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Factors influencing older adults to complete advance directives

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ABSTRACT

Objective: The purpose of this study was to determine the factors which influence advance directive (AD) completion among older adults.

Method: Direct interviews of hospitalized and community-dwelling cognitively intact patients >65 years of age were conducted in three tertiary teaching settings in New York. Analysis of AD completion focused on its correlation with demographics, personal beliefs, knowledge, attitudes, and exposure to educational media initiatives. We identified five variables with loadings of at least 0.30 in absolute value, along with five demographic variables (significant in the univariate analyses) for multiple logistic regression. The backward elimination method was used to select the final set of jointly significant predictor variables.

Results: Of the 200 subjects consenting to an interview, 125 subjects (63%) had completed ADs. In comparing groups with and without ADs, gender ($p < 0.0002$), age ($p < 0.0161$), race ($p < 0.0001$), education ($p < 0.0039$), and religion ($p < 0.0104$) were significantly associated with having an AD. Factors predicting AD completion are: thinking an AD will help in the relief of suffering at the end of life, (OR 76.3, $p < 0.0001$), being asked to complete ADs/ or receiving explanation about ADs (OR 55.2, $p < 0.0001$), having undergone major surgery (OR 6.3, $p < 0.0017$), female gender (OR 11.1, $p < 0.0001$) and increasing age (76–85 *vs.* 59–75: OR 3.4, $p < 0.0543$; <85 *vs.* 59–75: OR 6.3, $p < 0.0263$).

Significance of results: This study suggests that among older adults, the probability of completing ADs is related to personal requests by health care providers, educational level, and exposure to advance care planning media campaigns.

KEYWORDS: Advance directives, Knowledge, Beliefs and Attitudes

INTRODUCTION

The Patient Self-Determination Act (PSDA) requires that all healthcare institutions receiving Medicare and Medicaid funding inform patients about their right to participate in healthcare decisions, including their right to have an advance directive (AD) (Baker, 2002). Aggressive programs to implement the requirements of the law have been carried out among different healthcare settings, and all 50 states have enacted legislation supporting ADs.

Despite recent initiatives to support the completion of advance directives for older adults, recent studies indicate that only 9 to 20% of the general population has completed ADs (Hopp, 2000). In terms of setting-specific estimates, a study that examined predictors of AD completion by community-dwelling seniors receiving services at Senior Centers in New York City showed that 35% reported having completed an AD. This estimate did not vary

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significantly by ethnicity. Primary predictors of AD completion were: an established relationship between the primary care physician and the patient, personal experience with mechanical ventilation, knowledge about the process of advance care planning, and physicians' willingness to effectively initiate such discussions (Morrison & Meier, 2004).

A number of studies have documented correlations between age, ethnicity, education, insurance coverage, and income with AD completion (Eleazer et al., 1996; Hanson & Rodgman, 1996; Murphy et al., 1996; Gordon & Shade, 1999; Braun et al., 2001).

In terms of barriers to AD completion, a number of factors have been identified to explain physicians' reluctance to addressing end-of life care. An earlier study by Morrison et al. (1994) proposed five essential barriers, specifically: physicians' lack of understanding of ADs, erroneous beliefs about appropriateness, discomfort with the subject, time constraints, and compensation concerns. Other physicians' barriers include personal attitudes, religion as well as ethnicity (Wallace et al., 2007). Indeed, the resistance of physicians to communicate with their patients on end-of life issues appears to be a worldwide phenomenon, transcending gender, education, and subspecialties (Mebane et al., 1999; Hinkka, 2002). In addition, there is also extensive literature exploring patients' barriers to AD completion when approached by their healthcare practitioners. These barriers are often associated with ethnic and cultural issues pertaining to end-of-life care (Bayer et al., 2006; Eleazer et al., 1996; Morrison et al., 1998; Phipps et al., 2003; McAdam et al., 2005; Bullock, 2006; Troyer et al., 2006; Zapka et al., 2006; Kwak et al., 2007).

One of the first large studies to improve end-of-life decision making, the SUPPORT (The Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatments) study, was geared specifically to hospitalized patients with one or more serious illnesses. Enhancing opportunities for more patient–physician communication did not necessarily lead to improved AD rates or improved implementation of end-of-life wishes. It is possible that the SUPPORT intervention would have been more effective if the patient–physician communication had occurred much earlier in the course of the illness (The SUPPORT principal investigators, 1995).

Other studies have addressed the concerns of specific patient cohorts, such as dementia patients, or those with chronic kidney disease requiring long-term dialysis (Foti et al., 2005; Perry et al., 2005).

Mezey et al.'s (2000) study cited the most frequent reasons for execution of ADs. These were: (1) wanting to make up one's own mind (2) feeling that it would help their family if the family decision makers knew what they wanted, and (3) not wanting to be kept alive with tubes, wires, and in a coma. These reasons varied somewhat with regard to race, language spoken, education, income, and health insurance.

In 2007, Campbell identified behavioral conceptual frameworks and the triadic influences of selected personal, cognitive, and environmental factors on decision making concerning ADs among community-dwelling older adults, identifying specifically positive attitude and health literacy as significant factors in the likelihood of completing distributed ADs (Campbell et al., 2007). Campbell's study chose to utilize a theoretical framework, rather than a patient-centered approach which would directly reflect patients' concerns and individual choices for completing their ADs.

Our study employed a direct approach to understand the process of AD completion. Rather than review the barriers to AD completion alone, we explored those factors that might actually encourage patients to proceed with addressing end-of-life issues and complete formal documents to that effect. The specific focus of our study was to explore these factors in older adults and in three different clinical settings, including community residence, nursing homes and hospitals.

METHOD

This prospective study was conducted through direct, face-to-face interviews with hospitalized patients, nursing home residents, and community-dwelling seniors with regard to their wishes for end-of-life care. The survey questionnaire was modeled after Mezey et al.'s comprehensive Patient Survey Instrument (PSI), originally developed for the purpose of studying reasons for execution of ADs in the hospital setting, and Llovera's study of barriers to AD completion in the emergency room setting (Llovera et al., 1999; Mezey et al., 2000). In addition, questions were added with regard to the patient's previous exposure to end-of-life information, individual beliefs, and factual experience with the healthcare system.

The survey queried patient demographics, factors associated with AD completion, types of ADs executed, and factors influencing AD execution, as well as barriers to AD completion. Data were collected over a 2 month period, beginning in September 2008.

Patients were given a choice to either complete the questionnaire independently or to have the investigator assist them with questionnaire completion. Older adults ($\geq$65 years of age) in three different settings, namely: (1) acute care patients hospitalized (Long Island Jewish Medical Center, North Shore

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University Hospital, and Forest Hills Hospital), (2) treated in a community setting (North Shore Long Island Jewis Geriatric Faculty Practice, New Hyde Park), and (3) admitted in subacute setting (Stern Family Center for Extended Care and Rehabilitation) were included in the study. Institutional review board (IRB) approval was obtained for each setting.

AD completion was defined, for the purpose of this study, as execution of any one of the following documents: living will, health care proxy or durable power of attorney for health care, MOLST (Medical Orders for Life Sustaining Treatment), DNR (Do Not Resuscitate), and/or DNI (Do Not Intubate).

The investigators met with the nurse manager assigned to each medical/surgical unit, or to the outpatient practice, to gather the names of subjects >65 years of age who were cognitively intact as per clinical documentation. The investigators then approached prospective subjects in the hospital room or in their examining room and obtained informed consent. The investigators remained in the room while the subject completed the survey, to assist with any questions.

Statistical Methods

As a first step, the association between AD completion and the questionnaire variables was examined using the Fisher's exact test, except for regarding age group, which was analyzed using the Jonckheere-Terpstra test. In order to build a multivariable model that would predict AD completion, it was necessary to reduce the number of predictor variables to be considered. This was accomplished by first combining some variables together and then by applying principal components analysis (PCA) as follows: Based on a correlation analysis of the 31 binary questionnaire variables, there were three groups of highly correlated questions. The first group of correlated variables reflect the construct of being solicited about AD completion ("somebody explained to me the importance of advance directives" and "I have been asked to complete my advance directive"). The second group reflected patient confidence in their healthcare professionals ("I am confident that my physician will abide by my wishes" and "I am confident that my nurses and other healthcare professionals will abide by my wishes"). The third group focused upon the concept of lack of information regarding ADs ("Nobody has spoken to me about the importance of advance directives," "I need more information about advance directives," and "I have never heard about advance directives in the past"). By combining the questions within each group into three "new combined" questions, the end result yielded 27 binary questions.

PCA was then applied to the 27 binary variables. Whereas it is recognized that PCA is generally applied to continuous variables, in this case, the results of the PCA were intuitively appealing and made practical sense. The scree plot revealed that only the first principal component need be considered. We identified variables with loadings of at least 0.30 in absolute value and chose those variables, along with demographic variables (significant in the univariate analyses), as candidates for a multiple logistic regression model. The backward elimination method was used to select the final set of jointly significant predictor variables.

RESULTS

Characteristics of All Subjects

Two hundred subjects completed the surveys; the majority of surveys (84%) were collected from patients hospitalized or receiving subacute care rehabilitation in an institutionalized setting. The remaining 16% were obtained from patients treated in a geriatric outpatient setting. Most respondents were female (58%), Caucasian (66%), Catholic (42%), and married (46%), and 76–85 years of age (47%) (Table 1). Respondents were, in general, educated, with 87% reporting at least a high school diploma. In terms of income, 53% reported earning <$35,000 per year.

Association between AD Completion and Demographic Variables

Of the 200 interviews, 125 subjects (63%) reported having completed ADs. In comparing groups with and without ADs, the following demographic factors were significantly associated with having an AD (Table 2):

1. Gender: of those subjects reporting AD completion, 68% were female, compared to 41% in the non-completion group ($p < 0.0002$).
2. Race: the prevalence of Caucasians in the AD completion group was much greater than in the non-completion group (78% *vs*. 45%, $p < 0.0001$).
3. Education: in the AD completion group, 93% of subjects had received at least a high school education, compared to 78% in the non-completion group ($p < 0.0039$).
4. Religion: the AD completion group was more likely to be Catholic (45% *vs*. 37%) or Jewish (31% *vs*. 19%, $p < 0.0104$).

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Table 1. *Patient characteristics*

Variable	Total Respondents $N = 200$ n (%)
Gender	
Female	115 (58%)
Male	84 (42%)
Age	
65–75	63 (31%)
76–85	93 (47%)
>85	44 (22%)
Race/Ethnicity	
White	132 (66%)
Non-white	68 (34%)
Religion	
Catholic	84 (42%)
Jewish	53 (27%)
Other	63 (32%)
Marital Status	
Widow/Widower	78 (39%)
Married	92 (46%)
Other	30 (15%)
Education	
Completed High School or above	172 (87%)
Some High School or below	25 (13%)
Parental Status	
No children	20 (10%)
With children	180 (90%)
Income	
>$35,000	94 (47%)
≤$35,000	106 (53%)

Table 2. *Comparison of demographic characteristics among respondents with and without ADs*

Variable	Respondents with ADs $n = 125$	Respondents without ADs $n = 75$	p-value
Gender			<0.0002
Female	85 (68%)	30 (40%)	
Male	40 (32%)	44 (60%)	
Age			<0.0161
59–75	32 (26%)	31 (41%)	
76–85	61 (49%)	32 (43%)	
>85	32 (26%)	12 (16%)	
Race/Ethnicity			<0.0001
White	98 (78%)	34 (45%)	
Non-white	27 (22%)	41 (55%)	
Religion			<0.0104
Jewish	39 (31%)	14 (19%)	
Catholic	56 (45%)	28 (37%)	
Other	30 (24%)	33 (44%)	
Marital Status			<0.0643
Widow/ Widower	55 (44%)	23 (31%)	
Married	56 (45%)	36 (48%)	
Other	14 (11%)	16 (21%)	
Education			<0.0039
Completed High School or above	115 (93%)	57 (78%)	
Some High School or below	9 (7%)	16 (22%)	
Parental Status			<1.0000
No children	13 (10%)	7 (9%)	
With children	112 (90%)	68 (91%)	
Income			<0.1443
>$35,000	64 (51%)	30 (40%)	
≤$35,000	61 (49%)	45 (60%)	

5. Age: in the AD completion group, subjects were more likely to be ≥85 years of age (26% *vs*. 16%, $p < 0.016$).

Age was also found to be associated with higher rates of AD completion. Approximately 30% of subjects had an AD completed by age 65. An additional 35% executed ADs by age 75 and 96% of them had completed ADs by age 85 (Figure 1).

Other demographic variables, such as income level, marital status, and parental status were not significantly associated with AD completion status.

In terms of patient care settings, there were no significant differences between patients receiving formalized care in acute or subacute facilities and community-dwelling patients. Sixty three percent (106/168) of patients in acute/subacute facilities reported having ADs, whereas 59% (19 of 32) of the community-dwelling patients reported having ADs.

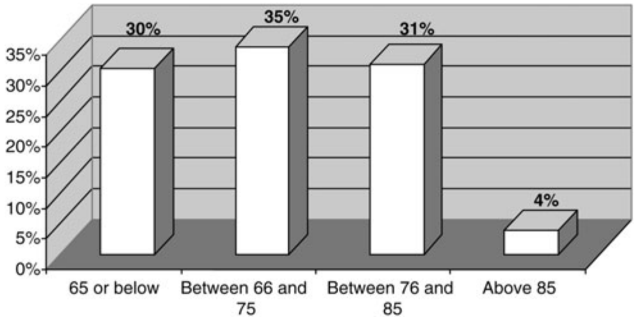

Fig. 1. Age of patient at time of AD completion ($N = 125$).

Association between AD Completion and Knowledge, Attitudes, and Beliefs (Univariate Analysis)

For both groups, the vast majority stated that they were "confident that their family (99% *vs*. 97%), and their physician (98% *vs*. 93%) would abide by their wishes." Patients with ADs reported having significantly more confidence in their nurses and other healthcare professionals abiding by their wishes than those without ADs (98% *vs*. 90%, $p < 0.0135$) (Table 3).

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Table 3. *Comparison of knowledge, attitudes, and beliefs of older adults with and without ADs*

Knowledge, attitudes, and beliefs	Respondents with ADs who answered yes $n = 125$	Respondents without ADs who answered yes $n = 75$	*p*-value
I have been asked to complete an AD	100 (81%)	19 (26%)	<0.0001
I received explanation about the importance of ADs	108 (86%)	30 (41%)	<0.0001
I have undergone major surgery	103 (83%)	42 (58%)	<0.0002
I have seen information about ADs	95 (77%)	27 (37%)	<0.0001
I need to have control over my medical treatment	120 (97%)	57 (80%)	<0.0004
I wouldn't want to be kept alive with breathing tubes and feeding tubes if in a coma	108 (89%)	46 (71%)	<0.0021
I think an AD will help end-of-life suffering	119 (98%)	46 (68%)	<0.0001
It would help my family if they knew what I wanted	123 (99%)	63 (91%)	<0.0090
I know I can change my wishes in the future as the need arises	109 (87%)	49 (67%)	<0.0009
I am confident that nurses and other health care professionals will abide by my wishes	121 (98%)	65 (90%)	<0.0135
I am healthy/have never been seriously sick	52 (42%)	34 (46%)	<0.6570
A family or friend has a serious medical illness	49 (39%)	27 (37%)	<0.7636
My spouse/significant other passed away	57 (49%)	33 (45%)	<0.6569
I have had a past experience of near death or life threatening experience	37 (30%)	19 (26%)	<0.6270
I have had experience as a health care provider	43 (35%)	18 (24%)	<0.1528
I am confident that my family will abide by my wishes	122 (99%)	69 (97%)	<0.5554
I am confident that my physician will abide by my wishes	122 (98%)	66 (93%)	<0.1015
I consider myself religious	95 (76%)	56 (77%)	<1.0000
I have family/friends who can make decisions for me	123 (99%)	68 (96%)	<0.1380
I have good social support	122 (98%)	71 (96%)	<0.3644
I feel sad or depressed	36 (29%)	21 (28%)	<1.0000
ADs are against my religion	4 (3%)	3 (4%)	<0.7109
My family/friends are generally healthy	106 (86%)	68 (92%)	<0.2600
Nobody has spoken to me about ADs	15 (12%)	41 (56%)	<0.0001
I need more information about ADs	20 (16%)	40 (55%)	<0.0001
Family/friend will decide what to do without the need of AD	105 (86%)	65 (90%)	<0.5002
I've never heard of ADs	13 (11%)	36 (49%)	<0.0001
I'd rather have my doctor make AD decisions for me	7 (6%)	11 (15%)	<0.0383
I think I will receive poor medical treatment if I have an AD	6 (5%)	7 (11%)	<0.2323
I wanted to complete an AD but haven't gotten around to do it	6 (5%)	28 (39%)	<0.0001

Other factors associated with having an AD were: being asked to complete an AD (81% *vs.* 26%, $p < 0.0001$), and receiving an explanation about the importance of ADs (86% *vs.* 41 %, $p < 0.0001$). Most subjects reporting having an AD had undergone major surgery (83% *vs.* 58%, $p < 0.0002$). Another significant factor between the groups was having seen mass media information about ADs (77% *vs.* 37 %, $p < 0.0001$). In addition, subjects with ADs reported "needing control over their medical treatment" (97% *vs.* 80%, $p < 0.0004$), "not wanting to be kept alive if in a coma" (89% *vs.* 71%, $p < 0.0021$), feeling that an "AD would help in the relief of suffering at the end of life" (98% *vs.* 68%, $p < 0.0001$), and "thinking it would help their family if their wishes are known" (99% *vs.* 91%, $p < 0.0090$).

Those patients who reported knowing that they could change ADs in the future were more likely to report having an AD (87% *vs.* 67%, $p < 0.0009$. Relatively few subjects in either group reported that ADs were against their religion (3% of those subjects with ADs *vs.* 4% of those subjects without ADs).

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Association between AD Completion and Knowledge, Attitudes, and Beliefs (Multivariable Analysis)

Based on the PCA, the following knowledge, attitudes and beliefs variables were considered as candidates for the multivariate analysis: "Somebody explained to me the importance of advance directives," " I have been asked to complete advance directives," "Advance directive will help me in the relief of suffering at end-of-life," "I have had major surgery"; and "Nobody has spoken to me about the importance of advance directives," "I need more information about advance directives," "I've never heard about advance directives in the past."

In addition, the following demographic variables were also included: gender, age, ethnicity, religion, and education. A multiple logistic regression model resulted in identifying specific variables associated with completing an AD (Table 4). This analysis showed that the odds ratios for completing an AD were significantly associated with "being asked to complete an advance directive" (OR = 55.2, $p <$ 0.0001); "thinking an advance directive will help in the relief of suffering" (OR = 76.3, $p < 0.0001$); "having had major surgery" (OR = 6.3, $p < 0.0017$); "having never heard of or received information about advance directives" (OR = 0.2, $p < 0.0082$); female gender (OR = 11.1, $p < 0.0001$); increasing age (76–85 *vs.* 59–75, OR = 3.4, $p < 0.0543$; age >85 *vs.* 59–75, OR = 6.3, $p < 0.0263$).

Types of ADs Executed and Factors Influencing AD Execution

Those subjects with ADs reported having executed the following specific documents: Health Care Proxy (89%), Living Will (85%), DNR (59%), DNI (49%), and Medical Orders for Life Sustaining Treatment (MOLST) 7%. Only a very small percentage (3%) reported not being sure of the details of the type of AD completed (Figure 2).

When asked who had the strongest influence in encouraging them to complete ADs, the most frequent answer was "children" (34%), followed by "self-decision" (22%), and "spouse" (17%). Surprisingly, healthcare providers were reported as "primarily influential" only 8% of the time (Figure 3). Indeed, when asked specifically who, among their healthcare providers, influenced them the most in completing ADs, 73% did not identify any healthcare provider, with 5% recognizing influence from their primary care physician, 3% from their respective specialist, 3% from their nurses, and 2% from their social workers.

Barriers to AD Completion

Those patients with a lower rate of AD completion also reported not having been spoken to about the importance of ADs, compared with those patients who had completed AD (56% *vs.*12%, $p < 0.0001$). In addition, patients who identified the need for more information were less likely to report having completed ADs (55% *vs.* 16%, $p < 0.0001$). Likewise, patients who reported never having heard of ADs were less likely to report having an AD (49% *vs.* 11%, $p < 0.0001$). Interestingly, patients who would rather have their physicians make AD decisions for them were less likely to report having an AD (15% *vs.* 6%, $p < 0.0383$). Finally, those who reported they wanted to complete ADs but hadn't gotten around to doing it were also less likely to report having an AD (39% *vs.* 5%, $p < 0.0001$) (Table 5).

DISCUSSION

The primary purpose of this study was to identify demographic, social, and clinical factors most strongly associated with AD completion in older

Table 4. *Predictors of completion of ADs among older adults*

	Odds ratio for completing an AD	
Variables	*OR* (95% CI)	*p*-value
I think an AD will help me in the relief of suffering at end-of-life	76.3 (11.9–489.5)	<0.0001
I was asked to complete an AD/I had someone explain to me the importance of AD	55.2 (11.4–266.7)	<0.0001
Female gender	11.1 (3.2–38.0)	<0.0001
I have had major surgery	6.3 (2.0–20.0)	<0.0017
Age >85 *vs.* age 59–75	6.3 (1.2–32.3)	<0.0263
Age 76–85 *vs.* age 59–75	3.4 (1.0–11.5)	<0.0543
Nobody spoke to me/need more information/ never heard about AD	0.2 (0.1–0.7)	<0.0082

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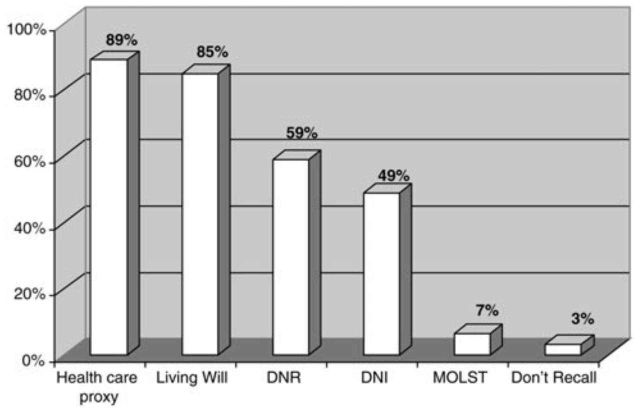

Fig. 2. Types of ADs completed ($N = 125$).

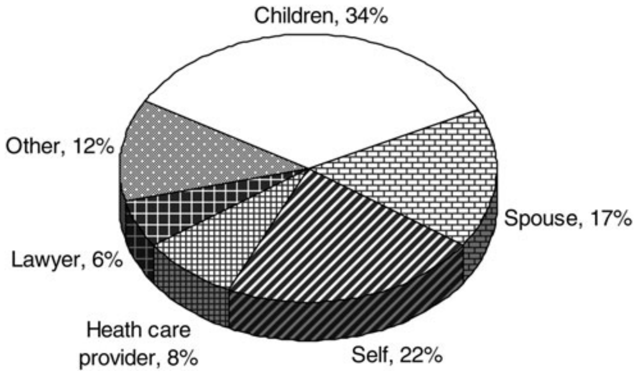

Fig. 3. Persons most influential in completion of ADs ($N = 125$).

adults. A recent meta-analysis has shown that passive education of patients using written materials without direct counseling is a relatively ineffective method for increasing AD completion (Ramsaroop et al., 2007). It also found that the most successful interventions incorporate direct patient–healthcare professional interactions over multiple visits. Indeed, Morrison et al. (2005) had demonstrated the effect of a social work intervention to enhance the documentation of ADs in nursing facilities. In 2007, Lindner et al. documented the impact of using a targeted electronic medical record intervention, to increase the frequency of AD orders in a VA nursing facility.

Our research, designed as a non-interventional study, confirmed the strong positive correlation between AD completion and having ADs explained by health care providers. Our data further emphasized that a request by a healthcare provider to complete ADs was one of the major factors in helping older patients with the decision process of AD completion. In a recent study by Nicolasora et al. (2006), an impressive 98% of 297 critically ill hospitalized patients were willing to discuss CPR and mechanical ventilation. More recently, Bravo conducted a systematic review and multi-level analysis study on the effectiveness of interventions to promote ADs among older adults. He identified the provision of *oral* information over multiple sessions as the most successful intervention (Bravo et al., 2008)

Our study supported previously published data on the impact of demographic factors such as race and educational level on AD completion. On the other hand, our findings did not correlate higher income with an increased rate of AD completion.

For both groups, the vast majority stated that they were "confident" that their family, nurses, and physicians would abide by their wishes. This level of confidence, however, is not supported by the AD literature. A study by Sonnenblick et al. (1993) revealed that ~50% of offspring did not follow the parents' wishes, even though they believed they were aware of them. In addition, Zweibel et al. (1989), found significant end-of-life treatment discrepancies between decisions of the health care proxy and the decisions of the patients they represent, with discrepancies ranging between 24 and 50%.

With regard to specific personal influence on end-of-life decisions, healthcare providers, along with the lawyers, were the least influential in encouraging older patients to complete ADs. It appears from previous research (Puchalski et al., 2000) that the role of the physician is important to the patient when

Table 5. *Comparison of responses of older adults with and without ADs*

Barriers to AD Completion	Respondents with ADs who answered yes Number/Total (%)	Respondents without ADs who answered yes Number/Total (%)	*p*-value
I need more information about ADs	20/124 (16%)	40/73 (55%)	<0.0001
I've never heard of ADs in the past	13/123 (11%)	36/73 (49%)	<0.0001
Nobody spoke to me about the importance of AD	15/124 (12%)	41/74 (56%)	<0.0001
I'd rather have my doctor make AD decisions for me	7/123 (6%)	11/72 (15%)	<0.0383
I have wanted to complete an AD but haven't gotten around to do it	6/122 (5%)	28/71 (39%)	<0.0001

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they are critically ill (specifically, requiring resuscitation) but the *family* plays a pivotal role in both the decision to complete ADs *and* at the time of decision-making regarding resuscitation.

Those who completed ADs believed their family would be helped if they knew their wishes. In contrast, *both* groups positively report a good social support system and believe that their family or friends will be able to decide what to do *even without* an AD.

Future initiatives may benefit from targeting the children and spouses of patients in advance care planning, since they play a major role (51% reported a child or spouse as the most influential person in the completion of ADs).

Finally, our study parallels the findings of Singer et al. (1999): subjects that report completing ADs want to achieve a sense of control and believe it will help relieve family burdens. They also report that AD completion will curtail the dying process. The literature shows that patients who are hospitalized are more likely to discuss ADs (Reilly et al., 1995). Our study supports this finding, in that the groups with ADs have a higher rate of having undergone major surgery (83% *vs*. 58%). However, AD completion rate did not differ significantly among community-dwelling, acute, and sub-acute care settings.

Our study findings showed patients' perception of their relative health did not matter significantly between those with and without ADs. This result is not inconsistent with previous research that finds that patients want their primary care physician to initiate advance care planning while they are in good health (Maxfield et al., 2003).

Study Limitations

It is important to note that the population from which our sample was taken was not representative of the population of New York City as a whole. The sample consisted of patients >65 years of age who were institutionalized for acute or subacute care within four facilities in the New York metropolitan area, or were seen in a single large geriatric practice on the Queens/Nassau County border. One limitation of this study is that we did not gather information regarding patients approached who refused survey participation.

CONCLUSION

Our study targeted the cognitively intact older population to better understand their priorities in making decisions about ADs for themselves. A multiple logistics regression revealed seven factors predicting AD completion: (1) being asked to complete an AD; (2) having someone explain the importance of ADs; (3) thinking an AD will help in the relief of suffering; (4) having had major surgery; (5) "having never heard of or received information about ADs"; (6) female gender; (7) and increasing age.

Healthcare professionals can play a major role in improving the AD rate of completion in older patients by approaching them about ADs, explaining the importance of the role of ADs and, most importantly, *asking them to complete ADs.*

In addition, because older patients appear to rely on their family members (specifically, children and spouses) in their decision making process, educational programming geared toward caregivers and relatives about the importance of AD completion is warranted.

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REFERENCES

Baker, M.E. (2002). Economic, political and ethnic influences on end-of-life decision making: A decade in review. *Journal of Health and Social Policy*, *14*, 27–39.

Bayer, W., Mallinger, J.B., Krishnan, A., et al. (2006). Attitudes toward life-sustaining interventions among ambulatory black and white patients. *Ethnicity and Disease*, *16*, 914–919.

Braun, K.L., Onaka, A.T. & Horiuchi, B.Y. (2001). Advance directive completion rates and end-of-life preferences in Hawaii. *Journal of the American Geriatrics Society*, *49*, 708–713.

Bravo, G., Dubois, M.F. & Wagneur, B. (2008). Assessing the effectiveness of interventions to promote advance directives among older adults: A systematic review and multi-level analysis. *Social Science and Medicine*, *67*, 1122–1132.

Bullock, K. (2006). Promoting advance directives among African Americans: A faith based model. *Journal of Palliative Medicine*, *9*, 182–195.

Campbell, M.J., Edwards, M.J., Ward, K.S., et al. (2007). Developing a parsimonious model for predicting completion of advance directives. *Journal of Nursing Scholarship*, *39*, 165–171.

Eleazer, G.P., Hornung, C.A., Egbert, C.B., et al. (1996). The relationship between ethnicity and advance directives in a frail older population. *Journal of the American Geriatrics Society*, *44*, 938–943.

Foti, M.E., Bartels, S.J., Van Citters, A.D., et al. (2005). End-of-life treatment preferences of persons with serious mental illness. *Psychiatric Services, Washington D.C.*, *56*, 585–591.

Gordon, N.P. & Shade, S.B. (1999). Advance directives are more likely among seniors asked about end-of-life care preferences. *Archives of Internal Medicine*, *159*, 701–704.

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Hanson, L.C. & Rodgman, E. (1996). The use of living wills at the end-of-life. A national study. *Archives of Internal Medicine*, *9*, 1018–1022.

Hinkka, H., Kosunen, E., Metsanoja, R., et al. (2002). Factors affecting physicians' decisions to forgo life-sustaining treatments in terminal care. *Journal of Medical Ethics*, *28*, 109–114.

Hopp, F.P. (2000). Preferences for surrogate decision makers, informal communication, and advance directives among community-dwelling elders: Results from a national study. *Gerontologist*, *40*, 449–457.

Kwak, J. & Salmon, J.R. (2007). Attitudes and preferences of Korean-American older adults and caregivers on end-of-life care. *Journal of the American Geriatrics Society*, *55*, 1867–1872.

Lindner, S.A., Davoren, J.B., Vollmer, A., et al. (2007). An electronic medical record intervention increased nursing home advance directive orders and documentation. *Journal of the American Geriatrics Society*, *55*, 1001–1006.

Llovera, I., Ward, M.F., Ryan, J.G., et al. (1999). Why don't emergency department patients have advance directives? *Academic Emergency Medicine*, *6*, 1054–1060.

Maxfield, C.L., Pohl, J.M. & Colling, K. (2003). Advance directives: A guide for patient discussions. *The Nurse Practitioner*, *28*, 38–47.

McAdam, J.L., Stotts, N.A. & Padilla, G. (2005). Attitudes of critically ill Filipino patients and their families toward advance directives. *American Journal of Critical Care*. *14*, 17–25.

Mebane, E.W., Oman, R.F., Kroonen, L.T., et al. (1999). The influence of physician race, age, and gender on physician attitudes toward advance care directives and preferences for end-of-life decision-making. *Journal of the American Geriatrics Society*, *47*, 579–591.

Mezey, M.D., Leitman, R., Mitty, E.L., et al. (2000). Why hospital patients do and do not execute an advance directive? *Nursing Outlook*, *48*, 165–171.

Morrison, R.S. & Meier, D. (2004) High rates of advance care planning in New York City's elderly population. *Archives of Internal Medicine*, *164*, 2421–2426.

Morrison, R.S., Chinchin, E., Carter, J., et al. (2005). The effect of a social work intervention to enhance advance care planning documentation in the nursing home. *Journal of the American Geriatrics Society*, *53*, 290–294.

Morrison, R.S., Morrison, E.W. & Glickman, D.F. (1994). Physician reluctance to discuss advance directives. An empiric investigation of potential barriers. *Archives of Internal Medicine*, *24*, 2311–2318.

Morrison, R.S., Zayas, L.H., Mulvihill, M., et al. (1998). Barriers to completion of health care proxies: An examination of ethnic differences. *Archives of Internal Medicine*, *158*, 2493–2497.

Murphy, S.T., Palmer, J.M., Azen, S., et al. (1996). Ethnicity and advance care directives. *Journal of Law, Medicine and Ethics*, *24*, 108–117.

Nicolasora, N., Pannala, R., Mountantonakis, S., et al. (2006). If asked, hospitalized patients will choose whether to receive life-sustaining therapies. *Journal of Hospital Medicine*, *1*, 161–167.

Perry, E., Swartz, J., Brown, S., et al. (2005). Peer mentoring: A culturally sensitive approach to end-of-life planning for long-term care dialysis patients. *American Journal of Kidney Diseases*, *46*, 111–119.

Phipps, E., True, G., Harris, D., et al. (2003). Approaching the end of life: Attitudes, preferences, and behaviors of African-American and white patients and their family caregivers. *Journal of Clinical Oncology*, *21*, 549–554.

Puchalski, C.M., Zhong, Z., Jacobs, M.M., et al. (2000). Patients who want their family and physician to make resuscitation decisions for them: Observations from SUPPORT and HELP. Study to Understand Prognoses and Preferences for Outcomes and Risks of Treatment. Hospitalized Elderly Longitudinal Project. *Journal of the American Geriatrics Society*, *48*(5 Suppl), S84–S90.

Ramsaroop, S.D., Reid, M.C. & Adelman R.D. (2007). Completing an advance directive in the primary care setting: What do we need for success? *Journal of the American Geriatrics Society*, *55*, 277–283.

Reilly, B.M., Wagner, M., Magnussen, C.R., et al. (1995). Promoting inpatient directives about life-sustaining treatments in a community hospital. Results of a 3-year time-series intervention trial. *Archives of Internal Medicine*, *155*, 2317–2323.

Singer, P.A., Martin, D.K. & Kelner, M. (1999). Quality end-of-life care: patients' perspectives. *Journal of the American Medical Association*, *281*, 163–168.

Sonnenblick, M., Friedlander, Y. & Steinberg, A. (1993). Dissociation between the wishes of terminally ill parents and decisions by their offspring. *Journal of the American Geriatrics Society*, *41*, 599–604.

The SUPPORT principal investigators. (1995). A controlled trial to improve care for seriously ill hospitalized patients. The study to understand prognoses and preferences for outcomes and risks of treatment (SUPPORT). *Journal of the American Medical Association*, *274*, 1591–1598.

Troyer, J.L. & McAuley, W.J. (2006). Environmental contexts of ultimate decisions: Why white nursing home residents are twice as likely as African American residents to have an advance directive. *The Journals of Gerontology. Series B, Psychological Sciences and* Social *Sciences*, *61*, S194–S202.

Wallace, M.P., Weiner, J.S., Pekmezaris, R., et al. (2007). Physician cultural sensitivity in African American advance care planning: A pilot study. *Journal of Palliative Medicine*, *10*, 721–727.

Zapka, J.G., Carter, R., Carter, C.L., et al. (2006). Care at the end of life: Focus on communication and race. *Journal of Aging and Health*, *18*, 791–813.

Zweibel, N.R. & Cassel, C.K. (1989). Treatment choices at the end of life: A comparison of decisions by older patients and their physician-selected proxies. *Gerontologist*, *29*, 615–621.

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