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The Default Effect in End-of-Life Medical Treatment Preferences

Laura M. Kressel, BA, Gretchen B. Chapman, PhD

Background. Living wills are intended to preserve patient autonomy, but recent studies suggest that they do not always have their desired effect. One possible explanation is that living wills do not capture the authentic preferences of the patients who write them but instead reflect transient contextual effects on preferences. **Purpose.** Two experiments examined whether end-of-life treatment preferences expressed in a living will were influenced by the presence of default options. **Method.** College students participated in 2 Web-based questionnaire experiments (Ns = 182 and 51). Participants were randomly assigned to 1 of 2 or 3 default conditions. **Results.** In experiment 1, participants expressed significantly different treatment preferences in 3 normatively equivalent, check box–formatted living wills that were either positively worded (“indicate medical treatments you would want administered”), negatively worded (“indicate treatments you would want withheld”), or of forced-choice format ($P = 0.01$). Participants expressed a stronger preference to receive treatment in the

negatively worded document than in the positively worded document as a consequence of preferring the default option in both cases. Participants in experiment 2 were also influenced by the presence of a default option, but this time, while writing narrative living wills after viewing 1 of 2 sample living wills. In this experiment, the sample living will represented the default preference. The participants’ own living wills tended to express preferences similar to those in the sample ($P = 0.0005$). **Conclusion.** The default manipulations in both experiments had potent but transient effects and influenced what participants wrote in their living wills but not their responses to later medical scenarios. Expression of end-of-life treatment preferences appears to be temporarily constructed from the decision-making context. These results have implications for surrogate decision making and the use of the living will as a tool to preserve patient autonomy. **Key words:** decision psychology; living wills; default effect. (*Med Decis Making* 2007;27:299–310)

Past research has shown that medical decisions are often influenced by the contextual features of a decision-making situation. One such feature is the frame or wording of a question. Framing effects occur when 2 normatively equivalent presentations of the same decision problem yield different preferences.¹ For example, judgments of both patients and doctors vary depending on whether treatment outcomes are described as the probability of survival or probability of death.²

A 2nd contextual feature that influences decisions is the presence of default options. Default effects occur when a decision maker can express 1 preference by explicitly answering a question (e.g., checking a box) and a different preference, the default preference, by failing to explicitly answer a question (e.g., not checking the box).^{3–6} People tend to endorse the default position (the preference implied by no response) regardless

of its implication and consequently accept options they would not otherwise accept or reject options they would not otherwise reject. For example, Johnson and Goldstein⁵ found that organ donation rates in countries with presumed consent policies (where the default position is a preference to donate organs) were twice as high as in countries with explicit consent policies (where the default is a preference not to donate organs). Defaults have been found to influence Internet privacy policy preferences³ and preferences about retirement savings policies⁷ as well.

The default effect can be explained by the omission bias, or the tendency to prefer harmful outcomes that result from inaction over those that result from action even when the intentions underlying the 2 are the same.^{8,9} For example, people tend to judge moral transgressions committed via inaction as less bad than those committed via action.⁸ Also, people responding to hypothetical scenarios show reluctance to vaccinate a child even when the outcome

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caused by the vaccine is not as bad as the outcome resulting from failure to vaccinate.¹⁰

A study by Schweitzer¹¹ illustrated the strong parallels between default effects and the omission bias. People asked to choose 1 of 4 treatments for an infection preferred the treatment that they had been randomly assigned to receive (the default) regardless of what it was. Similarly, participants who were asked to select 1 of 4 health care plans tended to prefer whichever plan they had been randomly assigned to, regardless of its implication. In both this study and the Johnson and Goldstein⁵ organ donation study, endorsing the default option is accomplished via the failure to act.

Living Wills

The current research examines the default effect in the context of end-of-life medical treatment preferences expressed in living wills. Because previous research has indicated that expressed preferences are not always a simple reflection of personal attitudes and beliefs but are rather constructed based on contextual factors,^{6,12} we hypothesize that preferences expressed in living wills do not merely reflect a person's stable and innate preferences but are influenced by the defaults implicit in the frame of the living will questions. The frame of a living will question establishes a certain default preference, and we expect people to endorse that preference, regardless of its implication.

People complete living wills with the hope of effectively communicating their end-of-life treatment preferences to doctors or relatives who may have to make end-of-life treatment preferences on their behalf should they become incapacitated. In theory, living wills should preserve patient autonomy by helping

a surrogate make decisions a patient would want. Research indicates, however, that living wills do not increase a surrogate's ability to make decisions in line with the patient's treatment preferences.¹³ This finding has been documented with surrogates who are doctors who have a pre-existing relationship with patients as well as with surrogates who are relatives of patients.¹⁴ If people who complete living wills are indeed expressing preferences that are reflective of a cognitive bias rather than their true preference, it is not surprising that surrogates are unable to predict a person's true end-of-life treatment preferences. The current research addresses that issue.

The main goal of our research was to examine whether preferences expressed in living wills are influenced by the presence of defaults. A 2nd goal was to examine whether defaults not only influence expressed preferences but also decrease consistency between preferences expressed in the living will (in which defaults are active) and preferences expressed later in other medical scenarios. A 3rd and related goal was to compare living wills that have defaults with living wills that do not have defaults.

Experiment 1 examined the effect of defaults in check box–formatted living wills. Three normatively equivalent^a but differently formatted living wills were used. Two of the living will conditions contained defaults that corresponded to opposite preferences. We expected participants to show a tendency to endorse the default option regardless of its implication, and we consequently expected preferences expressed in the 2 living will conditions to be significantly different from each other. The 3rd living will condition contained forced-choice questions that had no default option. The purpose of this condition was to enable comparisons between preferences expressed when defaults were and were not present. We were particularly interested in examining whether preferences expressed in the forced-choice condition were more similar to preferences expressed in either of the living will conditions with defaults. We also examined whether preferences expressed in the forced-choice condition were in better agreement with preferences expressed in later medical scenarios than preferences expressed using the other 2 default-formatted living wills.

a. The 3 living wills used in experiment 1 are initially described as normatively equivalent. In the Discussion section, however, we consider the possibility that they are not normatively equivalent but instead convey different information regarding the implied recommendation of the policy maker who drew up the document.

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Address correspondence to Laura M. Kressel, BA, New York University, Department of Psychology, 6 Washington Place, Seventh Floor, New York, NY 10003; e-mail: lmk323@nyu.edu.

Experiment 2 examined the default effect in free-text narrative living wills. A person who has decided to write a narrative living will is often given a sample document to read before writing his or her own. The sample is expected to give the writer an idea of topics to mention and terms to use in his or her own document. As such, the sample represents the default option. In this situation, a default effect occurs when people express the same preferences as those expressed in the sample. Participants in experiment 2 read 1 of 2 sample living wills prior to writing their own. We expected preferences expressed in participants' own living wills to differ based on the sample living will that was read earlier.

EXPERIMENT 1

Experiment 1 examined the effect of defaults in check box–formatted living wills. These living wills allow the user to check multiple-choice options or fill in blanks to create a document expressing his or her treatment preferences. Such documents employ implicit defaults by assigning meaning to nonresponses. For example, a form that lists medical treatments and asks users to check those they wish to have withheld contains an implicit default of requesting treatment. That is, if the user does not check any of the treatments, it is assumed that she or he wants all of them provided (when medically indicated).

The living will used in this research was based on a living will form obtained from Robert Wood Johnson Hospital in New Brunswick, New Jersey. The document is a 24-question template that requires patients to place a check mark next to treatments they would want withheld. Thus, the implicit default in such a template is a preference for treatment to be administered because lack of response is interpreted as not wanting a treatment to be withheld. The questions in this living will are negatively framed. A 2nd living will template was created that was identical to the one described above; however, questions were phrased so that participants were required to place a check mark next to treatments they would want administered. The questions in this living will are positively framed. This version has the opposite implicit default such that non-response indicates a preference for treatment to be withheld. A 3rd forced-choice living will was formatted similarly to the first 2 passive-choice documents, but instead of applying an implicit meaning to a non-response, participants were required to explicitly respond to each question and indicate whether they would want a particular treatment administered or withheld. The 3 living will templates appear in the appendix.

We predicted that participants would tend to endorse the default option and that, consequently, end-of-life medical treatment preferences expressed via the negatively framed (withhold treatment) living will would favor medical treatment significantly more than preferences expressed in the positively framed (administer treatment) living will.

A 2nd goal of the experiment was to compare preferences expressed in the living wills to preferences expressed in a 2nd measure of end-of-life treatment preferences, the Patient Life Support Preferences Questionnaire (LSPQ).¹³ Because the LSPQ (described below) lacks a default option, it will serve as a means of measuring preferences in the absence of default effects. We compared preferences expressed in the living wills to preferences expressed in the LSPQ and examined whether agreement between the 2 was lower when the living will contained a default.

Methods

Participants

Participants were 182 college students who completed the study as part of a course requirement. Participants registered for and completed the study online using a Web site.

Materials and Procedure

The online questionnaire contained 4 parts. Part 1 consisted of a 2-page glossary of medical terms and a brief 13-question multiple-choice/true-false-type quiz to assess comprehension of these terms. Part 2 of the questionnaire consisted of 1 of 3 living will templates (see the appendix). The computer program randomly assigned participants to receive 1 of the 3 templates.^b In 1 condition ($n = 48$), the document was the negatively framed (withhold treatment) living will, in a 2nd condition ($n = 80$), the document was the positively framed (administer treatment) living will, and in a 3rd condition ($n = 54$), the document was the forced-choice living will.

The next part of the questionnaire was meant to distract the participants from thinking about end-of-life situations. It contained 58 questions taken from the Food Life Questionnaire of Rozin and others¹⁵ and provided a 10-min break between the living will writing exercise and the 4th part of the questionnaire: the Patient Life Support Questionnaire.¹² The LSPQ consists of 9 hypothetical scenarios that

b. Because of a programming error, the link assigning participants to different conditions generated the positive default condition more frequently than the other 2.

describe the following health states: 1) your current health, 2) Alzheimer disease with mental deterioration, 3) emphysema with no chance of improvement, 4a) coma with no chance of recovery, 4b) coma with a slight chance of recovery, 5a) moderately severe stroke with no chance of recovery, 5b) moderately severe stroke with a slight chance of recovery, 6a) colon cancer with pain, and 6b) colon cancer without pain. Participants must imagine themselves in each scenario and indicate their preferences toward the following 4 treatments, if warranted by their medical condition: antibiotics, cardiopulmonary resuscitation, surgery, and artificial feeding and fluids. Responses could range from 1 (*definitely would not want treatment*) to 5 (*definitely would want treatment*). The LSPQ was followed by a few follow-up questions that are not analyzed here.

Results

Quiz Scores

Quiz scores ranged from 6 to 13 (possible range, 0–13) with a mean score of 10.4 ($s = 1.4$). The quiz score varied significantly across the 3 conditions, $F(2, 179) = 3.11$, $P = 0.05$, with scores in the negative default condition ($\bar{x} = 10.1$, $s = 1.2$, $n = 48$) slightly lower than those in the positive default ($\bar{x} = 10.6$, $s = 1.0$, $n = 80$) and forced-choice conditions ($\bar{x} = 10.4$, $s = 1.2$, $n = 54$). Because of this difference, all later analyses of variance (ANOVAs) in experiment 1 controlled for quiz score.^c

Scoring Living Wills

Living wills were scored to assess each person's expressed preference for treatment to be provided. A restrictive attitude reflects a preference for treatment to be withheld, and an aggressive attitude reflects a preference for treatment to be administered. The scoring system assigned higher scores for more aggressive preferences.

In the positively framed living will, points were awarded for questions for which participants checked the box to indicate that they wanted treatment provided. In the negatively framed living will, points were awarded for questions for which participants had failed to check a box, again indicating that they wanted treatment provided. In the forced-choice living will, points were awarded when participants indicated that they wanted treatment provided. Living will questions were assigned different point values such that questions that addressed broader issues regarding end-of-life treatment preferences were awarded more points than questions that addressed more specific

issues. As shown in the appendix, the 4 questions in the 1st section were assigned 3 points each, each of the 12 medical procedures listed in the 2nd section was assigned 1 point, and the first 5 of the 6 questions in the 3rd section were assigned 2 points each. Because of a programming error, responses were not properly collected for the 6th question in the 3rd section, so it was excluded from scoring. Points were summed across all questions and then divided by 34 so that scores could potentially range from 0 to 1.^d A score of 0 represented a very restrictive attitude (preference for treatment to be withheld), and a score of 1 represented a very aggressive attitude (preference for treatment to be provided).

Measurement of Default Effect

Living will scores were most restrictive (lowest) for the positively framed condition in which the default preference was to withhold treatment ($\bar{x} = 0.50$, $s = 0.23$, $n = 80$). Scores were most aggressive (highest) for the negatively framed condition in which the default preference was to provide treatment ($\bar{x} = 0.60$, $s = 0.18$, $n = 48$) and intermediate for the forced-choice condition ($\bar{x} = 0.56$, $s = 0.21$, $n = 54$). To assess the default effect, living will scores were analyzed by default condition in linear and quadratic contrast tests, controlling for quiz score. There was a significant linear relationship across the 3 conditions, $F(1, 178) = 8.79$, $P = 0.003$, $\eta^2 = 0.05$, and no significant quadratic contrast, $F(1, 178) = 0.12$, $P = 0.73$, $\eta^2 = 0.0006$, indicating that the mean score of the forced-choice living will condition fell halfway between the means of the other 2 conditions and was not significantly closer to the mean for one default condition than the other.

LSPQ Scores

Responses to the 36 LSPQ questions were averaged to get 1 summary score that ranged from 1 (*most restrictive*) to 5 (*most aggressive*). Mean scores were 3.66 ($s = 0.83$) for the positive condition, 3.42 ($s = 0.71$) for the negative condition, and 3.66 ($s = 0.89$) for the forced-choice condition. LSPQ scores were

c. In experiment 1, higher quiz scores were associated with more aggressive preferences on the Life Support Preferences Questionnaire (LSPQ) but were unrelated to responses on the living will. In contrast, in experiment 2, higher quiz scores were associated with more aggressive preferences on the living will but were unrelated to LSPQ responses (data not shown).

d. An alternate scoring system in which each item was assigned 1 point yielded the same results (data not shown).

analyzed by default condition in linear and quadratic contrast tests, controlling for quiz score. Neither contrast was significant, $F(1, 178) = 2.69, P = 0.103$, and $F(1, 178) = 0.83, P = 0.36$, indicating that LSPQ scores did not vary across the 3 conditions.

Consistency Scores

We assessed agreement between the living will responses and the LSPQ responses by comparing questions in the living wills to LSPQ scenarios that addressed the same end-of-life issues. For example, living will question a asked participants to express their preference for treatment in the circumstance that they are permanently unconscious. Similarly, LSPQ scenario 4a asks participants to express their treatment preferences for medical treatment should they be in a coma with no chance of recovery. Participants who do not want treatment in living will question a should also not want treatment in LSPQ scenario 4a.

A total of 6 comparisons were made between the living will and LSPQ (living will item a/LSPQ scenario 4a, b/scenario 6a, b/scenario 6b, s/scenario 4a, t/scenario 5a, and u/scenario 2). Responses to both the living will and LSPQ items were converted to a 0 to 1 scale, with 0 indicating a preference for treatment to be withheld and 1 indicating a preference for treatment to be administered. The living will items were scored dichotomously, with a score of 1 if the participant indicated a preference to receive treatment and a score of 0 if the participant indicated a preference to have treatment withheld. For the LSPQ scenarios, responses to the 4 treatment items within a scenario were averaged, and that mean score was converted from the original 1 to 5 score to a 0 to 1 scale. To account for mean differences between the analogous LSPQ and living will questions, responses to the individual questions were normalized before they were compared.^e For each of the 6 comparisons, normalized living will items were then subtracted from normalized LSPQ scenario responses, and the absolute value of this difference was computed. The 6 absolute differences were averaged together to form a single inconsistency score for each participant. Higher inconsistency scores indicate greater inconsistency.

Linear and quadratic contrast tests were used to measure the effect of default condition on consistency scores. Only the quadratic contrast reached significance, $F(1, 178) = 4.10, P = 0.04$. Mean consistency scores in the positive, forced-choice, and negative conditions were 1.33 ($s = 0.51$), 1.42 ($s = 0.50$), and 1.20 ($s = 0.39$), respectively, reflecting the fact that, counter to our prediction, the forced-choice condition showed the most inconsistency.

Discussion

Results from experiment 1 support our hypothesis that preferences expressed in living wills are affected by the presence of defaults. Preferences expressed in the withhold-treatment living will (negative default condition) were significantly more aggressive than preferences expressed in the administer-treatment living will (positive default condition). This provides evidence of a default effect because endorsing the default position in the withhold-treatment living will indicates a desire for treatment to be administered.

Preferences expressed in the forced-choice living will were midway between preferences expressed in the negatively framed and positively framed conditions. This indicates that both default conditions elicited a similar-sized influence relative to the forced-choice control condition, although the influences were in opposite directions.

The results of experiment 1 depict a potent but transient default effect. Although preferences expressed in the living will differed between the 2 default conditions, preferences expressed later in the LSPQ did not. This finding provides evidence that preferences expressed in the living wills were influenced by the default response but that the influence of defaults was limited to the context in which they were present; the default effect did not persist across time and questionnaire sections.

Interestingly, the consistency between the preferences expressed in the living will and those expressed in the LSPQ was no better in the forced-choice condition than in the default conditions. Consistency was, in fact, worse when the living will was forced choice. We had predicted that preferences expressed in the forced-choice condition would be in better agreement with later expressed preferences in the LSPQ. Such a pattern would have indicated that the forced-choice response mode was better able to capture a person's stable preferences than were the default conditions. Instead, these results suggest that there is no reason to believe that a living will without defaults is any more indicative of stable, long-term preferences than a living will with defaults. That is, it appears that people do not

e. Living will scores were standardized using the estimated mean of the 3 conditions and the standard deviation of all responses. We used the estimated mean instead of the grand mean of all participants to account for the unequal size of the conditions. LSPQ scores were standardized in the same manner.

have well-defined stable preferences about end-of-life medical treatment that can be expressed in living wills. Rather, living wills appear to reflect the transient influence of contextual factors on expression of preferences.

EXPERIMENT 2

Whereas experiment 1 manipulated defaults in check box–style living wills, experiment 2 manipulated defaults in free-text living wills—documents in which preferences are expressed in paragraph format. Individuals who have decided to write a free-text living will may be given a sample to read before writing their own so that they have an idea of topics to mention and terms to use. As such, the sample represents the default preference, and a default effect occurs when preferences expressed in the written living will are similar to those expressed in the sample living will.

In experiment 2, participants were presented with 1 of 2 sample free-text living wills and then were instructed to write their own living will after reading the sample. The 2 sample living wills were similar in length and in the end-of-life topics addressed, but they expressed opposite preferences. One expressed an aggressive attitude toward medical treatment—a general preference for medical treatment to be administered whenever it was medically indicated. The other expressed a restrictive attitude toward medical treatment—a general preference for medical treatment to be withheld under a number of serious medical conditions.

Participants were asked to pretend that their lawyer had given them a sample living will to read before writing their own. This sample document was described as a guide to the type of language to use and topics to address. Participants were instructed to read the sample and then write a living will that expressed their own preferences.

We predicted that participants would express preferences similar to those expressed in the sample living will they had read. Consequently, we expected those who read the restrictive sample living will to exhibit significantly more restrictive treatment preferences than those who wrote their living will after reading the aggressive sample living will.

Raters were used to score the living wills. Each rater read each subject's living will and completed the LSPQ on the subject's behalf. Scoring of the LSPQ provided a quantitative measure of living will treatment preferences that could be analyzed by condition.

Methods

Participants

Fifty-one participants wrote a living will. These participants were college students who registered for and completed the study online. An additional 5 participants served as raters. They were recruited from an undergraduate honors program and were given \$100 each.

Materials and Procedure

The 51 subjects (whom we will call writers) were presented with an online questionnaire that contained 5 parts. The 1st part was the same glossary of medical terms and quiz that were used in experiment 1. The 2nd part contained 1 of the sample living wills (either restrictive or aggressive) and was positioned next to a blank text box in which the participants were instructed to write their own living will. Participants were randomly assigned to 1 of these 2 conditions. Those in the aggressive condition ($n = 26$) read the aggressive sample, and those in the restrictive condition ($n = 25$) read the restrictive sample. The sample living will was created as an image file so it was impossible for participants to copy and paste pieces of the sample living will directly into the text box where they were to write their own living will.

Both sample living wills were 7 paragraphs long (see the appendix). The restrictive document expressed a preference for treatment to be withheld in many cases. It defined a terminal condition as one in which death was expected to occur within 2 months, and it specified that administration of pain-relieving drugs was acceptable even if the drugs would hasten death. Brain death was described as a sufficient standard of death. In contrast, the aggressive sample living will expressed a preference for most treatments to be administered. A terminal condition was defined as one in which death was expected to occur within 1 week. The administration of pain-relieving drugs was unacceptable if it would hasten death. Brain death was not an acceptable standard of death.

The 3rd part of the questionnaire was the same distracter task as in experiment 1. The 4th part of the questionnaire was the LSPQ, the same as in experiment 1. This was followed by a few demographic questions and follow-up items not presented here.

The 5 raters were given the same terms, definitions, and quiz that the writers were given. They were also given the 51 living wills written by the participants mentioned above. Raters completed the LSPQ on behalf of each writer's living will. The LSPQ was

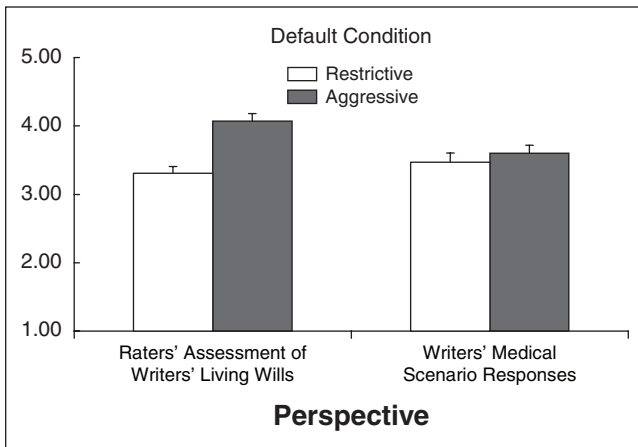


Figure 1 Mean Life Support Preferences Questionnaire (LSPQ) scores of raters responding on behalf of writers' living wills and writers' own LSPQ responses for each of 2 default conditions (restrictive v. aggressive) in experiment 2. Rater scores are a measure of the content of writers' living wills, whereas writer scores reflect writers' later responses to the LSPQ.

identical to the one described above except that questions were phrased so that raters were asked to imagine the living will writer in each scenario and to predict the writer's treatment preferences using the same 1 (*definitely would not want treatment*) to 5 (*definitely would want treatment*) scale. The raters' LSPQ responses to each living will were used as a quantitative measure of each living will writer's treatment preferences. Interrater reliability among the 5 raters was measured using the method of intraclass correlations.

Results

Quiz Scores

The average quiz score of the raters was 11.0 ($s = 0$) out of 13 items. The average quiz score of participants was 10.3 ($s = 1.3$). Scores ranged from 6 to 13. Quiz scores did not differ between the 25 participants in the restrictive condition and the 26 participants in the aggressive condition (means of 10.2 v. 10.3, respectively), $t(49) = 0.29, P = 0.77$.

Interrater Reliability

Interrater reliability was assessed by calculating the intraclass correlation¹⁶ of the average LSPQ score that each rater assigned to each living will. That is, each rater contributed 51 data points: 1 mean LSPQ score for each of 51 writers. The intraclass correlation

was sufficiently strong so that no rater needed to be eliminated from the analysis, $ICC(2, 5) = 0.70$.

Scoring the Living Wills

Each rater completed the LSPQ based on each living will. LSPQ responses were given on a 1 to 5 scale, and each rater's responses to all 35 questions were averaged for each writer's living will. Rater scores were then averaged across the 5 raters to get 1 score for each writer's living will. This score indicates participants' end-of-life treatment preferences as expressed in the living will. Scores could range from 1 (*very restrictive*) to 5 (*very aggressive*).

Measurement of a Default Effect

Figure 1 shows the mean LSPQ scores that raters assigned to writers in each of the 2 conditions. It also shows the mean LSPQ scores that writers provided for themselves. The raters' LSPQ scores on behalf of the writers are a measure of the content of the writers' living wills, which we predicted would be influenced by the default condition. In contrast, the writers' LSPQ scores indicate the writers' preferences in the medical scenarios that they completed 10 min after writing their living wills. If the effect of the default condition is transient, these writers' LSPQ scores would not show a default effect, as the LSPQ itself contains no default.

As shown in the figure, the rater scores were higher (more aggressive) in the aggressive default condition than in the restrictive default condition, but the writers' scores were similar in the 2 conditions. That is, it appears that a default effect was present in the content of the writers' living wills themselves but not in the LSQP response that writers provided later.

Mean LSPQ scores were used as the dependent measure in a 2 (default condition: aggressive v. restrictive) \times 2 (perspective: rater v. writer) ANOVA with writer ($N = 51$) as the unit of analysis. The 1st factor was between subjects, and the 2nd factor was within subjects. There was a main effect of default condition, indicating that, combining across writers and raters, LSPQ scores were higher in the aggressive condition than in the restrictive condition, $F(1, 49) = 5.89, P = 0.02, \eta^2 = 0.107$. There was no main effect of perspective, $F(1, 49) = 1.41, P = 0.24$. Of primary interest, there was also a significant interaction between perspective and condition, $F(1, 49) = 5.52, P = 0.02, \eta^2 = 0.10$.

Contrast tests for simple main effects indicated that the raters' scores were higher in the aggressive condition than in the restrictive condition, $F(1, 49) = 13.6,$

$P < 0.01$,^f but that writers' scores did not differ between conditions, $F(1, 51) = 0.31$, $P = 0.58$. In other words, the default manipulation affected what writers wrote in their living will (as measured by the raters' LSPQ responses) but not the writers' later responses to the LSPQ.

Discussion

Experiment 2 demonstrated the hypothesized default effect. Participants who read the aggressive sample living will expressed significantly more aggressive treatment preferences in their own living will than those who read the restrictive sample living will. The content of writers' living wills was assessed by the raters' LSPQ response provided on behalf of the writers.

It is important to note that the default effect found in this experiment does not merely reflect mechanical laziness. The sample living will, positioned next to the text box where participants wrote their own living wills, was posted as an image file so that participants could not cut and then paste the text into the text box. All text had to be typed into the text box by the subject. Even if participants used ideas or exact phrases from the sample living will, they did so consciously and with effort. In this respect, the default effect demonstrated in experiment 2 differs from demonstrations of the omission and default biases studied by Schweitzer and others.^{5,7-11} Endorsing the default preference was accomplished via action rather than omission.

The interaction between condition and perspective shown in Figure 1 indicates that although the default manipulation had a significant effect on raters' LSPQ responses (a measure of what writers wrote in their living will), it had no effect on writers' own LSPQ responses. In other words, although writers in the 2 default conditions expressed end-of-life treatment preferences in the living will that were significantly different from each other, preferences expressed via the LSPQ (10 min later) were not significantly different between the 2 groups. That is, the default manipulation influenced what writers wrote in their living wills but not how they responded later to the LSPQ. Thus, the influence of the default was potent but transient and did not result in a permanent change in preferences.

GENERAL DISCUSSION

The current studies provide evidence that people have difficulty expressing preferences independent

of contextual features of the decision-making situation. End-of-life treatment preferences are not stable, internal wishes that a person easily expresses when presented with a living will. Instead, preference expressions are temporarily constructed based on situational factors such as the default preference implied by the question frame. Interestingly, preferences toward an issue as serious and morbid as end-of-life treatment are more unstable than one might think and do not seem to be dictated only by personal conviction and moral ideals.

Our findings are consistent with past decision-making research in showing that decisions are influenced by irrelevant external factors. Like organ donation,⁵ end-of-life medical treatment is a weighty medical issue, and it is noteworthy that even these preferences are constructed based on the decision-making context. Endorsing the default option requires the least amount of mental effort and may be especially appealing to people contemplating decisions as unpleasant as end-of-life medical treatment or organ donation because it allows the decision maker to avoid considering difficult tradeoffs.

The default effect bears similarity to other expression effects found in previous research. A parallel bias mentioned earlier is the omission bias.^{8,9} To the extent that accepting the default position represents an omission (not checking a box), as opposed to the action of stating an alternative preference (checking the box), the default bias represents an instance of the omission bias. It is important to note, however, that the default bias in experiment 2 could not have resulted from mere inaction because participants had to type their living will manually into the text box. An influence of the sample living will may have decreased the mental effort required to generate what to write, but it did not offer a true option for omission or inaction.

As discussed in the introduction, the default effect is similar to the framing effect, in which 2 formally equivalent versions of the same question were treated quite differently.² Another relevant bias was demonstrated by Shafir,¹⁷ who found that preferences are influenced by whether decision makers are choosing or rejecting from a set of options. Shafir postulated that people who are choosing an option search for reasons to accept one and that people who are rejecting an option search for reasons to reject one. The current default effect might be similarly explained: Participants who completed

f. Additional analyses (not shown) indicated that scores from 4 of the 5 raters showed a significant default effect and that scores from the 5th rater showed a marginally significant default bias. Thus, all 5 raters detected the same default bias pattern.

the positively framed document focused on reasons to choose treatment, whereas those who completed the negatively framed document focused on reasons for rejecting treatment. If some medical treatments pose few reasons for accepting or rejecting, they may be neither requested nor refused.

An important topic for future research is whether the psychological mechanisms underlying the default effect are the same as those underlying the omission bias, framing effects, or the accept/reject bias. Recently, McKenzie and colleagues have posited an information leakage explanation for default effects.¹⁸ Their research shows that people prefer the default preference in part because they perceive it to be the recommendation of a policy maker. That is, an opt-out organ donation policy implies that the policy maker advocates organ donation more so than does an opt-in policy. These results suggest that default effects do not always represent irrational biases but instead may constitute the acceptance of a policy maker's recommendation.

The default effect in the current research could be explained by information leakage. That is, participants in experiment 2 may have viewed the sample living will as a recommendation from the lawyer who provided it or an indication of the preferences that most people have. Even the participants in experiment 1, who completed the check box living wills, may have perceived the default option to be the recommendation of the hospital staff who drew up the document. Under this explanation, the 3 living will formats would not be considered to be normatively equivalent because they convey different information. There would be cause for concern if the living will default implied a policy recommendation that the developer never intended.

Limitations

An important limitation of the current research is the use of college student participants. It is plausible that older adults have better-defined preferences and may not be as easily influenced by factors such as default options. Consequently, we conducted a replication of Experiment 1 using older adults (Kressel, Chapman, & Leventhal, in press).²⁰ College-aged participants are nevertheless a population of interest. Many proponents of living wills encourage people to prepare a living will while they are still young and healthy. Prominent medical cases such as that of Terry Schiavo are newsworthy in part because the patient was very young at illness onset and had not written a living will.

CONCLUSION

The current research shows that it is difficult for people to express end-of-life treatment preferences independent of factors such as the implied default preference, the frame of questions, and the response mode. These results have implications for real-world decision making and shed light on the living will paradox—the finding that living wills do not increase the decision-making accuracy of surrogates.^{4,5} Because expressed end-of-life treatment preferences are at least partially constructed based on living will format, it is not surprising that surrogates have difficulty accurately predicting a patient's medical preferences based on his or her living will. Our results support the view¹⁹ that living wills do not succeed in preserving patient autonomy.

APPENDIX

Living Will Template Used in Experiment 1

To My Family, Doctors, and All Those Concerned with My Care:
I, [name], being of sound mind, make this statement as a directive to be followed if for any reason I become unable to participate in decisions regarding my medical care.

Check any which accurately reflect your treatment preferences:

[This section shown in the withhold-treatment condition]

If I have a condition where I have no reasonable expectation of recovery or chance of regaining a meaningful quality of life, my instructions are as follows:

(continued)

APPENDIX (continued)

I direct that life-sustaining procedures be withheld or withdrawn:

- (3) a. if I become permanently unconscious;
- (3) b. if I have a terminal illness;
- (3) c. if treatment is experimental, futile, or will merely prolong imminent dying;
- (3) d. if I have a serious irreversible illness or condition AND the risks and burdens associated with the treatment outweigh its benefits, OR the treatment would be inhumane.

These medical conditions shall be determined by my attending physician. I understand that I will be kept comfortable.

[This section shown in the administer-treatment condition]

In an end-of-life situation, the medical procedures that I would want provided or continued include but are not limited to:

- | | |
|-------------------------------|--|
| (1) e. chest compressions | (1) k. artificially provided fluids |
| (1) f. mechanical ventilation | (1) l. artificially provided nutrition |
| (1) g. tracheostomy | (1) m. surgery |
| (1) h. chemotherapy | (1) n. dialysis |
| (1) i. radiation therapy | (1) o. antibiotics |
| (1) j. blood transfusions | (1) p. intubation |

[This section shown in the forced-choice condition]

This section asks you to think about the values that are important to you regarding treatment in case of severe mental or physical illness.

I would not like my life to be prolonged by medical treatment(s) if my quality of life is unacceptable to me. The following are conditions that are **acceptable/unacceptable** to me (choose one):

- | | | |
|---|-------------------------------------|--|
| q. depending on a machine to keep me alive (for example, a ventilator or dialysis); | <input type="checkbox"/> acceptable | <input checked="" type="checkbox"/> unacceptable |
| r. depending on artificial feeding to keep me alive (for example, a stomach tube or intravenous line); | <input type="checkbox"/> acceptable | <input checked="" type="checkbox"/> unacceptable |
| s. being permanently unconscious (for example, in a coma); | <input type="checkbox"/> acceptable | <input checked="" type="checkbox"/> unacceptable |
| t. being conscious (awake), but unable to communicate (for example, with a stroke); | <input type="checkbox"/> acceptable | <input checked="" type="checkbox"/> unacceptable |
| u. being unable to recognize those who love me; | <input type="checkbox"/> acceptable | <input checked="" type="checkbox"/> unacceptable |
| v. being unable to care for myself (for example, bathing, dressing, eating); | <input type="checkbox"/> acceptable | <input checked="" type="checkbox"/> unacceptable |
| <input type="checkbox"/> w. Upon my death, I am willing to donate any organs of my body that may be beneficial to others. | | |

Additional Treatment Preferences: _____

These directions express my legal right to request or refuse treatment. Therefore, I expect my family, doctor, and all those concerned with my care to regard themselves as legally and morally bound to act in accord with my wishes.

Note: Numeric values indicate the point value of questions used to score living wills. Points were awarded if the person wanted specific treatment administered. Questions were worth varied points depending on the specificity of question. Broader questions were worth more than more specific questions. Each question was worth the same amount in the positively framed and forced-choice living will conditions.

(continued)

APPENDIX (continued)

Sample Living Will Used in Experiment 2

[Text in **bold** appeared in only the restrictive sample. Text in *italics* appeared in only the aggressive sample.]

I, [first name, last name], residing at [address] in the city of [city], County of [county], and State of [state], voluntarily make this statement as a directive to be followed if I become unable to participate in decisions regarding my medical care.

I realize that it is not possible for me to anticipate the very wide variety of medical decisions that may have to be made in the future and to provide specific written directions. Accordingly, in the event that I am unable to understand and appreciate the nature and consequences of health care decisions and to make an informed decision, I appoint [name] as my Health Care Representative to make all health care decisions on my behalf. I direct my Health Care Representative to carry out my basic objectives set forth in this Living Will, and I authorize my Health Care Representative to interpret those objectives if need be.

If at any time I should have a severe and incurable illness, disease, or condition that in the opinion of my attending physician is terminal, I direct my attending physician to **withhold or withdraw/provide or continue** life-sustaining treatment, *as medically indicated*. I use the term "terminal condition" to mean a condition caused by disease, illness, or injury in which death is expected to occur within **2 months/1 week**. I also direct my attending physician to **withhold or withdraw/provide or continue** life-sustaining treatment, *as medically indicated, even if I am permanently unconscious, with no brain activity*.

I specifically include in the life-sustaining treatment I wish to have **withheld or withdrawn/provided or continued**: cardiopulmonary resuscitation, mechanical respiration, mechanically administered nutrition and hydration, surgery, and antibiotics.

I want medical treatment to provide comfort and to relieve pain, **and/but** I authorize administration of pain-relieving drugs **even if their administration may hasten the moment of death/only if their administration will not hasten the moment of death**.

In addition, if I have a serious irreversible illness or condition, I direct that **all/medically indicated** life-sustaining treatment be **withheld or withdrawn/provided or continued if/unless** in the opinion of my Health Care Representative, the likely risks and burdens associated with the medical intervention to be **withheld or withdrawn/provided** may **reasonably/clearly and unquestionably** be judged to outweigh the likely benefits to me of such intervention.

I **accept/reject** "brain death" (the irreversible cessation of all functions of the entire brain) as the standard of death **rather than the more stringent standard of irreversible cessation of heartbeat and breathing**. *I direct that my death be declared only when my heartbeat and breathing have irreversibly stopped. Until my death is declared, I direct that all medically appropriate treatment be provided.*

AFTER-DEATH ANATOMICAL GIFTS:

Upon my death, I wish to donate any needed organs or body parts.

DATE _____

_____ Signature

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