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2011 Abstracts

Method: Adults (N = 966; 67% female; 37% minority; mean age 20.2) were surveyed anonymously. Temporal discounting questions were presented for 3 commodities (alcohol, candy bars, and money), varying immediate magnitude (1 or 6) and magnitude of the commodity 1 month later (Which would you choose: 1 candy bar now or 3 candy bars in 1 month?). Discount rates were calculated for each commodity by magnitude condition. Participants also selected the gist of their decisions from 5 ordinal options (e.g., Now is always better than later) and responded to the Brief Sensation Seeking Scale (BSSS). Health behaviors included alcohol use (WHO's Alcohol Use Disorders Identification Test, AUDIT), risk-taking (Adolescent Risk Questionnaire, ARQ), and spending behavior (Spendthrift Scale).

Result: In a regression using gist, discounting, sensation seeking, and gender as predictors of risky behaviors, discounting and gender were not significant by themselves, but discounting interacted with gender. Moreover, gist explained unique variance beyond other predictors. Specifically, health behaviors (AUDIT and ARQ) correlated with alcohol discount rates among males, whereas these behaviors correlated with candy discount rates among females. Similarly, alcohol gist correlated with males' risky behaviors, whereas candy gist correlated with females' risky behaviors. Discounting and reward sensitivity also predicted beyond their domains (e.g., alcohol predicted spending).

Conclusion: Consistent with Fuzzy-Trace Theory, unhealthy risk-taking behaviors were predicted by both reward sensitivity (sensation seeking) and information processing based on gist, each accounting for unique variance in health behaviors. In addition, there was a gender-specific effect in which alcohol predicted better for men, but candy bars predicted better for women. These results are consistent with a theoretical mechanism in which the perception of the gist of choices, as well as individual and group differences in reward salience, each account for unique variance in predicting risk taking and unhealthy choices. Implications for public health messages and medical decision making will be discussed.

BEC-12 RANDOMIZED TRIAL OF PAIRED AND TRIPLET PROFILE CHOICE TASKS IN THE ELICITATION OF PATIENT PREFERENCES FOR HEARING AIDS WITH CONJOINT ANALYSIS
(BEC)—Behavioral Economics
John F.P. Bridges, PhD[1], Karin G.M. Groothuis-Oudshoorn, PhD[2] and Christine Buttorff, BA[1], [1]Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, [2]University of Twente, Enschede, Netherlands

Purpose: Most applications of conjoint analysis in health use choice tasks with 2 profiles, while marketing studies routinely use 3 or more. This study reports a randomized trial of paired and triplet profile choice formats experiments focused on hearing aids.

Method: Respondents with hearing loss were drawn from a nationally representative cohort complete identical surveys were randomized between choice tasks with 2 or 3 profiles. When they were offered, respondents also provided a full ranking of the 3 profiles cases. Baseline differences between the 2 groups were explored using ANOVA and C^2 tests. The primary outcomes (i.e., the differences in estimated preference models) were explored using Wald and t tests and analysis of individual level models estimated by ordinary least squares.

Result: 500 respondents participated in the study, but 127 had no hearing loss, 28 had profound and 22 declined to participate and were excluded from analysis. Of the remaining 323 participants, 146 individuals were randomized to the pairs and 177 to triplets, but the only significant difference between the groups was time to complete the survey (11.5 and 21 minutes, respectively). Pairs and triplets produced identical rankings of attribute importance but homogeneity was rejected (P = 0.0001).

Pairs led to more variation, and were systematically biased toward the null, given a high proportion (32.2%) lexicographic respondents (i.e., respondents who did not trade across attributes), while all respondents in the triplet traded across attributes. The relative benefits of a full ranking also dominated pairs, but were not conceptually different form a single choice triplet.

Conclusion: The number of profiles in choice tasks affects the results of conjoint analysis studies. Here triplets are preferred to pairs as they avoid nontrading and allow for more accurate estimation of preferences models, but the benefits of requiring a full ranking of the 3 profiles are less clear.

BEC-13 A BEHAVIOR-DRIVEN MATHEMATICAL MODEL OF MEDICATION COMPLIANCE
(BEC)—Behavioral Economics
Tuan Dinh, PhD and Peter Alperin, MD, Archimedes Inc., San Francisco, CA

Purpose: It is estimated that 30%-50% of patients do not take medication as prescribed by their physicians, costing the American health care system billions of dollars annually in avoidable medical expenditure. Medication noncompliance is a complex phenomenon, determined by the interplay of multiple factors, including patient-, condition-, and therapy-related health system factors, as well as social factors. We are developing a mathematical model for medication compliance that accounts for the underlying psychological processes of patient behavior. This will facilitate a deeper understanding of the effects of interventions designed to improve compliance as well as the resultant health and economic effects of these interventions.

Method: The process of obtaining and taking medication is broken down into basic thought processes and actions. The pathway model of medication adherence is a synthesis of several psychological theories of medication compliance, including the Self-Regulatory Model and the Health-Belief Model. Standard questionnaires and scales such as Beliefs about Medicines Questionnaire, Illness Perception Questionnaire (IPQ), and Barriers in Diabetes Questionnaire are used to quantify key cognitive and psychological variables (e.g., perceptions about medical benefits and disease severity) and mental states (e.g., self-efficacy). Correlations between psychological variables and mental states on medication adherence were derived from a meta-analysis of the literature. The output of this integrated model is medication adherence as a function of time. Each patient's likelihood of adhering to medication recommendations changes over time, depending in part on his/her changing perception about disease severity, benefits of medication, and experience of disease symptoms and medication side-effects.

Result: We apply the current approach to model adherence to diabetes medication. At the population level, the model reproduces the dependence of medication adherence on socioeconomic and clinical risk factors. At the individual level, the model captures the transient effects of life events and behavioral interventions on adherence. We use the model to examine the effects of educational interventions designed to improve patient knowledge about disease severity on medication adherence.

Conclusion: We demonstrate that it is possible to construct a detailed, "mechanistic" mathematical representation of medication adherence. Such a model can be integrated with disease models to forecast health and economic effects of interventions aimed to improve medication adherence.

BEC-14 PAYMENT STRUCTURES IN THE MEDICAL COMMUNITY: AN EXPERIMENTAL STUDY
(BEC)—Behavioral Economics
Ellen Green, MA, Virginia Tech, Blacksburg, VA

Purpose: In this study we focus on the dual principal-agent problem in which agents have other-regarding preferences. In the