



# TREATMENT PREFERENCES FOR A DYING CHILD AMONG FEMALE COLLEGE STUDENTS



Stephanie A. Kovacs, B.A., Mary J. Naus, Ph.D., and Brian Weisinger  
Health Psychology Research Group (HPRG) at the University of Houston

## Introduction

- As medical technology advances, more treatment options are becoming available, making it difficult to make treatment decisions at the end-of-life.
- In the case of pediatric illness, parents, often bear the sole responsibility for making treatment decisions and are particularly vulnerable to regret their decisions because they have a strong emotional connection with the child and a high responsibility for the well-being of the child (Gagnon & Recklitis, 2003; Zikmund-Fisher, Sarr, Fagerlin, & Ubel, 2006).
- Their cognitive and emotional pressure puts parents at risk for making biased or uninformed decisions through the use of mental heuristics to arrive at quick conclusions about their preference for care. Decisions based on these heuristics may not favor treatment decisions that serve the best interest of the child because they operate on variables that may lead to inaccurate conclusions (i.e. using age as a measure of illness responsibility (Lenton, Blair, & Hastie, 2006).
- Little research has investigated the role of the parental perspective in treatment allocation decisions, particularly empirical studies.

## The Present Study

- The present study used 6 hypothetical scenarios to investigate the role of a child's age (9 months, 7 years, 14 years) and acuteness of the medical condition (acute car accident, chronic brain tumor) in the overall preference for treatment from an imagined mother perspective.

## Hypotheses

- Impact of child age on overall treatment preference**  
**H1:** Age of the child patient will impact the total strength of preference for treatments allocated to each patient such that stronger preferences for overall treatment (CAM and conventional combined) will be demonstrated toward older children compared to younger children.
- Impact of acuteness of medical condition on overall treatment preference**  
**H2:** Acuteness of the medical condition will impact the total strength of preference for treatments allocated to child patients, such that stronger preferences for treatment will be evidenced in the acute condition (i.e. car accident) compared to the chronic condition (i.e. brain tumor).
- Impact of age and acuteness on overall treatment preference**  
**H3:** An interaction will be observed between the acuteness of the medical condition and the child's age such that greater total preferences for treatment of older versus younger children will be observed in the acute condition compared to the chronic condition.
- Impact of treatment type (exploratory)**  
**H4:** A difference will be observed between the overall preference for CAM vs. conventional medicine

## Method

### Participants

166 female undergraduates from the University of Houston were recruited for this study.

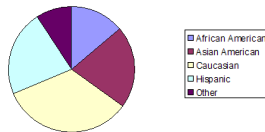
### Age:

18-29: 90% (n=150)  
 30-39: 6% (n=10)  
 40-49: 2% (n=4)  
 50-59: 1% (n=2)

**Parents:** 16% (n=27) had children or were expecting a child.

### Ethnicity:

Figure 1. Ethnic Distribution of Sample



### Procedure:

**Measures:** Six vignettes were developed depicting a story of a dying child in various age (9mos, 7yrs, 14yrs) and acuteness conditions (car accident, brain tumor). Participants were prompted to rate their preference of administering the following treatments on a 7-point Likert scale for each vignette condition (see Figure 3): (1=Strongly Disagree to 7=Strongly Agree)

### Conventional Medicine

- Cardiac Resuscitation
- Mechanical Ventilation
- Nutrition/Hydration assistance
- Antibiotics, blood products, surgery
- Pain medication

### Complementary/Alternative Medicine

- Whole Medicine
- Mind-Body Medicine
- Energy Therapy
- Biologically-Based Medicine
- Body-Based Manipulation
- Breathing/Relaxation

**Control Condition:** An additional vignette was developed depicting a non-terminal condition (broken leg) to check for sensitivity of responses.

Figure 2. Sample Vignette

You have a **9 month old** child. Two weeks ago, your child was diagnosed with an advanced **brain tumor** and has already undergone chemotherapy and radiation treatments. Physicians estimate that your child has less than a month to live. Doctors inform you that your child is receiving medication for pain, but it is not enough to numb the pain completely.

**Given that your health insurance has agreed to cover all costs, please rate how strongly you agree with each of the following statements.**

## Results

**Control Condition:** Using the Huynh-Feldt correction for violation of sphericity, a repeated-measures ANOVA indicated a significant difference in the treatment preferences for the 7 year-old child across conditions of broken leg, car accident, and brain tumor,  $F(1.76, 10.67) = 4.51, p = .02$ . A Bonferroni correction indicated that the broken leg condition received significantly less preferences for treatment than the child in the car accident condition.

**Main Analysis:** Negative skew of the data required the use of a square-root transformation. A 2x3 repeated-measures ANOVA was conducted with a Bonferroni correction to determine post hoc differences across groups. Missing data were imputed using rounded column averages. Descriptive results are presented in Table 1 and represent means and standard deviations of preference strength for treatment across groups.

### Descriptives:

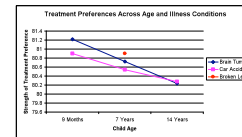
Table 1. Descriptive Summary of Data

		Mean Sum	
		s	s
Brain Tumor	9 months	81.22	1.63
	7 years	80.72	1.66
	14 years	80.24	1.69
Car Accident	9 months	80.90	1.85
	7 years	80.54	1.85
	14 years	80.28	1.75

**Mauchly's test** indicated that the assumption of sphericity had been violated for the main effect of age ( $\chi^2 = 72, p = 0$ ) and the interaction of age and acuteness ( $\chi^2 = 89, p < .001$ ). Therefore degrees of freedom were corrected using Huynh-Feldt estimates of sphericity ( $\epsilon = .79$  for the main effect of age and .91 for the interaction of age and acuteness).

- H1:** Hypothesis 1 was partially supported. A significant main effect for child age was found,  $F(1.58, 260.23) = 77.74, p < .001$ . However, contrary to the H1, contrasts indicated that strength of treatment preferences for the 9 month old child,  $F(1, 165) = 106.52, p < .0001$ , and 7 year old child,  $F(1, 165) = 63.02, p < .0001$ , were significantly higher than for the child age 14.
- H2:** Contrary to Hypothesis 2, stronger treatment preferences were exhibited for the brain tumor ( $M = 80.73, SE = .12$ ) and not the car accident condition ( $M = 80.58, SE = .13$ ). This difference approached significance,  $F(1, 165) = 3.67, p = .057$ .
- H3:** Consistent with Hypothesis 3, there was a significant interaction between child age and acuteness,  $F(1.83, 301.43) = 9.34, p < .001$ . Children in the car accident condition were given significantly more treatments than those in the brain tumor condition, but only when the child was age 14. When the child was younger than age 14, treatments were rated more favorably for children in the brain tumor condition.

Figure 3. Interaction Effect of Treatment Preferences Between Child Age and Acuteness



**H4:** A paired-samples *t*-test was conducted to test differences in preference for treatment types across conditions and age groups. Consistent with the hypothesis, a significant difference was observed between overall preferences for CAM vs. conventional medicine ( $t = 158.86(165), p < .0001$ ), with greater preferences observed for CAM ( $M = 258.52, SD = 3.58$ ) compared to conventional medicine ( $M = 216.04, SD = 2.66$ ).

## Discussion and Future Directions

**Control condition** indicated that children with the broken leg received stronger preferences for treatment across all conditions but that only the difference between the broken leg and car accident condition was significant. This result suggests that the participants were attentive to the changing situation in each vignette and responded accordingly. Perhaps children in the broken leg condition may have received a stronger preference for treatment than those in the terminal conditions because participants may have viewed a non-terminal condition as more likely to improve with treatment. An interaction of acuteness may explain the nonsignificant findings between broken leg and brain tumor.

**Analysis of age** indicated that an age bias was present across all conditions but operated in different directions depending on the acuteness of the situation. High acute situations seemed to favor treatment for older children perhaps because the threat of loss is more sudden, and the idea of losing a child who has spent 14 years bonding with the mother may seem like a greater loss initially than a younger child who has not bonded as extensively.

**Age bias** may be favoring younger children in the chronic condition because mothers may feel like they have more time to weigh the consequences of their decisions and may feel that the pain and discomfort associated with treatment may not be remembered as vividly in younger children as opposed to older children.

**Analysis of condition** indicated that children in the chronic condition had a slight preference for treatment compared to children in the acute condition, although this difference only approached significance. It is possible that the specificity of the damage incurred in the car accident condition may not have been clear for participants, making it difficult to determine appropriate treatment. Participants may have been better able to identify appropriate treatment for a brain tumor compared to a condition that was unclear.

**Participants** may have conceptualized the car accident as so severe that treatment in general would not be useful. Participants may have also erroneously believed that a brain tumor could always benefit from treatment because it is physically localized (i.e., easier to treat) and organic (i.e., more responsive to treatment) than damages incurred via car accident.

**Analysis of medicine type** indicated that a stronger general preference was observed for CAM versus conventional medicine treatments. This preference may be due in part to the large percentage of ethnic minorities in the sample, who are usually more supportive of CAM treatments than Caucasians. Additionally, the terminal nature of the conditions may have caused participants to feel like all conventional treatment had already been performed and that CAM was a "last resort".

**Future studies** should look at different medical conditions as a moderator of age bias in treatment preferences to assist in the identification of variables in which age bias is most likely to affect treatment decisions.

**Assessing treatment preferences** between genders may suggest differential response patterns and susceptibility to bias across mothers and fathers. This may suggest a need for hospitals to provide targeted interventions to help parents to come to a unified preference for treatment of their child based on awareness of their own biases.

**Multivariate analysis** of the age and acuteness bias across conventional and CAM treatments may suggest different conditions under which the biases are more likely to occur.

### Selected References

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- Zikmund-Fisher, B. J., Sarr, B., Fagerlin, A., & Ubel, P. A. (2006). A matter of perspective: Choosing for others differs from choosing for yourself in making treatment decisions. *Journal of General Internal Medicine, 21*, 618-622.

Contact Stephanie Kovacs, University of Houston, Department of Psychology, Houston, TX 77204-5022. Email: sakovacs@uh.edu