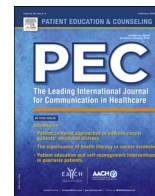




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### Research paper

# Fatalism and educational disparities in beliefs about the curability of advanced cancer

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### ABSTRACT

**Objective:** Understanding socioeconomic disparities in the care of patients with incurable cancer is a high priority. We hypothesized that patients without a high school education are more likely to believe that they could be cured and we explored the role of fatalism.

**Methods:** We studied 977 patients with advanced, incurable cancer. Two logistic regression analyses were conducted. Model One examined the effect of education on beliefs about curability. Model Two added fatalism.

**Results:** The significant association between having less than a high school education and the belief that advanced cancer can be cured (OR=2.55; 95% CI: 1.09–5.96) in Model One was attenuated by 39% and rendered nonsignificant in Model Two. Fatalism was associated with the belief that advanced cancer can be cured. Whites were less likely to believe they could be cured than Blacks and Asians/Pacific Islanders. Beliefs about curability were not associated with income or insurance status.

**Conclusions:** People who do not complete high school are more likely to believe that their advanced cancer is curable, in part because they are more likely to hold fatalistic worldviews.

**Practice implications:** Interventions to help oncologists care for patients with fatalistic beliefs could mitigate socioeconomic disparities in end-of-life care.

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## 1. Introduction

Individuals who receive fewer years of education and those with lower incomes are more likely to be hospitalized weeks before death, less likely to be referred for palliative care or hospice, and more likely to receive chemotherapy at the end of life (EoL) [1–4]. Interventions to improve EoL care ought to be informed by research on why these socioeconomic disparities exist [5]. Drawing from the literature on education-related health disparities [6,7],

we report secondary analyses of data gathered in the Cancer Care and Outcomes Research and Surveillance Consortium (CanCORS) to test the hypothesis that patients with lower levels of education are more likely to believe that their incurable colorectal or lung cancer can be cured. Although research has been conducted to understand ethnic and racial disparities in EoL care [8–10], we are aware of no comparable research on socioeconomic disparities.

Beliefs about curability are clinically important. For example, patients with advanced cancer who believe they could not be cured are more likely to enter hospice [11]. Prior studies have explored the relationship between education and beliefs about curability [12–14]. Weeks et al. [14] reported no relationship between education and curability beliefs in their main analyses, but their sensitivity analyses (using a more relaxed definition of perceived incurability) showed that patients who did not complete high school were more likely to believe that their Stage IV cancer could

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be cured. No study has explored the effects of education independent of economic indicators of socioeconomic status, and no study has attempted to explain why people who do not go very far in school are more likely to believe that they can be cured.

Patients with lower educational attainment may be more likely to believe they can be cured for several reasons (e.g., greater physician-patient communication challenges, poor patient health literacy, etc). This study focuses on the role of fatalism, as assessed by the Fatalism Scale (FS) [15] and by responses to an open-ended question about expected lifespan. The FS assesses the extent to which ‘the individual accepts whatever happens to him or her in life as his or her just fate [and that] one can do little about the events that happen to them’ [15,pg.12]. For the lifespan question, fatalism was operationalized as any response that invoked God (e.g., “it’s in God’s hands”). Intuitively, to many in societies that place a premium on personal agency and perceived control, a fatalistic attitude may seem unhelpful, bad for one’s health, perhaps even an instrument of self-oppression [16]. However, as a socially-constructed [17,18] worldview that is cultivated by identity-conferring institutions (e.g., families, schools, churches), fatalism is neither inherently bad nor inherently good. In some contexts, fatalism may convey denial, resignation, or passivity [19], and may indeed have damaging consequences. In other situations, particularly those characterized by uncertainty [20], fatalism “may not be as much an indication of pacifism as hope” [15,pg. 18].

Fatalism has been shown to differ by race and religious affiliation [15,21], presumably reflecting the importance of different identity-conferring institutions across demographic groups. Insofar as educational institutions not only shape people’s understanding of who they are but also increase their sense of control over life circumstances [7,22], it is not surprising that prior studies have shown that levels of fatalism are higher among individuals with fewer years of formal education [15,23]. If patients with fewer years of education are more likely to believe that incurable cancer can be cured, and if this belief can be partially explained by their higher levels of fatalism, then interventions to address fatalism in cancer communication interventions might be warranted.

In this study, we hypothesized that, independent of economic indicators of socioeconomic status (e.g., income, insurance status) and other potential confounds such as race and ethnicity, patients who did not complete high school would be more likely to believe they could be cured. Further, we explored whether patients with lower levels of education would be more fatalistic, and whether their higher levels of fatalism would partially account for their belief that they could be cured.

## 2. Methods

### 2.1. Overview of CanCORS

CanCORS was a prospective observational study of outcomes for patients with lung and colorectal cancer. From 2003 to 2005, patients were enrolled from five integrated health care delivery systems in the NCI-funded Cancer Research Network (northern California, Los Angeles County, North Carolina, Iowa, Alabama) or 15 VA Health Care Systems. Staff interviewed participants using computer-assisted telephone interview software four to six months following diagnosis.

### 2.2. Participants

CanCORS enrolled a demographically and clinically representative cohort of adults recently ( $\leq 3$  months) diagnosed with lung and colorectal cancer. African American/Black, Hispanic, and Asian or Pacific Islander patients were oversampled. Our analytic sample

was confined to patients with advanced (Stage IV or distant metastases) lung ( $n=646$ ) or colorectal ( $n=452$ ) cancer who completed the full patient survey at study entry and had opted to receive chemotherapy, radiation, or surgery. Participants were excluded if they had missing data on the outcome variable ( $n=56$ ), fatalism ( $n=9$ ) or covariates (financial worry [ $n=54$ ], depression [ $n=2$ ]). The sample size was 977. IRB approval was received for these secondary analyses (RSRB00058964).

### 2.3. Assessments

#### 2.3.1. Patient beliefs about cure

Patients were asked three questions about what they “thought about the possible results and side effects of (surgery, radiation therapy, chemotherapy) after talking with your doctor. If you have not thought about or discussed the issue, just answer that you do not know. After talking with your doctors about (surgery, radiation therapy, chemotherapy), how likely do you think (surgery, radiation therapy, chemotherapy) would cure your cancer?” Response options were *very likely*, *somewhat likely*, *a little likely*, *not at all likely* as well as *don’t know*, *refused*, and *not applicable*. Whereas prior studies examined predictors of beliefs about the curative potential of just chemotherapy [14] or just radiation [13], we combined responses to all three items (surgery, chemotherapy, radiation) and thus examined predictors of the beliefs about whether *any* treatment can cure advanced cancer. For example, if a participant stated that chemotherapy was not curative and that surgery was curative, that participant was coded as believing that advanced cancer is curable. Consistent with prior studies, we defined beliefs in curability as believing that it was *very likely*, *somewhat likely*, or *a little likely* that Stage IV lung or colorectal cancer could be cured. This is the study’s main outcome variable. Sensitivity analyses were conducted using different operational definitions of beliefs about curability, described in the analytic plan.

#### 2.3.2. Education

This was the main independent variable. It was coded as absence of a high school diploma or equivalent, completed high school or equivalent, some college or vocational school, college, and more than college.

#### 2.3.3. Income

Income was coded as  $< \$20,000$ ,  $\$20,000$ – $\$39,999$ ,  $\$40,000$ – $\$59,999$ ,  $\geq \$60,000$ , and missing. We ran sensitivity analyses defining low income as annual household income of less than  $\$20,000$  for a household of three or more people, consistent with the 2010 Census Bureau definition of poverty [24].

#### 2.3.4. Insurance

We contrasted those who reported being insured vs. those who reported being uninsured or insured by Medicaid or a state-specific plan (e.g., Oregon Health Plan).

#### 2.3.5. Self-reported fatalism

Fatalism was assessed using four items ( $\alpha = 0.79$ ) developed for the Americans Changing Lives Panel Study [15] and used in prior studies [9,19,25]: “When bad things happen, we are not supposed to know why; we are just supposed to accept them,” “People die when it is time to die and nothing can change that,” “Everything that happens is a part of God’s plan,” and “If bad things happen it is because they were meant to be.”

#### 2.3.6. Open-ended fatalism – belief that life expectancy is “in god’s hands”

Participants were asked an open-ended question about their expected lifespan, as follows: “We would like to try to understand

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