Ethnic Differences in Health Preferences: Analysis Using Willingness-to-Pay

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ABSTRACT. ***Objective.*** Racial and ethnic differences in health services utilization are well recognized, but the explicit contribution of access to care, physician bias, and patient preferences to these disparities remains unclear. We investigated whether preferences for improvements in health vary among ethnic groups. We chose to assess preferences for osteoarthritis (OA) of the knee because significant differences have been observed in the utilization of total knee arthroplasty among ethnic groups, and because it is an elective procedure, where individual preferences have a major role in decision-making.

Methods. A survey using willingness-to-pay (WTP) methodology was conducted to elicit preferences for improvement in severe and mild OA and for 5 non-health items; data were collected from 193 white, African American, and Hispanic individuals over the age of 20 years. Multivariate regression analyses were used to determine whether WTP varied across racial/ethnic groups.

Results. WTP as a percentage of income for each of the 3 scenarios was highest for whites, intermediate for Hispanics, and lowest for African Americans (e.g., 32.9%, 26.4%, and 16.7% for mild OA). Controlling for income, differences in log WTP between African Americans and whites were significant in multivariate regression analyses, whereas values for Hispanics and whites did not differ significantly. Race/ethnic group variables explained a relatively large (21–30%) part of the variation in log WTP.

Conclusion. The findings suggest that ethnic differences in health valuation and preferences contribute to the observed disparities in health services utilization of elective procedures such as total knee arthroplasty. (J Rheumatol 2004;31:1811–8)

Key Indexing Terms:
ARTHRITIS ETHNIC GROUPS PATIENT PREFERENCES WILLINGNESS TO PAY

A large body of research examining differences among racial and ethnic groups in utilization of medical care has uncovered striking disparities in health services use. Individuals in minority groups are less likely to receive preventive, diagnostic, and medical or surgical interventions, for example in cardiovascular care or primary care, after adjusting for diagnosis and severity of illness[1-10]. The health effect of these disparities is not clear. Some studies find that differences in utilization procedure rates are linked to worse outcomes for the racial group receiving less care[5], whereas others do not[11].

It is also unclear why these disparities exist, although a number of potential explanations have been discussed. Most obvious is access to care. Lower income and uninsured individuals are likely to have difficulty receiving appropriate care[11], and minorities are more likely to be uninsured[10]. However, studies in the universal health care systems of Canada and Europe, and studies in the Veterans Health Administration and Medicare systems in the US[2-4,7,12], where access is less tied to income and insurance, have also found racial differences in utilization. Thus, disparities in health care utilization are not wholly explained by financial impediments to care[10].

Alternatively, a number of interrelated elements may affect health services utilization after a patient has entered the medical system. These include patient preferences for, and acceptance of, procedures. There is some evidence that African Americans are more likely to refuse cardiac and other procedures than are whites[13-15], despite higher recommendation rates[16]. Also, when presented with clinical scenarios, African American patients reported that they were less likely to favor surgery than white patients[17]. Thus, patient preferences and acceptance may drive some of the differences in utilization.

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One area where differences in rates of procedure among racial/ethnic groups have been studied is in knee osteoarthritis (OA) and total knee arthroplasty (TKA). OA is among the most prevalent musculoskeletal disorders, and the knee is the most common joint associated with disability. The overall prevalence of knee OA in the Framingham cohort, using defined radiological criteria, was 31% for men and 34% for women[18]. OA of the knee appears to be at least as prevalent in African Americans as in whites, although findings vary[12,19-22]. Studies of knee OA in Hispanics vary widely in estimates of prevalence (2–39%), although most research finds the frequency of self-reported arthritis is lower than in whites[23-26].

TKA is a therapeutic option for patients with OA pain and disability. It has an excellent outcome for most patients, with considerable pain relief and improvements in functional status and quality of life[27-29]. However, substantial differences exist in utilization rates for this procedure across racial/ethnic groups with similar insurance status. A Medicare study from 1980 to 1988 showed that 65% of TKA were performed in white women, 31% in white men, 3.5% in African American women, and 0.8% in African American men. The age-adjusted procedure rates were also higher among whites than African Americans, with rate ratios ranging from 1.5 to 2.0 for women and 3.0 to 5.1 for men, and differences persisted after adjusting for income[12]. Rates of TKA in Hispanics have not been widely studied, but total hip replacement rates have been shown to be lower than for whites[30]. The cause of these disparities is unknown. As part of a larger study of racial differences in utility for knee OA improvements and TKA, we used a willingness-to-pay (WTP) survey to elicit preferences from individuals recruited from the general public. This study is one of the first to explore WTP differences among racial and ethnic groups.

WTP measures were first developed in the context of environmental goods, to measure the value that people place on non-market goods such as changes in environmental quality and species preservation[31-33]. In recent years, there has been increasing use of WTP methodologies to measure preferences for changes in health status[34-38]. WTP simply asks individuals the maximum amount of money they would be willing to pay to receive a certain health status change or benefit. The larger the stated amount, the higher the preference for a particular outcome. Advantages of WTP surveys are that scenario valuations may include all benefits to individuals, not just direct health improvements[39], and sensitivity to treatment preferences[40]. In addition, WTP surveys are easy to administer and understand[41].

Few previous studies have examined racial/ethnic differences in WTP. In a small (n = 52) pilot study[42], Wagner, *et al* found significant differences in WTP for mammograms among white, African American, and Latino women. However, in a larger study (n = 1465)[39], no significant differences in WTP were found among these groups.

MATERIALS AND METHODS

Sample. Participants were identified and recruited as a race/ethnic stratified sample of adult residences of Harris County, Texas. A private company, Telesurveys Research Associates, which specializes in conducting surveys, performed all recruitment and interviews in 2001. A standardized telephone screening and recruitment instrument was designed to identify and recruit equal numbers of white non-Hispanic (hereafter "white"), African American, and Hispanic residents of Harris County aged 20 years or older (target n = 64 in each group). This sample size was based on 80% power, alpha = 0.05, to detect a moderate difference between 2 groups with an effect size = 0.5. Race/ethnicity was assigned on the basis of subjects' self-report. Participants in each group were selected to be statistically representative of the age and sex distribution for their ethnic group in the Harris County population.

Survey instruments. Three instruments were used in the course of this study: a telephone screening instrument, a telephone General Health Survey, and a face-to-face Health Values and Preferences in Osteoarthritis instrument. These surveys were a combination of instruments that have been substantially tested in OA populations and instruments developed by our team of researchers. All data collection instruments were translated into Spanish using forward and backward translation[43]. Hispanic participants were interviewed by a bilingual interviewer and were given the choice to respond in English or Spanish. All staff who conducted the face-to-face interviews underwent two 4-hour training sessions in preference elicitation techniques, provided by study staff. All interviews (English and Spanish) were conducted following a written script.

Recruitment and interviews. The study design was approved by our Institutional Review Board (Baylor College of Medicine). Potential participants were identified by a random digit-dialing sample of telephone numbers drawn from all Harris County area codes and telephone exchanges in direct proportion to residential listings. Up to 5 contact attempts were made for each number using a fixed schedule that varied time and day of attempted contact. After excluding disconnected numbers, businesses, and no answers, 836 individuals were reached. Of these, 271 (32%) agreed to participate and 193 (23%) individuals completed both the telephone and face-to-face interviews: 64 white, 65 African American, and 64 Hispanic participants.

Independent variables. The independent variables collected in the survey have been shown to affect WTP[44,45], and included self-reported race/ethnicity (white, African American, Hispanic), age, education level (< 9th grade, 9th–12th grade, some college or vocational school, college graduate, advanced degree), sex, insurance status (yes/no), and whether the individual had ever been told by a doctor that they had arthritis (yes/no). Because WTP is dependent on income, respondents were also asked to select one of 6 categories that best matched their household income (< $10,000, $10–14,999, $15–24,999, $25–39,999, $40–74,999, and ≥ $75,000).

Dependent variables: willingness to pay. In constructing our survey, we followed previous guidelines for WTP studies[46-48], including: (1) Provision of sufficient information and description of the health state being valued. (2) Face-to-face interviews. (3) Respondents reminded of budget constraint or other types of consumption goods that might need to be sacrificed. (4) Use of the relevant sample, that is, those who may one day need the treatment or be in the health state being described.

To remind participants of budget constraints, participants were shown pie charts indicating the amounts and percentages of income, on average, that individuals in a similar income bracket spend on food, housing, clothes, transportation, health, entertainment, and miscellaneous expenditures. Participants were asked to keep in mind that any additional expenditures on health must come out of one of these categories.

Individuals were first asked WTP for 5 non-health items: a new car, a nice dinner, a week's vacation, a couch, and painting of their house. The aim of these questions was simply to encourage participants to consider the monetary value that they place on goods and services. Next, 2 hypothetical

scenarios, one with mild to moderate (Mild OA) and one with severe OA (Severe OA), were described to participants. Scenarios were based on the domains of the EQ-5D, a preference-based instrument that evaluates quality of life[49], and are outlined in Table 1 (complete questions are given in the Appendix.) Participants were asked to imagine that their health was equivalent to each of these states, and then were asked what amount of money they would be willing to pay to get rid of each of the described OA problems. Finally, they were asked what amount they would pay to move from Severe OA to Mild OA.

Participants were asked to rate how difficult it was to answer the WTP questions. The possible response categories were: very easy, easy, neither easy nor difficult, difficult, and very difficult.

We conducted a thorough review of all completed questionnaires for completeness, accuracy, and internal consistency of data as a quality control step. Validation of 10% of each interviewer's work was done by recontacting participants by telephone to confirm key items.

Data Analysis

Participant characteristics. Characteristics of each ethnic/racial group in our sample were compared to census data for these groups in Harris County (Internet: www.census.gov). Participant characteristics were then compared among the ethnic groups using univariate regression analyses for continuous variables, and chi-square tests of equality for categorical variables.

Willingness to pay. WTP has been shown to be affected by ability to pay, thus analyses should control for income level either by using WTP as a percentage of income or including income covariates in the regression analyses[39-40]. For a clear descriptive comparison, we calculated WTP as a percentage of income for the 3 OA scenarios and 5 non-health items for each individual. To do this, we converted income from a categorical measure to a continuous scale using the midpoints of the categories and $100,000 for the top category.

We also wanted to determine whether racial and ethnic group identification affected WTP values for health and non-health items after controlling for other individual characteristics. Multivariate regression analyses were used for this purpose. These analyses used log-transformed WTP as the dependent variable, and controlled for income category, age, insurance status, educational level, and presence of arthritis. Ordinary least-squares regression with robust-coefficient estimation (White's correction) was used, as missing and zero values were infrequent[40].

We performed sensitivity analyses to determine whether the specification of the regression models affected results. The following alternative specifications to the main model of log WTP with income categories as covariates were tested: (1) WTP as a percentage of income as the dependent variable, no income covariates; and (2) the log of WTP as a percentage of income as the dependent variable, no income covariates. We also divided our sample into individuals with incomes above and below $20,000 and ran the regression models separately for each group. In addition, we determined the effect of outliers by calculating Cook's distances for each model of log WTP, and rerunning all regressions after omitting outlier observations.

RESULTS

Participant characteristics. Characteristics of the 193 participants are shown in Table 2, with comparisons to the Harris County census bureau statistics where available. The surveyed population in each ethnic group is slightly older (compared to the county population aged 20 years and older) than the county population, but has a similar gender mix. Income is lower in the surveyed population for all groups, but education levels are similar.

Table 1. Osteoarthritis scenarios.

	Mild OA	Severe OA
Walking	Some problems	Some problems
Self-care (washing/dressing)	No problems	Some problems
Usual activities (work, leisure activities)	Some Problems	Some problems
Pain and discomfort	Moderate	Extreme
Anxiety and depression	None	Moderate

In comparisons among racial and ethnic groups in the survey population, white participants were significantly older than African American participants, who were in turn significantly older than Hispanic participants. These age differences reflect age differences in ethnic groups in Harris County. Whites had significantly higher income than either African American or Hispanic participants. There were also significant differences among racial/ethnic groups in the proportion of individuals (1) with insurance, (2) in each education category, and (3) having arthritis. There were no differences in overall self-reported health or sex. For variables where census data were available, these differences reflected the general public differences.

Descriptive analyses. Unlike what often occurs in WTP studies, only a small percentage of responses for each scenario had missing (< 2%) or zero (< 4%) WTP values. Thirty-seven individuals did not report income level, and thus for the analyses using WTP as a percentage of income or log WTP with income covariates, the total sample size was reduced by both missing values for WTP and income.

Mean and standard deviation of WTP as a percentage of income was calculated for health and non-health items for each racial/ethnic group (Table 3). Mean WTP was generally similar for whites and Hispanics and lower for African Americans for health related items, and slightly higher for non-health items. Standard deviations were large for all groups.

Multivariate regression analyses. Multivariate regression analyses were performed to determine whether differences by ethnic group in log WTP were present after controlling for participant characteristics, including income category. Table 4 shows the regression coefficients for the racial/ethnic group variables for each WTP item. The columns represent separate regression models for each item being valued. White race was the reference group. Results showed that WTP was lower for all health scenarios for Hispanics and African Americans than for whites, with significant differences between African Americans and whites. For example, controlling for all other variables, log WTP for the Severe OA scenario in whites was 8.3, and African Americans had significantly lower log WTP. Few subject characteristics had significant effects in any of the WTP regression models, with the exception of income category, which had the expected positive association with WTP in all regressions, and age, which was negatively associated with log WTP for Severe OA, Nice dinner, and Week's vacation.

Table 2. Participant characteristics[1]: mean (SD) for continuous variables, number (%) into each group for categorical variables. US Census Bureau data on the Harris County population is given in square brackets.

	White, non-Hispanic, n = 64	African American, n = 65	Hispanic, n = 64
Average age*	56.1 (16.9) [46.4]††	48.9 (17.7) [42.4]††	40.3 (13.3) [37.2]††
Average income*†, US$	44,526 (27,494) [69,100]	23,500 (24,232) [38,886]	31,700 (22,435) [40,685]
Sex (%)			
Male	30 (46.9) [48.6%]	30 (46.2) [44.3%]	31 (48.4) [51.5%]
Female	34 (53.1) [51.4%]	35 (53.8) [55.7%]	33 (51.6) [48.5%]
Have insurance* (%)	56 (87.5)	47 (72.3)	33 (51.6)
Have arthritis* (%)	29 (46.0)	33 (50.8)	10 (15.9)
Education*			
9th grade	2 (03.1) [2.3%]	3 (04.6) [05.8%]	21 (32.8) [34.6%]
9–12th grade	14 (21.9) [28.2%]	26 (40.0) [45.5%]	18 (28.1) [41.9%]
Some college	23 (35.9) [30.7%]	27 (41.5) [31.2%]	17 (26.6) [15.1%]
College degree	17 (26.6) [25.9%]	8 (12.3) [12.0%]	7 (10.9) [05.4%]
Advanced degree	8 (12.5) [12.7%]	1 (01.5) [05.4%]	1 (01.6) [02.8%]
Health (%)			
Excellent	5 (07.9)	8 (12.3)	5 (07.8)
Very good	19 (30.2)	15 (23.1)	16 (25.0)
Good	23 (36.5)	17 (26.2)	22 (34.4)
Fair	11 (17.5)	19 (29.2)	17 (26.5)
Poor	5 (07.9)	6 (09.2)	4 (06.3)

* Significant differences among ethnic groups for these variables; $p < 0.05$. [1] Numbers do not always sum to total sample for each group due to nonresponse for some items. † Average income was calculated using the category midpoint for an individual. †† Average age of individuals over age 20 years, as survey participants were 20 and older.

Table 3. Willingness to pay as a percentage of income: mean (SD) values by race/ethnic group.

	White	African American	Hispanic
Mild OA	32.9 (53.0)	16.7 (21.1)	26.4 (28.3)
Severe OA	52.4 (81.5)	27.6 (48.5)	37.2 (35.8)
Severe to mild OA	39.8 (51.8)	12.8 (19.0)	34.1 (36.2)
New car	57.9 (63.3)	174.7 (198.4)	80.6 (102.1)
Nice dinner	0.1 (0.1)	0.2 (0.5)	0.2 (0.6)
Week's vacation	4.5 (7.1)	25.5 (58.4)	7.1 (8.6)
New couch	3.5 (4.0)	7.6 (7.8)	2.3 (2.7)
Paint house	3.1 (3.0)	10.0 (17.5)	3.7 (3.9)

For all three health scenarios, the models explained a surprisingly large percentage of the variation in log WTP (R^2 = 0.42, 0.50, and 0.52 for Mild OA, Severe OA, and move from Severe OA to Mild OA, respectively). The race variables alone accounted for approximately half the total explained variation (R^2 = 0.21, 0.24, 0.30, respectively).

Once individual characteristics and income are accounted for, we found no significant differences among the ethnic groups in reported WTP for any of the non-health items. No individual characteristics were significant in these models, again with the exception of income, and the R^2 values were much lower than for the health scenarios, with R^2 values ranging from 0.09 to 0.26.

Table 4. Multivariate regression analyses with robust standard errors, using log willingness to pay and controlling for income, age, sex, insurance status, education level, and presence of arthritis; coefficients (standard errors).

	Mild OA	Severe OA	Severe OA to Mild OA	New Car	New Couch	Nice Dinner	Week's Vacation	Paint House
Sample size	148	150	149	135	143	138	145	138
R^2	0.42	0.50	0.52	0.09	0.26	0.14	0.15	0.15
African American†	–0.76* (0.28)	–0.94** (0.26)	–1.06** (0.27)	0.19 (0.29)	0.25 (0.26)	0.05 (0.19)	0.58 (0.33)	0.50 (0.30)
Hispanic†	–0.31 (0.27)	–0.30 (0.26)	–0.16 (0.28)	–0.39 (0.48)	–0.56 (0.39)	–0.00 (0.27)	–0.12 (0.41)	–0.05 (0.41)
Constant	7.91** (0.75)	8.30** (0.69)	7.97** (0.65)	9.69** (0.72)	5.76** (0.62)	3.54** (0.54)	7.69** (0.74)	6.34** (0.70)

† Reference group: white. * $p < 0.01$; ** $p < 0.001$.

Sensitivity analyses using 2 alternative model specifications were done to test the robustness of the regression results. Our findings of significantly lower WTP for African Americans for the OA scenarios were unchanged if we modeled either (1) WTP as a percentage of income as the dependent variable (no income covariates) or (2) log WTP as a percentage of income (no income covariates). Also, in separate regressions of individuals with income greater than $20,000 and those with incomes less than $20,000, previous significant differences among whites and African Americans were found. Finally, we identified and omitted outliers, which accounted for roughly 2–4% of the observations. Rerunning multivariate regression models with the omitted variables showed that in all cases the original results held.

Most participants reported no difficulty in answering the WTP question. Eighty percent of respondents said that the questions were easy or very easy to answer, and only 7% stated that the questions were difficult or very difficult to answer.

DISCUSSION

Racial/ethnic disparities have been widely documented in the health services literature, although the root causes of these disparities are unclear. Access to care, physician bias, and patient preferences have all been cited as possible causes. This study is one of the first to use willingness to pay to explore whether health preferences differ among racial/ethnic groups. We chose to assess preferences for OA since OA is as prevalent in African Americans as it is in whites, yet there is a wide disparity in the rates at which these 2 groups receive total knee arthoplasty. The results of this research suggest that whites place significantly higher value on improvements in knee OA than do African Americans. Values for Hispanics lie between African Americans and whites, and in multivariate analyses are not significantly different from either group.

Potentially, lower values and preferences for health improvements may be expected to translate into differences in procedure rates among different ethnic groups. Individuals who place lower value on health improvements are likely to be less willing to undergo procedures that entail significant initial pain, cost, or a chance of death. If this is the case, it may be that lower utilization of procedures by minority groups does not reflect problems of access, racial discrimination by the health care system, lack of appropriate recommendations by physicians, or lack of communication and understanding in the medical interaction. Rather, utility for health improvements may simply vary among ethnic groups and thus affect willingness to undergo procedures[50].

However, this interpretation begs the question, why are values for health improvements lower in African Americans than in the other ethnic groups studied? This study cannot answer this question, but several possibilities exist. First, ethnic groups may place different values on difficulty in walking and mobility (as with knee OA), or other health attributes, when elderly. For example, African Americans may regard joint pain and reduced mobility as part of the natural aging process, and not as a disease. Other aspects of elderly life, such as social/family relations or lifespan, may be valued more highly than improved mobility.

Alternatively, it is also possible that the reduced value for health improvements, and lower procedure rates, in African Americans, and to a lesser degree Hispanics, reflects a lack of awareness of, or experience with, the benefits of treatment, perhaps due to past discrimination and reduced access to medical care. There may be differences among groups in belief about the efficacy of procedures to improve health, or knowledge of effective procedures. For example, Ibrahim, *et al*[51] found that African American patients with OA were less likely than white patients to be familiar with joint replacement surgery, and were more likely to have concerns about pain associated with surgery. These differences in knowledge and beliefs may lead to apparently different preferences about procedures. For example, Cross, *et al*[52] found that higher WTP for total knee replacement, in individuals who had undergone the surgery, was positively associated with improved satisfaction with the surgery, lower pain levels after surgery, and willingness to have the surgery again. These results support the idea that African Americans may be less knowledgeable about surgery relief of OA and thus have lower WTP. If this is the case, the healthcare system should work to overcome this disparity between racial/ethnic groups. Alternatively, a lack of trust in the medical system may lead individuals in minority groups to downplay the value of improvements in health in an effort to avoid invasive procedures or extensive interactions with the healthcare system[53-55].

These interpretations are speculative, of course. More research is needed, first to confirm the differences in values for health improvements, and second to explore the etiology of these differences in values.

Despite the growing use of WTP as a measure of health values[56-59], few studies have looked at WTP for health improvements by ethnic groups[40]. Because of the paucity of data, differences in WTP responses could be argued to be due to the methodological approach rather than the actual differences in values for improving health. An elicitation technique that is systematically biased across groups may lead to an appearance of difference in preferences where none exists. However, we found no differences across racial and ethnic groups in the values placed on non-health items. Thus, our findings suggest that methodological bias is not responsible for the finding of differences in OA. In addition, we are reassured that most participants did not find the questions difficult to complete.

Our study has some limitations. Our sampling strategy aimed at recruiting a representative population sample for each racial/ethnic group. However, collecting a representa-

tive sample results in a difference in ages among the groups. The white participants were on average about 7 years older than the African American participants. Because the whites were older, it is possible that more of this racial group has had experience, either personal or through social networks, with OA pain and the benefits of knee replacement. As discussed above, this greater knowledge might have led to higher WTP responses. However, African Americans were more likely than whites to report having been told they had arthritis by a doctor, and so the bias in knowledge may be small.

Second, the completion rate for individuals who were contacted and eligible for the study was only 23%. Even though random-digit dialing was used, our sample may have differed from the general population, as only those willing to take time for the interviews participated. However, a comparison with census bureau information shows that our sample was only slightly older and poorer than the Harris County population for each of the groups. Finally, as is the case for all WTP studies, participants may not have been familiar with putting monetary values on health improvements, or may refuse to do so. In some studies[40,42,57], this results in a large number of missing or "refusal" values (i.e., participants saying they would pay any amount of money to improve health). This study had a very low rate of missing values (< 2%), and these were almost all due to individuals responding that they did not know the exact amount they would pay. Asking about WTP for non-health items prior to queries about health improvement may have reduced the number of refusal values by reminding participants that paying for health improvements must be done in a tradeoff with purchases of traditional consumer goods.

This is one of the first studies to use a WTP methodology to explore preference differences across racial/ethnic groups, and our findings suggest that there are substantial differences in preferences for health improvements. However, we do not know the etiology of these differences, or whether they result in outcome disparities. To determine the policy implications of these results requires that further research examine the cause of these differences in preferences.

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APPENDIX Scenario descriptions and willingness to pay script.

1. Osteoarthritis Scenario Descriptions

A. Severe Osteoarthritis:

"The first case describes Stan/Sally *[use Stan for males and Sally for females]*. I am going to ask you to try to imagine how it would be to spend the rest of your life like Stan/Sally. *[Hands respondent Stan/Sally card. Reads card slowly, aloud, with respondent.]* Stan/Sally is a person with arthritis who:
Has some problems in walking about
Has some problems with self care such as washing and dressing
Has some problems performing usual activities such as work, study, housework, family or leisure activities
Has extreme pain or discomfort
Is moderately anxious or depressed."

B. Moderate Osteoarthritis:

"The next card describes Mike/Mary *[use Mike for males and Mary for females]*. I am going to ask you to try to imagine how it would be to spend the rest of your life like Mike/Mary. *[Hands respondent Mike/Mary card. Reads card slowly, aloud, with respondent.]* Stan/Sally is a person with arthritis who:
Has some problems in walking about
Has no problems with self care such as washing and dressing
Has no problems performing usual activities such as work, study, housework, family or leisure activities
Has moderate pain or discomfort
Is not anxious or depressed."

2. Script for Willingness to Pay

[Preparation: Refer back to the 2 health status cards. Start with Stan/Sally (mild). Also refer to the household income of respondents and select the card for household spending that is closest to the respondent's household income. If the respondent did not answer the household income question beforehand, it should be asked at this point in time to be able to select an appropriate category for household spending.]

"The technique we will be using to assess how you feel about these health scenarios is called willingness to pay. I'm going to ask you how much it would be worth to you to avoid each of the 2 health states that we have been talking about. Specifically, I will be asking how much money you would be willing to pay to get rid of the knee arthritis and be healthy if you were the person described in the health scenarios we have been talking about.

But before, I would like to ask you about some other things that you may spend money on, to get an idea of your preferences. How much would you be willing to spend for: i) a new car; ii) a nice dinner; iii) a week's vacation; iv) a couch; v) paint your house *[Note amounts]*

Before we proceed with the next part, I want to talk to you about a problem that we have in studies like this one. As you know, this is a hypothetical situation, not a real one, and so you will not actually have to pay any money. But, we want you to respond as if you would really have to pay the amount that you answer. In many studies of this kind, folks seem to have a hard time doing this — they tend to answer differently when they don't really have to pay the money than they would in a situation where they really do have to pay the money. This is especially a problem in health care, where we often don't have to pay out of pocket for expenses. But here, I want you to imagine that you do have to pay out of pocket.

Now, please look at this card showing how a typical family spends its take-home income.

[Hand respondent Household Spending card. For the rest of the interview leave the card on the table so the respondent can refer to it with ease as needed]

I want you to think about the other things you spend money on *[indicate Household Spending card]*, and keep in mind that if you spend money on health improvement, that's money you don't have to spend on other things; and money that you take away from your family. Keep in mind that you will have to sacrifice in some areas to have the money to pay for an improved health status. So, while you are responding, I will leave the Household Spending card here to remind you that when you pay to avoid symptoms, the money must come out of one of these categories shown.

The amounts on the Household Spending card may be different from your household budget. Your income may be slightly higher or lower than the amount shown. Please give your answer from how much you know YOUR income is. The card is only there to help you think about the tradeoffs that you need to make to buy better health. For example, if you are willing to reduce your expenses on housing to improve your health, this may involve selling your house, or moving into a smaller or more run-down apartment. Keep in mind that you need to make tradeoffs to pay for better health.

Now look at this card.

WTP Stan/Sally – *[Select Stan/Sally card]*.

Imagine that you are Stan/Sally, you have knee arthritis, and your health is as described on the card *[read health state]*. How much money would it be worth to you to get rid of the knee arthritis completely and be healthy? *[Enter amount of bid in response sheet]*

WTP Mike/Mary — *[Select Mike/Mary card]*.

Now, imagine that you are Mike/Mary, you have arthritis of the knee, and your health is as described on the card *[read health state]*. How much money would it be worth to you to get rid of the knee arthritis completely, and be healthy? *[Enter amount of bid in response sheet]*

WTP — Comparison

At this point I want you to think about the 2 scenarios. *[Place both cards side by side, first Stan/Sally then Mike/Mary]*. Imagine once more that you are Stan/Sally, how much would you be willing to pay to be like Mike/Mary. Keep in mind again that any amount you spend must come out of one of the categories of current spending." *[Refer to the Household Spending card again.] [Enter amount of bid in response sheet]*

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