Occupational differences in advance care planning: Are medical professionals more likely to plan?

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ARTICLE INFO

ABSTRACT

Advance care planning (ACP) helps ensure that treatment preferences are met at the end of life. Medical professionals typically are responsible for facilitating patients' ACP, and may be especially effective in doing so if they have first-hand insights from their own planning. However, no large-scale U.S. studies examine whether persons working on the front lines of health care are more likely than other workers to have done ACP. We contrast the use of three ACP components (living wills, durable power of attorney for health care, and informal discussions) among persons working in medical, legal, social/health support services, other professional, and other non-professional occupations. Data are from the Health and Retirement Study (n = 7668) and Wisconsin Longitudinal Study (n = 5464). Multivariable logistic regression analyses are adjusted for socioeconomic, demographic, health, and psychosocial factors that may confound associations between occupational group and ACP. Medical professionals in both samples are more likely than other professional workers to discuss their own treatment preferences, net of all controls. Medical professionals in the WLS are more likely to execute living wills and DPAHC designations, whereas legal professionals in the HRS are more likely to name a DPAHC. Non-professional workers are significantly less likely to do all three types of planning, although these differences are accounted for by socioeconomic factors. Social and health services professionals are no more likely than other professionals to do ACP. The on-the-job experiences and expertise of medical professionals may motivate them to discuss their own end-of-life preferences, which may render them more trustworthy sources of information for patients and clients. The Affordable Care Act provides reimbursement for medical professionals' end-of-life consultations with Medicare beneficiary patients, yet practitioners uncomfortable with such conversations may fail to initiate them. Programs to increase medical professionals' own ACP may have the secondary benefit of increasing ACP among their patients.

1. Introduction

The Coronavirus pandemic has fueled public conversations about "good" and "bad" deaths, where the latter is marked by physical discomfort, difficulty breathing, social isolation, psychological distress, and the receipt of unwanted medical interventions or the lack of treatments one desires (Krikorian et al., 2020; Leland, 2020). Media images of patients dying alone, debates over the rationing of ventilators, and anecdotal reports of front-line medical professionals reckoning with their own premature mortality have intensified calls for widespread advance care planning (Moorman et al., 2020). Advance care planning

(ACP) helps to ensure that dying persons who lack decision-making capacity yet have not previously stated their treatment preferences receive end-of-life care that is concordant with their preferences and values (IOM, 2014).

ACP entails executing an advance directive, which comprises a living will and/or a durable power of attorney for health care (DPAHC) designation. A living will is a legal document specifying the treatments a person would like to receive if incapacitated. A DPAHC legally permits a person appointed by the patient to make health care decisions if the patient is incapable of doing so. Patients also are encouraged to discuss their values and treatment preferences with family, caregivers, and

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professionals who may make decisions for them at the end of life (Carr and Khodyakov, 2007; Carr and Luth, 2017). Despite the importance of ACP, less than half of U.S. adults ages 18 and older, and 50 to 70 percent of persons ages 60 and older have an advance directive (Yadav et al., 2017). Lack of ACP may leave patients vulnerable to care that is discordant with their wishes, and relegates decisions to caregivers who may be not be prepared to make those choices (Silveira et al., 2010).

Medical, legal, and social services professionals often educate patients and encourage their end-of-life preparations (IOM, 2014). However, professionals are most effective in promoting behaviors among their patients and clients when they have performed these behaviors themselves; this first-hand experience makes them more knowledgeable, trustworthy, and persuasive role models (Oberg and Frank, 2009). Conversely, professionals who avoid their own ACP may have knowledge gaps or psychological barriers that inhibit effective end-of-life consultations with their patients and clients (Arnett et al., 2017; Perry Undem, 2016). However, we know of no studies that examine whether persons working in professions most integral to facilitating ACP are especially likely to have done so themselves.

We address this gap in the literature by evaluating: (1) the extent to which older adults working (or who formerly worked) in medical, legal, and social and health support professions; other professional occupations; and other non-professional occupations differ with respect to end-of-life preparations; and (2) the extent to which observed differences persist after adjusting for socioeconomic, demographic, health, and psychosocial correlates of both occupation and ACP. We use data from two large longitudinal studies of older adults, the Health and Retirement Study (HRS) and Wisconsin Longitudinal Study (WLS). Both assessed ACP behaviors in 2011–12 and have collected detailed occupational histories, making them ideally suited for this study.

2. Occupational differences in advance care planning

Occupations expose workers to specific knowledge, interpersonal encounters, and daily experiences that shape attitudes and behaviors beyond the workplace (Hodson and Sullivan, 2012). We propose that persons who work in occupations with direct or peripheral experience with end-of-life concerns may be especially likely to execute living wills, DPAHC appointments, and discuss their end-of-life treatment preferences. Front-line medical professionals like physicians and nurses are especially likely to observe at close hand "bad deaths" marked by pain, lack of preparedness, conflicts among family members and care providers, and the receipt (or withdrawal) of treatments that diverge from patient preferences (Gawande, 2014). They also may witness "good deaths" distinguished by effective pain and symptom management, emotional and practical preparation, and self-determination (Steinhauser et al., 2000).

These first-hand observations of other persons' deaths may shape ACP behaviors via negative and positive role models, respectively. Negative models frighten or impel individuals into changing their behaviors in order to avoid an undesirable outcome, whereas positive models inspire people to adopt behaviors to achieve a desirable outcome (Lockwood et al., 2005). Consistent with negative role modeling perspectives, older adults are more likely to engage in ACP if they personally know someone with limited decision-making capacity (Bravo et al., 2003) or if they witnessed the painful or prolonged death of a significant other (Carr, 2012b); ACP may be a cautionary measure against the "bad death" they witnessed. Other studies show evidence of positive role models, such that older adults are more likely to do ACP if they witnessed a significant other's "good death" (Carr, 2012b). We expect that the odds of ACP will be highest among medical professionals working on the front lines of care. Their formal training, knowledge of the benefits and limitations of aggressive treatments, and personal encounters may engender their own ACP (Gawande, 2014; IOM, 2014).

Legal professionals also play a role in guiding clients' financial, legal, and medical end-of-life preparations (Hooper et al., 2020). Recent data

suggest that 50 to 75 percent of patients discuss their ACP with lawyers, who are knowledgeable about state-level advance directive laws (Hooper et al., 2020). Lawyers may encourage clients to draw up advance directives as they prepare their wills (Carr 2012b; Koss and Baker, 2018). Legal professionals who witness family strife and legal complications in the absence of formal preparations may be particularly motivated to do their own ACP (Carr, 2012a).

Although front-line medical and legal professionals are most centrally involved in end-of-life preparations, social and health services professionals also are involved. This occupational category includes social workers, clergy, funeral directors, and other personnel who do not provide end-of-life medical treatment yet may have direct experience with caregivers, dying persons, and grieving family members. For example, clinical social workers support dying patients and their families, and educate them about ACP (Stein et al., 2017; Taylor-Brown and Sormanti, 2004). This familiarity with psychosocial challenges common at the end of life may render them particularly sensitive to the importance of ACP (Wang et al., 2018). In our analyses, we contrast the ACP of these three focal occupational groups with two other categories: other professional and non-professional workers not plausibly involved with end-of-life care. We consider these two groups separately as they differ from one another with respect to socioeconomic status (SES), health, and other characteristics that may affect ACP (Carr, 2016).

2.1. The importance of understanding occupational differences in ACP

Understanding the ACP of professionals who potentially guide and encourage others' end-of-life planning is an important goal. Direct experience with one's own ACP may make professionals more effective advisors, which may help to increase the prevalence and efficacy of their patients' and clients' ACP. Professionals are viewed as more knowledgeable, trustworthy, and persuasive when they have direct experience with the behavior they're recommending (Frank et al., 2000). Likewise, professionals feel more prepared, informed, and comfortable providing guidance in areas in which they have first-hand experience (Vickers et al., 2007).

Medical professionals' comfort and direct experience with planning may affect the success of public policies designed to increase rates of ACP in the U.S. Effective January 1, 2016, the Affordable Care Act provides reimbursement to physicians and other qualified health professionals for discussing end-of-life plans and preferences with their Medicare beneficiary patients. Shortly after the enactment of this policy, a national survey of physicians who treat older adults found that nearly all (99 percent) said it is important to have consultation sessions with their patients. However, just 14 percent held such conversations and billed Medicare (Perry Undem, 2016). Claims data reveal even lower rates of billable consultation sessions, around 5 percent (Ashana et al., 2019; Barnato et al., 2019). Physicians report a lack of adequate training (67 percent) and feeling unsure of what to say (46 percent) as the factors preventing them from initiating such consultations (Perry Undem, 2016). Studies of social workers involved in end-of-life care similarly find that discomfort and perceived lack of knowledge impede effective and timely conversations (Black, 2007; Taylor-Brown and Sormanti, 2004). Professionals who have done their own ACP may have greater knowledge, comfort, and credibility as they approach conversations with their patients and clients (Oberg and Frank, 2009).

2.2. Methodological considerations in studying occupations and ACP

Our study is the first we know of to systematically evaluate occupational differences in end-of-life planning. Several small-scale studies have described ACP rates in single professions, such as physicians (Wittink et al., 2008) or palliative care professionals (Rainsford and Glasgow, 2016), or described ACP rates of employees within a single health care system (Black, 2007; Go et al., 2007). However, these studies did not have a comparison group of non-medical personnel, so they

cannot discern whether rates of ACP among occupations most integrally involved in others' end-of-life preparations differ from those occupations involved peripherally or not at all.

This paucity of research is due primarily to the stringent data requirements for exploring occupational differences in ACP. First, three-digit Census occupational codes are needed to classify individuals into fine-grained categories such as medical or legal professionals. Second, information on whether one has done ACP also must be collected. Third, large sample sizes are required to generate sufficient numbers of study participants in particular occupations. For example, just 12 percent of the working-age population in the U.S. held health-related occupations in 2018 (Kaiser Family Foundation, 2018), necessitating large data sets to ensure sufficient statistical power. Fourth, ACP is more salient to and common among older rather than younger adults, so it is important to consider samples of older adults (Moorman and Inoue, 2013). Given these analytic requirements, we use data from two large surveys of older adults (HRS and WLS) which obtain measures of respondents' ACP, detailed occupational histories, and other covariates that may confound the association between occupational group and ACP.

2.3. Other correlates of occupational group and ACP

An association between occupational group and ACP may reflect potential confounding factors, rather than workplace knowledge, exposure, and experience. Thus, multivariable analyses are adjusted for socioeconomic, demographic, health, and psychosocial factors that are correlated both with occupation and ACP. Socioeconomic status (SES) indicators including education and assets are positively related to ACP, reflecting higher SES persons' levels of literacy, familiarity with medical and legal documents, and greater motivation to do estate planning to protect their financial assets and completing ACP in tandem (Carr 2012a, 2016; Koss and Baker, 2018; Waite et al., 2013). Professionals working in fields like law and medicine also have significantly more education, income, and wealth than their counterparts working in non-professional occupations, like sales, service, clerical, farming, and laborers (National Research Council, 2010).

We control for demographic characteristics correlated with both occupation and ACP, including age, race, gender, marital status and parental status. Older adults (Moorman and Inoue, 2013), whites (Koss and Baker, 2018), women (Carr and Khodyakov, 2007), married persons, and parents (Boerner et al. 2013) are more likely than younger persons, racial minorities, unmarried persons, and childless persons to do ACP. Age/cohort, race, and gender also are associated with the specific occupation one holds (Mintz and Krymkowski, 2010). We adjust for health characteristics, including self-rated health and recent hospitalizations. Persons with poorer health (Collins et al., 2006) and recent hospitalizations are more likely to do ACP, the latter due partly to the Patient Self-Determination Act (PSDA) passed by the U.S. Congress in 1990 (U.S. Department of Health and Human Services, 2008). The PSDA requires that all federally funded health centers and hospitals ask patients whether they have an advance directive, and must provide them with educational materials and an opportunity to execute an advance directive, should they desire. Professional workers also evidence better health than their non-professional counterparts, a pattern attributed to both social selection and causation processes (Adams et al., 2003; Warren, 2009).

Finally, we control for psychosocial factors (neuroticism, purpose in life, and religion) that are associated with one's occupation and ACP. Purpose in life is positively associated with preparations for the future (Sörensen et al., 2014), whereas neuroticism reduces engagement with potentially anxiety-provoking tasks (Ha and Pai, 2012). Personality traits also are associated with occupation, through both social selection and causation processes (Kohn and Schooler, 1982). Religious denominations also differ with respect to their teachings regarding end-of-life medical treatments (Kaplan, 2016).

3. Data and methods

3.1. Data

Analyses are based on data from the HRS and WLS; both focus on comparable cohorts of older adults, yet the samples differ with respect to education and race/ethnicity. All WLS participants are white Wisconsin high school graduates, whereas the HRS sample is racially and educationally diverse. Both surveys assessed ACP in 2012 and are similar with respect to contextual influences like the high-visibility Terri Schiavo case, which heightened awareness of ACP in the early 2000s (Sudore et al., 2008). We use two data sets to strengthen the reliability and validity of the results, given the relatively few cases in our smallest occupational groups (e.g., 64 and 39 cases in the legal professions group in the HRS and WLS, respectively).

3.1.1. HRS

The HRS was first administered in 1992 to a sample of adults born between 1931 and 1941. The baseline sample was 12,652, with a response rate of 82%. In 1998, the original HRS merged with a longitudinal study of adults born before 1923 and added two cohorts (born 1924-30 and 1942–47). The HRS thus became nationally representative of older U.S. adults ages 51 and older. The HRS interviews respondents every two years and adds new cohorts as they age into the sampling frame.

In 2012, 10,704 HRS respondents ages 65 and older were administered questions regarding their ACP. We use the Cross-Wave Industry/ Occupation File Restricted Data (1992–2012) that includes detailed information about respondents' occupational histories. We have valid data on occupations and ACP for 9302 respondents. We exclude from analysis those who did not provide complete data on the control variables used in regression models, or did not have valid weights for the 2012 wave. Our analytic sample has 7668 respondents (3528 men and 4140 women). The data were weighted to adjust for sample attrition and mortality (see HRS Staff, 2019, for further detail on study weights).

3.1.2. WLS

The WLS comprises a random one-third sample (n = 10,317) of men and women who graduated from Wisconsin high schools in 1957; nearly all were born in 1939–40. The high school seniors completed a questionnaire in 1957 at age 18; participants were re-interviewed at ages 36 (1975), 54 (1993), 65 (2004), and 72 (2011). Of the 8015 who were alive in 2011, 6152 (77 percent) participated in a face-to-face and telephone interview. We exclude from our analytic sample those who did not participate in the 2004 interview (n = 431) or 2011 mail questionnaire (n = 184), as well as those who did not complete the 2011 ACP module (n = 103) because our focal measures were obtained from these data sources. The final analytic sample comprises 5464 persons (2597 men and 2867 women). All measures used in this analysis are based on the 2004 telephone and self-administered questionnaire (SAQ) data, with two exceptions. The ACP outcomes are measured in 2011–12, and occupation measures are based on work histories provided between 1975 and 2011. The WLS does not include oversamples, thus weighting is not required.

3.2. Measures

3.2.1. Dependent variables

We consider two components of formal ACP: a *living will* and *durable power of attorney for health care (DPAHC)*. Respondents are asked whether they have written instructions regarding their end-of-life treatment preferences (living will) and whether they have made legal arrangements for a specific person to make medical decisions for them, should they be incapable of making those decisions themselves (DPAHC). Informal discussions are assessed with the question: "People sometimes make plans about the types of medical treatment they want

or don't want if they become seriously ill in the future. Have you discussed your health care plans and preferences with anyone?" Affirmative responses are coded as 1.

3.2. 2. Occupational group

Our focal predictor is whether a respondent's main job was a medical, legal, or social/health services professional, other professional, or other non-professional occupation. Using occupational history data, we ascertained the three-digit Census occupational code of one's last job before retirement or their current job if they have not yet retired (HRS) or main job held between the 1975 and 2011 interviews (WLS). We classified the three-digit occupational codes into: (1) *medical professionals likely involved in direct end-of-life care* such as physicians and nurses; (2) *legal professionals potentially involved in end-of-life preparations* such as lawyers; (3) *social/health services professionals who may be involved in end-of-life preparations or care* such as clergy or social workers; (4) *other professionals not plausibly involved in end-of-life care* such as teachers or engineers (reference group); and (5) *other non-professional occupations not plausibly involved in end-of-life care,* such as secretaries or laborers. In the HRS, three-digit occupations were coded using the 1980, 2000, and 2010 Census codes. In the WLS, occupations were classified using 1990 Census codes.

Each of the four co-authors and three consultants (academic medicine and nursing faculty) reviewed the complete listing of more than 500 occupational titles in the 1980 and 1990 versions of the Dictionary of Occupational Titles (DOT), and the 2000 and 2010 versions of the Occupational Information Network (O*NET), and classified each job title into one of the five occupational groups described above (Bureau of Labor Statistics, 1991; National Research Council, 2010). We had near-perfect agreement in allocating occupational titles to the medical and legal professional categories and other non-professional categories, although concordance was lower in discerning social/health services professionals versus other professionals. We discussed difficult cases and arrived via consensus at our final coding decision. We used the Census Bureau's multi-year occupational title crosswalk to ensure that equivalent occupations were classified in the same occupational category even if their specific label changed between Census years. For example, "Nursing aides, orderlies, and attendants" (447) in 1990 is comparable to "Nursing, psychiatric, and home health aides" (360) in 2000 (Scopp, 2003). Appendix 1 provides a complete listing of the three-digit 1990 occupational titles allocated to each of our five occupational categories (comparable listings for the 1980, 2000, and 2010 codes are available from authors). Our coding procedure yielded nearly identical occupation group distributions in the two data sets.

3.2.3. Control variables

In the HRS, we adjust for *age* and *race* (non-Hispanic White, non-Hispanic Black, Hispanic, other). All WLS participants are the same age in 2011/12 (age 72) and are white. In both samples we control for *gender; marital status* (married or cohabiting; formerly married; and never married); and *parental status* (has living children; has no children).

We include three measures of socioeconomic status: *highest level of education completed, assets, and childhood socioeconomic background. Assets* refer to the total value of one's savings, investments, properties, and debts. Prior studies of assets and ACP detected a non-linear association (Carr, 2012a, 2016), so we recoded values into categories ranging from zero/negative assets to $500,000 or higher. *Socioeconomic background* refers to years of schooling completed by one's father; maternal education is imputed for those who grew up without a father present.

We control for two aspects of health. *Self-rated health* is assessed with the question: "How would you rate your health at the present time: excellent, good, fair, poor, or very poor?" "Fair" "poor" and "very poor" are coded as 1, and "good" or "excellent" comprise the reference category. *Recent hospitalizations* refer to whether one has been admitted into the hospital zero (reference category), one, or two or more times in the past year (WLS) or two years (HRS).

The psychological characteristic *neuroticism* is assessed with a subset of six items such as "I am someone who worries a lot," from the Revised NEO-Personality Inventory (Costa and McCrae, 1992). *Purpose in life* is assessed with six items (e.g., "I am an active person in carrying out the plans I set for myself") from the Ryff (1989) psychological well-being inventory. *Religion* refers to whether one identifies as Protestant, Catholic, or other/no religion.

4. Results

4.1. Descriptive analysis

Descriptive statistics are presented in Table 1. Rates of ACP in the HRS sample are comparable to those found in other population-based studies of U.S. older adults (IOM, 2014; Yadav et al., 2017); 48 percent have a living will or a DPAHC, and 61 percent discussed their end-of-life plans. Considerably higher percentages of WLS participants executed a living will (69 percent), named a DPAHC (73 percent), or held informal discussions (81 percent), relative to the HRS sample. The WLS sample has a greater proportion of whites, college graduates, and persons with high levels of wealth, relative to the HRS sample; these factors may account for the difference across samples (Carr, 2016). Additionally, a Lacrosse, Wisconsin health care organization launched the well-publicized "Respecting Choices" educational intervention in the 1990s that dramatically increased rates of ACP throughout that county and neighboring areas (Hammes and Rooney, 1998) with subsequent programs implemented by the state medical society (Peltier et al., 2017).

Identical shares of HRS and WLS participants work in medical (4 percent), legal (1 percent), and social/health services professions (3 percent). HRS participants are less likely to work in other professional occupations (26 vs. 32 percent) and more likely to work in other non-professional occupations (66 vs. 60 percent), relative to WLS participants. The samples are comparable regarding mean age, although the WLS cohort members are nearly all age 72, whereas HRS respondents range in age from roughly 65 to 85. The WLS sample is wealthier and healthier, with a lower proportion reporting fair or poor self-rated health and recent hospitalizations. Detailed bivariate analyses, shown in Online Appendix A, reveal significant occupational group differences in all three dimensions of ACP as well as the socioeconomic, demographic, health, and psychosocial covariates.

4.2. Multivariable analysis

We estimated binary logistic regression models predicting whether a respondent has a living will (Table 2), DPAHC (Table 3), and discussed one's end-of-life preferences (Table 4). Nested models reveal the extent to which an association between occupational group and ACP is accounted for by the covariates. Model 1 presents unadjusted associations between each occupational category and ACP, Model 2 incorporates demographic characteristics, Model 3 adds socioeconomic factors, Model 4 also includes health and health care use, and Model 5 adjusts for psychosocial factors. We present odds ratios (and confidence intervals) for the occupational variables only. Complete results from the fully adjusted models are presented in Online Appendix B.

4.2.1. Formal planning

The results presented in Table 2 show that among participants in the WLS, medical professionals have significantly higher odds of executing a living will, relative to other professional workers after socioeconomic characteristics are adjusted in Model 3 (OR = 1.43). This association persists after controlling for health, yet attenuates slightly and is no longer statistically significant at the $p < .05$ level after psychosocial factors are controlled in Model 5. Legal and social/health services professionals do not differ significantly from other professionals in either sample. However, non-professional workers in both samples are

Table 1

Descriptive statistics, all variables used in analysis. Health and Retirement Study (HRS, 1992–2012) and Wisconsin Longitudinal Study (WLS, 1957–2012).

	HRS	WLS
Advance Care Planning		
Has living will	.48	.69
Has DPAHC	.48	.73
Held informal discussions	.61	.81
Occupational Category		
Medical professionals	.04	.04
Legal professionals	.01	.01
Social & health services professionals	.03	.03
Other professionals	.26	.32
Non-professionals	.66	.60
Sociodemographic Characteristics		
Age	74.08	72.0
	(7.02)	(0.60)
Female	.54	.53
Race		
Non-Hispanic White[a]	.85	100.0
Non-Hispanic Black	.07	–
Hispanic	.05	–
Other	.02	–
Marital status		–
Married/cohabiting	.63	.73
Separated/divorced/widowed	.33	.24
Never married	.04	.03
Has any children	.93	.94
Soc[b]oeconomic Status		
Education		
Less than HS diploma[b]	.16	–
HS diploma	.35	.53
Some college	.23	.16
College degree or higher	.27	.30
Assets		
Negative/$0	.05	.02
$1–9999	.06	.01
$10k to 24,999	.04	.01
$25k to 49,999	.05	.02
$50k to 99,999	.10	.04
$100k to 249,999	.20	.17
$250k to 499,999	.18	.25
$500k+	.32	.47
Father's education (years)	9.55	9.84
	(3.90)	(3.45)
Health and Health Care Use		
Self-rated health (1 = fair/poor)	.25	.12
Hospital admissions, past year		
0 times	.70	.82
1 time	.18	.12
2+ times	.11	.06
Psychological Characteristics		
Purpose in life (standardized)	0.05	0.00
	(0.63)	(1.00)
Neuroticism (standardized)	−0.09	0.00
	(0.73)	(1.00)
Religion		
Protestant	.62	.43
Catholic	.28	.32
Other	.10	.25
N	7668	5464

Note: Proportions are [a]resent[b]d for categorical measures and means (and standard deviations) are shown for continuous measures.

[a] WLS participants nearly all identify as non-Hispanic white.

[b] By design, all WLS participants have 12 years of schooling or more.

significantly less likely to have living wills; this association is no longer statistically significant in the HRS after socioeconomic resources are controlled, in Models 3 through 5. The association attenuates yet persists in the WLS after socioeconomic and other characteristics are controlled (OR = 0.85 in Models 3 through 5, *p* < .05).

The results for DPAHC designations are generally similar. Medical professionals in the WLS (but not the HRS) have significantly higher odds of naming a DPAHC, relative to other professionals (OR = 1.57, *p* < .05 in Model 5). In both samples, non-professional workers have significantly lower odds of having a DPAHC, yet the significant gap detected in the baseline models is no longer significant after SES is adjusted in Models 3 through 5. Similarly, social and health service professionals in the HRS (but not WLS) are less likely than other professionals to have named a DPAHC in the baseline models, although this association is no longer significant after adjusting for SES. Unlike the results for living wills, however, Table 3 reveals that legal professionals in the HRS are twice as likely as other professionals to have named a DPAHC, an association that persists across models.

4.2.2. Discussions

Table 4 presents results for informal end-of-life discussions. We find generally similar patterns across both data sets. Medical professionals are significantly more likely than other professionals to have discussed their end-of-life preferences (OR = 1.61 and 2.20 in Model 5 for HRS and WLS respectively, *p* < .01). We find no significant associations between discussions and either legal or social and health services work. As with the prior two outcomes, non-professionals have significantly lower odds of discussing their preferences, relative to other professionals, although this disparity is accounted for by SES.

4.2.3. Supplementary comparison analysis

The multivariable results presented thus far have used "other professionals" (i.e., professions other than medical, legal or social/health services) as the reference group, yet have not explicitly compared each major occupational group to one another. In supplemental analyses (presented in Online Appendix C), we formally test all possible occupational group contrasts, net of all covariates. These analyses confirm the significantly greater odds of medical professionals doing each type of ACP in the WLS sample, and of having discussions in the HRS sample. For instance, in the WLS, social and health services professionals, other professionals, and non-professionals are just 60 to 70 percent as likely as medical professionals to have living wills. In both WLS and HRS, these latter three occupational groups also are 40–60 percent as likely as medical professionals to have discussed their preferences. We do not find statistically significant contrasts between medical and legal professionals, which may be a function of statistical power. However, legal professionals generally show higher rates of formal ACP relative to the remaining occupational groups (other than medical professionals).

5. Discussion and conclusions

We contrasted the ACP behaviors of five occupational groups, taking advantage of two large data sets that include measures of both ACP and occupational histories. Our results make a novel contribution to understanding how work experiences and expertise may shape ACP. Prior studies focused on single occupations only and did not compare occupational groups with direct, partial, or no obvious exposure to end-of-life issues, nor did they explore the extent to which occupational differences reflect potential confounds such as education or health. Our analyses addressed these gaps and yielded four key findings.

First, medical professionals are more likely to do formal and informal end-of-life preparations in the WLS sample, and to have informal discussions in the HRS. In WLS, these differences remained large (OR = 1.4 to 2.2) and statistically significant (or approached significance, in the case of living wills) significant for all three outcomes, net of controls. In HRS, medical professionals were 1.6 times as likely as other professionals to have discussions. The supplemental analyses found that these occupational differences generally extended to contrasts between medical professionals and social and health services workers as well as other non-professionals. These results suggest that medical professionals' experiences, such as formal training, knowledge of end-of-life treatments and the complexity of decision-making, exposure to "good" or "bad" deaths, and observations of problematic or contested care may make them sensitive to the importance of end-of-life discussions (Gallo et al., 2003; Gawande, 2014).

Table 2

Logistic regression predicting whether respondent has a living will, 2012

	Health and Retirement Study (HRS, 1992–2012)					Wisconsin Longitudinal Study (WLS, 1957–2012)				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
Occupational Group										
Medical	0.83	0.87	1.13	1.11	1.13	1.30	1.21	1.43*	1.42*	1.36†
	(0.64, 1.09)	(0.65, 1.15)	(0.83, 1.52)	(0.82, 1.49)	(0.83. 1.52)	(0.93, 1.81)	(0.86, 1.69)	(1.01, 2.02)	(1.01, 2.01)	(0.95, 1.97)
Legal	1.88	2.10*	1.82	1.85	1.8	2.03	2.08	1.99	2.01	2.53†
	(0.99, 3.60)	(1.07, 4.12)	(0.94, 3.52)	(0.95, 3.60)	(0.94, 3.68)	(0.85, 4.9)	(0.86, 5.00)	(0.82, 4.85)	(0.83, 4.89)	(0.87, 7.30)
Social & health services	0.68*	0.72	0.84	0.83	0.82	0.83	0.79	0.86	0.85	0.82
	(0.48, 0.98)	(0.50, 1.05)	(0.58, 1.22)	(0.57, 1.21)	(0.56, 1.19)	(0.59, 1.15)	(0.57, 1.11)	(0.61, 1.21)	(0.61, 1.19)	(0.57, 1.16)
Other non-professional	0.60***	0.64***	1	0.99	1.0	0.71***	0.69***	0.85*	0.85*	0.85*
	(0.53, 0.68)	(0.56, 0.73)	(0.86, 1.15)	(0.85, 1.14)	(0.86, 1.16)	(0.63, 0.81)	(0.61, 0.79)	(0.73, 0.98)	(0.73, 0.98)	(0.72, 0.99)
X^2; df	18.89; 4	35.67; 12	28.93; 23	26.07; 26	23.11; 30	43.05; 4	66.7; 8	223.87; 18	249.9; 21	236.16; 25
Significance	<0.001	<0.001	<0.001	<0.001	<0.001	<.0.001	<.0.001	<.0.001	<.0.001	<.0.001

Notes: Exponentiated betas (odds ratios) and confidence intervals are presented. Statistical significance denoted as ***p < .001; **p < .01; *p < 05; †p < .10. Model 2 is adjusted for demographic characteristics (sex, marital status and parental status in HRS and WLS, race/ethnicity and age in HRS only); Model 3 incorporates socioeconomic status (education, assets, parental education), Model 4 adjusts for health (self-rated health, number of recent hospital admissions), and Model 5 controls for psychosocial factors (neuroticism, purpose in life, religious denomination).

Table 3

Logistic regression predicting whether respondent has a durable power of attorney for health care (DPAHC), 2012

	Health and Retirement Study (HRS, 1992–2012)					Wisconsin Longitudinal Study (WLS, 1957–2012)				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
Occupational Group										
Medical	0.84	0.83	1.04	1.01	1.03	1.51*	1.36†	1.58*	1.57*	1.57*
	(0.64, 1.09)	(0.62, 1.10)	(0.77, 1.39)	(0.75, 1.36)	(0.76, 1.38)	(1.06. 2.16)	(0.95, 1.96)	(1.09, 2.29)	(1.08, 2.28)	(1.05, 2.33)
Legal	1.98*	2.28*	2.02*	2.08*	2.04*	1.79	1.83	1.75	1.79	2.25
	(1.04, 3.80)	(1.17, 4.45)	(1.04, 3.91)	(1.07, 4.04)	(1.05, 3.97)	(0.74, 4.29)	(0.76, 4.39)	(0.72, 4.24)	(0.73, 4.29)	(0.78, 6.50)
Social & health services	0.61**	0.63**	0.73	0.72	0.72	1.01	0.96	1.04	1.03	1.06
	(0.43, 0.88)	(0.44, 0.92)	(0.51, 1.06)	(0.50, 1.05)	(0.50, 1.03)	(0.71, 1.45)	(0.67, 1.38)	(0.72, 1.49)	(0.72, 1.49)	(0.72, 1.56)
Other non-professional	0.60***	0.62***	0.90	0.89	0.90	0.79***	0.76***	0.91	0.91	0.90
	(0.53, 0.68)	(0.54, 0.70)	(0.78, 1.04)	(0.77, 1.03)	(0.78, 1.04)	(0.69, 0.90)	(0.67, 0.87)	(0.78, 1.06)	(0.78, 1.06)	(0.77. 1.07)
X^2; df	19.19; 4	34.35; 12	26.38; 23	24.45; 26	21.78; 30	28.5; 4	43.50; 8	150.49; 18	167.04; 21	176.75; 25
Significance	<0.001	<0.001	<0.001	<0.001	<0.001	<.0.001	<.0.001	<.0.001	<.0.001	<.0.001

Notes: Exponentiated betas (odds ratios) and confidence intervals are presented. Statistical significance denoted as ***p < .001; **p < .01; *p < 05. Model 2 is adjusted for demographic characteristics (sex, marital status and parental status in HRS and WLS, race/ethnicity and age in HRS only); Model 3 incorporates socioeconomic status (education, assets, parental education), Model 4 adjusts for health (self-rated health, number of recent hospital admissions), and Model 5 controls for psychosocial factors (neuroticism, purpose in life, religious denomination).

For WLS respondents, these experiences translate into both formal and informal planning, whereas in the HRS we find significant associations for informal discussions only. We suspect the differences across the two samples reflect WLS participants' and especially medical professionals' exposure to the highly effective Respecting Choices intervention which started in LaCrosse, WI (Briggs, 2014; Hammes and Rooney, 1998) and the subsequent state-wide initiative Honoring Choices Wisconsin (Peltier, 2017) in Wisconsin, where 70 percent of WLS respondents reside. The widespread success of these intervention programs could have impelled the ACP of medical professionals throughout the state of Wisconsin, a pattern which may be reflected in the WLS data. These interventions promoted the formal articulation of preferences that might previously have been conveyed only in informal conversations.

The heightened tendency of medical professionals to do their own end-of-life preparations may benefit the patients they serve. Preparing for their own end-of-life may render them more knowledgeable, comfortable, and effective in broaching such conversations with patients (Frank et al., 2000; Vickers et al., 2007). Yet while formal ACP rates are relatively high among medical professionals in the HRS (52 percent) and WLS (80 percent), there remains a considerable share (48 and 20 percent respectively) who have not done ACP. We explored occupation-specific rates within the broad category of medical professionals, and found considerable variation (supplementary analyses presented in Online Appendix Table D). For instance, while 78 percent of physicians (n = 22) in the HRS had a living will, just 65 percent of registered nurses (n = 122) and 71 percent of licensed practical nurses (LPNs; n = 34) had one. In stark contrast, in the WLS sample, these percentages were nearly identical across these three occupations: 83 (n = 24), 81 (n = 122), and 82 (n = 27) percent respectively – suggesting that health care providers, even those with modest formal education (LPNs), may be encouraged to do formal ACP when they live and work in an environment that promotes such efforts through programs like Honoring Choices Wisconsin (Peltier et al., 2017). National workplace interventions targeting ACP education and completion among medical professionals may ensure that they are prepared to carry out such discussions with patients, especially since these consultations are now reimbursed for Medicare beneficiaries as part of the Affordable Care Act (Gonzales et al., 2018).

Table 4
Logistic regression predicting whether respondent has had informal discussions regarding end-of-life preferences, 2012

	Health and Retirement Study (HRS, 1992–2012)					Wisconsin Longitudinal Study (WLS, 1957–2012)				
	Model 1	Model 2	Model 3	Model 4	Model 5	Model 1	Model 2	Model 3	Model 4	Model 5
Occupational Group										
Medical	1.41*	1.34	1.60**	1.57**	1.61**	1.99**	1.66†	1.87*	1.84*	2.20**
	(1.04, 1.91)	(0.98, 1.83)	(1.17, 2.20)	(1.14, 2.15)	(1.17, 2.22)	(1.24, 3.21)	(1.02, 2.68)	(1.15, 3.05)	(1.13, 2.99)	(1.26, 3.84)
Legal	1.72	1.72	1.58	1.60	1.59	2.32	2.45	2.34	2.37	2.91
	(0.77, 3.83)	(0.78, 3.81)	(0.73, 3.45)	(0.74, 3.48)	(0.74, 3.40)	(0.71, 0.76)	(0.75, 8.03)	(0.72, 7.73)	(0.72, 2.99)	(0.69, 12.3)
Social & health services	0.94	0.93	1.01	1.00	0.99	1.39	1.28	1.29	1.28	1.19
	(0.64, 1.38)	(0.62, 1.40)	(0.67, 1.50)	(0.67, 1.50)	(0.67, 1.48)	(0.88, 2.22)	(0.80, 2.04)	(0.72, 1.49)	(0.80, 2.05)	(0.74, 1.94)
Other non-professional	0.59***	0.62***	0.86	0.85*	0.87	0.72***	0.68***	0.82*	0.81	0.87
	(0.52, 0.68)	(0.54, 0.71)	(0.74, 1.00)	(0.73, 1.00)	(0.75, 1.02)	(0.62, 0.884)	(0.59, 0.79)	(0.69, 0.98)	(0.68, 0.97)	(0.72, 1.05)
X^2; df	23.69; 4	28.37; 12	21.19; 23	19.45; 26	18.08; 30	46.91; 4	104.6; 8	138.09; 18	145.6; 21	146.5; 25
Significance	<.0.001	<.0.001	<.0.001	<.0.001	<.0.001	<.0.001	<.0.001	<.0.001	<.0.001	<.0.001

Notes: Exponentiated betas (odds ratios) and confidence intervals are presented. Statistical significance denoted as ***$p < .001$; **$p < .01$; *$p < 05$; †$p < .10$. Model 2 is adjusted for demographic characteristics (sex, marital status and parental status in HRS and WLS, race/ethnicity and age in HRS only); Model 3 incorporates socioeconomic status (education, assets, parental education), Model 4 adjusts for health (self-rated health, number of recent hospital admissions), and Model 5 controls for psychosocial factors (neuroticism, purpose in life, religious denomination).

Second, we found that legal professionals are more likely to do formal ACP relative to other occupational groups, with the exception of medical professionals. In the WLS, these patterns were limited to living wills, whereas these patterns also encompassed DPAHCs in the HRS. However, we did not find comparable patterns for informal discussions. This relatively greater tendency of lawyers, judges, and legal assistants to complete formal ACP may reflect their familiarity with advance directive law and the legal consequences of dying without formal ACP in place (Hooper et al., 2020). However, while client conversations with legal professionals are common, clients report that these conversations are ineffective and unsatisfying because they focus on legal and "transactional" matters rather than the emotional and practical realities deemed important by patients and their families (Castillo et al., 2013). Efforts to promote legal professionals' understanding of and conversations regarding their own end-of-life needs, and broader conversations between legal and medical professionals, may lead to more effective promotion of ACP among their clients (Hooper et al., 2020).

Third, we found no evidence that social and health services professionals are more likely to do either formal or informal ACP, relative to any of the other occupational groups. To further understand this counterintuitive finding, we explored occupation-specific rates of ACP among those social or health services professionals most plausibly involved in ACP, such as social workers (Wang et al., 2018). We found that just 41 percent of social workers (n = 26) in the HRS had a living will and 32 percent had named a DPAHC (vs. 48 percent in the overall sample). In the WLS, social workers had formal ACP rates comparable to but not appreciably higher than the overall sample (71 vs 69 percent for living wills, and 77 versus 73 percent for DPAHCs). These results are disheartening, given the increasingly central role that social workers, clergy, and other social service professionals play in nurturing and guiding families through the end-of-life process (Stein et al., 2017). We believe that these patterns may reflect the fact that end-of-life care has become a central part of their training and practice much more recently than it did for medical professionals. As such, we are optimistic that rates of ACP have increased since the HRS and WLS ACP data were collected in 2012. For instance, the Social Work and Palliative Care Network (SWHPN) was only established in 2007, and as recently as January 2019, the Advanced Palliative Hospice Social Work Certification Board launched a certification program (SWPHN, 2019). During the past decade, faith communities and clergy have played an increasingly active role in discussing and encouraging ACP (Pew, 2017). This trend may reflect dramatic growth in chaplaincy training programs in theological education over the past two decades (Cadge et al., 2020). Future

studies of occupational differences in ACP may reflect these recent advances in professional education and outreach.

Finally, our results underscore that ACP is a socially stratified practice, adopted by those with higher education, more assets, and more prestigious and well-paying occupations (Carr 2012a, 2016). Non-professional workers such as those holding retail, service, or manufacturing occupations consistently showed the lowest rates of all three types of ACP in both the HRS and WLS samples, although these disparities were largely accounted for by socioeconomic resources. These results are troubling because non-professional workers typically have more health problems, earlier onset of chronic illness, and lower life expectancies, and may require ACP at younger ages relative to their professional counterparts (Marmot et al., 1997). Our analyses may understate the magnitude of these disparities, as nonprofessional workers with the most serious and early onset illnesses might be excluded from our analytic sample, due to premature mortality or selective attrition. We propose that ACP education, such as state-wide programs like Honoring Choices Wisconsin (Peltier et al., 2017) or financial incentives to enhance ACP be made available to persons of all socioeconomic backgrounds and workers across a range of industries. The Coronavirus crisis has shed new light on the health risks incurred by grocery store clerks, prison guards, bus drivers, factory workers, and other manual occupations, and underscores the importance of promoting discussions and formal ACP among these potentially vulnerable populations (Baker et al., 2020).

5.1. Limitations

Our study has several limitations and poses questions to be addressed in future studies. First, we do not have direct reports regarding respondents' workplace experiences with dying patients. Rather, we presumed that such experiences would be reasonably captured by their three-digit occupational category, such as physician or nursing aide. We also cannot discern one's place of work nor specialization. Specialists in oncology and hospice care would be more likely than dermatologists, for instance, to have direct exposure to end-of-life issues on the job. Qualitative studies may be useful in identifying the on-the-job interactions and practices that shape the ACP of the focal occupational groups and subspecialties within them.

Second, the number of respondents working in medical and legal professions is small, so we cannot conduct moderation analyses exploring whether patterns are conditional on other factors such as death anxiety. Third, we did not consider the content of one's end-of-life

preferences; individuals who desire all treatments may avoid ACP because they view it as a tool for limiting rather than requesting treatments (IOM, 2014). Fourth, we cannot ascertain the specific date when a person first did their ACP; if they did so after retiring, then their planning may not bear on their capacity to effectively guide patients or clients. However, analyses of prior waves of the WLS showed that three-quarters of persons who had completed ACP as of 2012 had already done so as of the 2004 study wave, when respondents were still of working age.

Finally, despite many similarities between the HRS and WLS, the samples are not fully comparable; as such, we cannot definitively explain the slight discrepancy in findings across the two samples. We replicated all models using a more constrained HRS sample, including only white respondents with at least a high school diploma. These results were virtually identical to those obtained in the full HRS sample (models available from authors), supporting our speculation that Wisconsin-based programs like Respecting Choices may have influenced the ACP of WLS participants through direct exposure or via their social networks. Future studies should explore the extent to which our findings can be replicated among subsequent birth cohorts, and at other life course stages.

5.2. Conclusion

Our findings have potentially important implications for policy and practice. Nearly all medical professionals and patients say that practitioners should initiate conversations and provide guidance regarding end-of-life decisions, yet only a minority do so (Arnett et al., 2017; Barnato et al., 2019). The extent to which medical professionals initiate such conversations, especially now that they are reimbursed for Medicare beneficiary patients, may depend on their own familiarity and comfort with ACP. The main obstacles cited by both medical and social services professionals to initiating such conversations include lack of training, discomfort, and uncertainty about what to say (Black, 2007; Perry Undem, 2016). Workplace interventions promoting professionals' ACP may increase their capacity to effectively inform, guide, and support their clients and patients grappling with similarly difficult decisions. Educational interventions extended to all industries may help to increase rates of ACP among vulnerable workers in low-paid occupations who may be at risk of premature morality, especially against the backdrop of the COVID-19 pandemic.

Credit author statement

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Acknowledgements

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.socscimed.2021.113730.

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