and risk of coronary heart disease in men. *Circulation* 1994;89:1992–7.
  60. Beck AT, Weissman A, Lester D, Trexler L. The measurement of pessimism: the hopelessness scale. *J Cons Clin Psychol* 1974;42:861–5.
  61. Beck AT, Rush AJ, Shaw BF, Emery G. *Cognitive therapy of depression*. New York: Guilford; 1979.