Reasons to Donate: A Mixed-Methods Experimental Vignette Study of Willingness to Become a Living Kidney Donor

Jonathan Daw[1], Ashton M. Verdery[1], Selena E. Ortiz[2], Nathaniel Porter[3], Anne Roback Morse[1], Diego Aguilar[1]

[1]: Department of Sociology and Criminology, Pennsylvania State University

[2]: Department of Health Policy and Administration, Pennsylvania State University

[3]: University Libraries, Virginia Tech University

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Abstract. Living donor kidney transplants (LDKTs) are the optimal therapy for patients with end-stage renal disease, but only 15% of transplant candidates receive an LDKT, a figure is subject to extreme racial/ethnic disparities. To date, one largely neglected research question is how *potential donors* make decisions about living kidney donation. To address this gap and help develop interventions to promote LDKT, we conducted a series of experimental vignette surveys using Amazon's Mechanical Turk platform. In these survey experiments, we manipulate donation scenarios and the potential recipient chosen from the respondent's network, then ask respondents to rate their willingness to be a living donor and explain this rating in words. Using these data, we analyze the association of experimental variables with willingness to donate; describe the reasons give to explain their response; and use these responses to build a verbal script designed to assist transplant candidates when initiating conversations with potential donors.

Introduction

Population health research has long been marked by its focus on large-scale issues – population life expectancy, infant mortality rates, sex/gender gaps in longevity, the epidemiological transition from communicable disease to non-communicable disease, trends in major forms of morbidity and causes of death, racial/ethnic health disparities, and the like. Narrowing in on racial/ethnic health disparities, as these trends have become increasingly well-established in a variety of populations and outcomes, often reflecting common patterns of the social determinants of health, a central question becomes the mechanisms underlying disparities: What are the mechanisms linking race/ethnicity and specific health outcomes? And what can demographic theory, data, and analyses offer to help ameliorate them?

This paper is the first in a broader project seeking to answer the first and third questions in the case of racial/ethnic disparities and general underutilization of living donor kidney transplantation (LDKT). *Racial/ethnic disparities in LDKT* are large – in recent years, for instance, non-Hispanic whites have been about three times more likely to receive an LDKT than African Americans among those on the kidney transplant (KT) waiting list, a difference sufficient to explain the black-white disparity in any transplant receipt (Daw 2015). Furthermore, only about 15% of individuals on the kidney transplantation waiting list receive an LDKT, and based on our preliminary evidence for this project and previously-published simulation work (Daw 2014), we argue that this low rate of LDKT receipt is unlikely to be attributable to scarcity of medically-suitable donors in ESRD patients' family and social networks. We label the gap between the proportion of ESRD patients that have a biomedically-suitable donor in their family and social network and the proportion that receive an LDKT *underutilization*. The goals of this broader project are to comprehensively measure the social mechanisms underlying racial/ethnic disparities in and underutilization of LDKT and develop ethical and effective interventions to combat them.

In this paper, we describe the results of our efforts to date to provide ESRD patients with a data-driven verbal script that they can use to help initiate conversations with individuals in their family and social networks that they hope will consider living donation, which we will implement as a randomized control trial of ESRD patients seeking a KT. An additional intervention is currently being developed to assist these patients in identifying members of their network who are most likely to be biomedically suitable donors, but we will not address this subject in this paper. The experimental survey research underlying the present intervention has been preregistered under the Open Science Framework, as will be subsequent experimental work. This paper describes how we developed this intervention and the key lessons for broader population health and kidney transplantation research.

We argue that this is an appropriate and indeed critical topic of demographic research for three key reasons. First, between 2002 and 2015, the population incidence rate of ESRD has increased in a large panel of countries for which data is available (USRDS 2017), especially in middle-income countries, reflecting its key position in the series of dominos that is the epidemiological transition. Therefore ESRD deserves a prominent place in the set of morbidities studies as part of the epidemiological transition research agenda, behind heart disease and cancer, if our goal is to understand and help improve population health trends. Second, studying the process of disparities in LDKTs strongly benefits from a demographic perspective – especially the concept of the population at risk for an event. As is well known, comparisons of rates of events are often rendered uselessly crude when an appropriate denominator cannot be defined with appropriate data. In the case of LDKTs, this population at risk is two-sided – there is the population of individuals at risk of developing ESRD and potentially pursuing an LDKT, which is the usual denominator in this research, but there is also the population at risk of becoming a living donor. While previous research has developed a great deal of knowledge about the determinants of developing ESRD, pursuing an LDKT or DDKT conditional on that (as opposed to dialysis or death), and receiving an LDKT or DDKT conditional on pursuit, very little is known about the determinants of becoming a donor compared to the pool of individuals in ESRD patients' lives who could be evaluated as a living donor, but are not. Appropriately defining this population at risk of donation and the factors that determine whether potential donors become actual donors is a critical step in understanding the twin problems of underutilization and racial/ethnic disparities of LDKT. Third, demographers are well-accustomed to studying and seeking to influence attitudes and practices influencing critical events such as pregnancy and HIV transmission. In the case of LDKT, once again the problem is two-sided: we must consider the attitudes, practices, and living conditions of the population of ESRD patients that influence whether and how they pursue an LDKT, and we must consider related processes that influence willingness and ability to become a living donor in the pool of individuals connected to those patients through family and social networks. Thus, LDKT is a topic where key demographic findings, theoretical and analytical perspectives, and substantive topics of deep demographic interest collide so that demographic research on LDKT would benefit both demography as a research enterprise and have the potential to benefit ESRD patients and their families directly.

Background

Previous Research on Racial/Ethnic Disparities in LDKTs

LDKT is the optimal therapy for end-stage renal disease (ESRD), or kidney failure, which is one of the ten leading causes of death for Americans and many populations worldwide. Unfortunately, the risk of developing ESRD and the likelihood of obtaining a kidney transplant are both subject to large racial/ethnic disparities. As a result of changes to the deceased donor kidney transplant (DDKT) allocation algorithm to balance equity and efficiency, racial disparities in kidney transplantation (KT) are now primarily mediated through LDKT. LDKTs are possible when a healthy, immunologically compatible member of the transplant candidate's social network is willing and able to donate, unblocked by medical or unmedical concerns. Prior research hypothesizes that *differential access* to healthy, compatible donors in candidates' family and social networks may explain non-whites' lower LDKT rates. However, a limitation of this work is its focus on who is evaluated for donation, not the many members of transplant candidates' family and social networks who could be evaluated, but are not. To better understand barriers to organ donation and LDKT variation by race, we contend that researchers must look beyond clinic walls at the entire pool of potential donors in kidney transplant candidates' networks, and the processes by which candidates and network members negotiate potential living donation as candidates 'search' through their networks.

One critical aspect of the living kidney donor search process are conversations with one's family and social network about living donation. Without these discussions, members of a transplant candidate's social network are unlikely to be medically evaluated as living donors, and thus unlikely to actually donate. Although public support for organ donation generally is a frequent subject of public opinion research (Healy 2006), research targeted at support for living donation is rare, and little is known about the level of support that individuals asked to consider becoming a living donor will express, or the conditions that influence this outcome. Therefore, living donor conversations are a central, but highly understudied, component of how some transplant candidates obtain LDKTs while others do not, with associated racial/ethnic disparities in this outcome. We will soon implement a multi-center study measuring this process directly. First, however, it is important to study how potential donors view living donation and the conditions and relationships in which they would consider it. This is essential for two key reasons. First, existing views concerning living kidney donation are likely to influence the result of conversations initiated by the transplant candidate regarding whether the family member of friend is medically evaluated as a living donor. Second, inclinations to become a living donor for an ill member of one's family and social network may lead one to volunteer to be medically evaluated as a living donor without being asked by the transplant candidate. Our prior research (Daw and Verdery 2016)indicates that potential donor voluntarism is a critical factor in the living donor search process for two key reasons. First, many transplant candidates do not feel comfortable initiating living donation conversations with members of their network but would be willing to consider a living donor if they volunteered. Second, and relatedly, our pilot data show that living donation discussions that are initiated by the potential donor are far more likely to lead to mutual agreement that the potential donor will be medically evaluated than if the candidate initiates the living donation conversation.

In this paper, we describe the design and results to date of our experimental vignette study exploring the conditions under which respondents are willing to consider living kidney donation using two rounds of data collection on Amazon's Mechanical Turk. In the first round, conducted in October and November 2016, we recruited a sample of 2149 respondents and presented them with a descriptive scenario (where the elements are randomly assigned) in which a randomly chosen member of their family and social network (including parents, children, siblings, aunts/uncles, friends, and coworkers) develops ESRD and is seeking an LDKT. Respondents were then asked to rate their willingness to be a living donor for that individual on a 1 (lowest) to 9 (highest) point scale, then explain their rating in their own words in response to an open-ended response prompt. A team of three authors then developed and applied a qualitative codebook to characterize these open-ended responses, and used them to develop a verbal script intended to be used by transplant candidates to initiate living donor conversations with their kin and friends. In a second round of data collection in August 2018, we repeated the experimental survey research on mTurk, substituting different versions of this script for the descriptive vignette used in the 2016 survey. These different versions are A/B testing designed to determine which version of the script is most effective. Subsequent rounds of this testing are currently underway, but this paper reports the results of the first round. After the script is developed, in the future we will also test it on a Qualtrics panel of survey respondents who report that they have family members with chronic kidney disease in order to determine whether these scripts are also effective in populations more representative of the pool of potential living kidney donors. Next, we will conduct focus groups of transplant candidates and their family members to elicit responses to the script in order to further refine it, then conduct a randomized control trial in which we provide transplant candidates with this script in order to measure its association with rates of LDKT.

Trends in ESRD and Treatment Modalities

ESRD is a growing public health challenge in the United States and globally. Between 1980 and 2009, U.S. ESRD prevalence increased almost 600%, ending with more than 879,000 Americans in treatment (NIDDK 2012). It is now the 9th-leading cause of death in the U.S. (Heron 2015), but this disease burden is not equally shared, as its incidence grew much more rapidly for minority groups during this time period than it did for whites (NIDDK 2012).

Treatment options for ESRD include dialysis and kidney transplantation (KT) from either a deceased donation donor (DDD) or living donation donor (LDD). However, KT is often the superior treatment because of its associations with lower morbidity and mortality and its economic efficiency. Unfortunately, the KT supply/demand ratio is steadily worsening. Median times to DDKT have increased and are unlikely to improve because of population aging and trends in mortality. LDKT rates have decreased overall and significantly diverged by race, increasing health disparities. Despite this unfavorable trend, LDKTs hold the greatest potential to alleviate the supply-demand imbalance in the KT system (Hart et al. 2016).

Our broader goal is to collect hypothesis-driven data to understand the causes of, and develop ethical and effective interventions to reduce, underutilization of LDKT as a treatment modality for ESRD, especially among African Americans. Thus, this research aims to both improve public health outcomes and reduce racial disparities therein. Our research design relies on the core insight that most LDKTs are obtained from recipients' close social networks (Purnell, Hall, and Boulware 2012), which makes LDKT the joint product of: 1) availability of medically and immunologically suitable donors within candidate's family and social networks, 2) the patterns by which candidates hold discussions about LDKT with their network members, and 3) the mutual willingness and ability to complete LDKT between candidate-potential donor pairs. The goal of this research is to understand how variations in the nature of living donor discussions are associated with rates of willingness to donate.

Racial Disparities in LDKTs

Most research surrounding inequalities in KT has attended to documenting and reducing racial disparities in DDKTs through improving immunosuppression regimes and allocation algorithms (Gaston et al. 1993), efforts which have yielded enormous dividends. Although disparities persist in DDKT, they now are dwarfed by those occurring in LDKT. Using counterfactual simulation methods, our previous research shows that, between 2000 and 2010, equalizing patterns of LDKTs by race would alone be sufficient to *reverse* the disparity in KT between whites and African Americans and reduce others (Daw 2015). Descriptive analyses suggest a worsening problem since 2010, as the number of LDKTs performed on white and African American KT candidates have diverged: between 2005-2015, counts of LDKTs performed on white candidates increased 18% but decreased 64% for African American candidates (NIDDK 2016). Unfortunately, as a recent consensus statement from an American Society of Transplantation working group concluded, "although [LDKT] disparities and [living kidney donor] differences have been identified, little is known about the mechanisms that contribute to their emergence and persistence" (Rodrigue et al. 2015:7).

In general, previous research has invoked three mechanisms to explain racial disparities in LDKTs: differential access to medically suitable donors within their family and social networks; differential living donor search dynamics; and differential potential donor knowledge and resources to support living donation.

Although our broader project will address all three, this stage of the project is squarely focused on the second mechanism. For an LDKT to occur, KT candidates must not only have biomedically suitable potential donors in their social networks; they must 'recruit' them to be medically evaluated for donation, then 'convert' them into actual donors (Weng et al. 2010). The first outcome, recruitment to be evaluated, results from a critical but understudied process in which candidates and their network members discuss living donation (either because the candidate searches for a donor or network members volunteer), and then potential donors either do or do not complete an evaluation. This stage of the process could contribute to racial/ethnic disparities in LDKT in three ways: differential probabilities that donation discussions occur; differential probabilities that they result in mutual agreement for a network member to be evaluated; and differential probabilities that the network member undergoes the evaluation. Unfortunately, there is scant evidence on these precursors of donor recruitment because they take place outside of KT clinic walls, and most research on this subject is conducted by medical researchers using medical data. What research has been conducted into this mechanism has largely analyzed candidate-reported willingness to discuss donation with network members (search behavior) to the neglect of research on network member willingness to donate (volunteer and conversion behavior). Evaluations of candidate search behaviors find that candidate coping skills (Lunsford, Simpson, Chavin, Hildebrand, et al. 2006), family form and functions (Lunsford et al. 2007), and self-efficacy (Reese et al. 2009) are critical factors in the search for an LDKT, with barriers arising from difficulty initiating discussions with potential donors, candidate concerns about burdening or coercing family members, and difficulty identifying willing, eligible donors (Boulware et al. 2005, 2011, 2013; DePasquale et al. 2012). Research at the nexus of search and volunteer behavior finds that candidates tend to interpret the absence of volunteering among family members as a tacit refusal and are thus reluctant to approach potential donors even though many of them would consider evaluation if asked (Kranenburg et al. 2007). Such work also finds that African Americans tend to refuse volunteer offers at a high rate (Gordon 2001). If these factors are unequally distributed by race, it could explain findings that African Americans are less likely to have potential donors evaluated (Weng et al. 2010). The second outcome, conversion to a completed LDKT, is better studied because this outcome is amenable to research analyzing medical records. Single-center research on this topic finds that evaluated donors for African American candidates are less likely to convert to completed LDKTs (Lunsford, Simpson, Chavin, Menching, et al. 2006; Moore et al. 2012; Weng et al. 2012).

Interventions to Promote LDKT and Eliminate Racial Disparities

Researchers have recently made significant progress in developing effective and ethical interventions to promote higher rates of LDKT and ameliorate racial disparities. These interventions focus on expanding the scope of traditional clinic-based education efforts in various ways: by culturally tailoring messages to distinct racial/ethnic groups (Arriola et al. 2014; Gordon et al. 2010); supplementing them with complementary health educator discussions (Pradel et al. 2008; Weng et al. 2013); moving educational efforts to candidates' homes and addressing their social networks (Rodrigue et al. 2008, 2014); providing candidates with supplementary assistance to overcome barriers and navigate the transplant process (Boulware et al. 2013; DePasquale et al. 2012; Marlow et al. 2014; Sullivan et al. 2012; Waterman et al. 2014); or appointing advocates to advance the patients' interest in obtaining an LDKT (Garonzik-Wang et al. 2012; Weng et al. 2013). Thus, these interventions have begun to move beyond the straightforward presentation of information to address other mechanisms that could contribute to LDKT racial disparities and underutilization: diffusion of information through social networks, advocacy for others to serve as living donors, navigating medical bureaucracies, and engaging with patients as diverse individuals with distinctive needs. In this paper, we report on our results to date in an effort to extend this trend by addressing a key barrier to LDKTs identified in our pilot qualitative interview efforts: the difficulty of initiating donation conversations with network members. By providing kidney transplant candidates with a data-driven verbal script that they can rely on when holding these discussions with members of their family and social network, we hope to increase rates of potential donor discussions, evaluations, and donations, while ameliorating racial/ethnic disparities therein.

The Broader Project

Developing this data-driven script is one part of a larger project funded by an R01 grant from the National Institute of Diabetes and Digestive and Kidney Diseases, the design of which is depicted in Figure 1. In previous rounds of data collection and analysis, we conducted qualitative interviews (A) to discuss transplant candidates' life experiences and conditions and their efforts to pursue an LDKT and the reasons behind them; developed survey instruments to study transplant candidates (B) and the structure and characteristics of their family and social networks in order to describe the pool of potential living donors in their lives (C); and developed and implemented direct surveys of the members of their networks to measure potential mechanisms contributing to underutilization and racial/ethnic disparities in LDKT (D). In this paper, we describe the design and results of our pilot experimental vignette study of mTurk respondents' willingness to become a living donor in a variety of experimentally-assigned vignettes and the open-ended responses they provided to explain their willingness ratings €, as well as how we have used these data to design and experimentally A/B test different versions of this script (H, I), which will eventually be used in our randomized control trial (N).

Methods and Results

To develop this intervention, we have completed two out of six planned rounds of experimental vignette survey research in which we present respondents with scripts or scenarios where they are asked to consider being evaluated as a living kidney donor under experimentally-manipulated conditions, rate their likelihood of doing so, and explain the reasons for their response in an open-ended response field. In the remainder of this paper, we refer to the two completed rounds of data collection as mTurk Round 1 and mTurk Round 2A. The remaining rounds will be completed by the time of the PAA 2019 conference and are referred to as mTurk Round 2B and 2C, the Qualtrics Round, and the Focus Group Round.

Because the design and analysis of subsequent rounds of data collection depend on the results of earlier rounds, we are combining the Methods and Results sections of this paper. We begin by describing the survey and vignette design, analysis, and conclusions of mTurk Round 1 in the next section, then describe the same characteristics of mTurk Round 2 in the subsequent section.

mTurk Round 1: Testing Hypotheses from the Medical Literature; Developing the Verbal Script

mTurk Round 1 Sample and Survey Design

In 2016, we implemented an experimental vignette study seeking to test how different factors influence survey respondents' reported willingness to be evaluated as living donors, and the reasons respondents offered for that willingness rating. We recruited 2,249 respondents on mTurk to participate in this study. Restrictions were imposed to ensure that respondents were based in the U.S., could not participate more than once, and had completed 1000 previous human intelligence tasks (HITs) on mTurk with a 95% approval rate. A $1 participation incentive was offered (which is well above average for short surveys on mTurk). Of the 2,250 respondents, 81 either did not correctly answer the attention check item checking that they could correctly identify a piece of information from the vignette (asked on a subsequent page of the survey) or had been previously rejected in other mTurk studies conducted by the research team, leading to a final sample size of 2,169 (96.4% of cases were retained).

The study begins by providing informed consent information (including a restriction to participants age 18 and older). Aside from the experimental vignette items, all survey questions were based on existing items from governmental and academic surveys, or else previously-validated measures used in medical transplantation research. After the informed consent page, respondents were asked a series of demographic questions measuring their gender, age, racial/ethnic identity, level of school completed, current school enrollment status, current employment status excluding work on mTurk, hours per week spent on mTurk, whether other members of the household have regular income, and whether the respondent owns or rents their home. Next, respondents were asked to describe the number of living gender-specific relatives of different types, in response to this prompt:

> "Now we are going to ask you about your family structure. We will not ask for any personal information about them, but it will help us study how health may relate to family structure. You must answer every question. If you are uncertain, please make your best guess and move on.
>
> **For each of the following types of relative, please indicate the number of living relatives you have of that type. You may also include step-family, adopted family, and family by marriage. If you are unsure, submit your first estimate and move on.**"

The respondents were then prompted to enter their number of father(s), mother(s), brother(s), sister(s), son(s), daughter(s), uncle(s), and aunt(s), with a minimum value of 0.

Following this page of the survey, the respondents were presented with a vignette in which they were asked to rate their willingness to be tested as a living donor, which is described in the next sections.

Afterwards, they were asked to complete two additional sets of questions. The first is a four-question KT *knowledge scale* (Reese et al. 2009), which respondents were asked to respond to without looking up the information. “Don’t know” was provided as a response option for all items. These items measure respondents’ views on the relative benefits of transplants compared to dialysis, LDKTs compared to DDKTs, the length of recovery time after living donation, and age restrictions on living donation. On the final page of the survey, respondents were asked for their health insurance coverage status, self-rated health, trust in medical institutions, and ability to take off of work (separately for whether their employer would allow it and whether they could afford to do so).

Conditionally Experimental Vignette Factor: Potential Recipient Design

Information on respondents’ family networks, combined with respondents’ employment status, was used to randomize which member of their family and social network they were asked to consider becoming a living donor for in the next page’s experimentally-assigned vignette, in two stages. In the first stage, respondents were assigned prospectively to one of six relationship types: parent, sibling,[1] child, aunt/uncle, friend, and coworker. However, we randomly selected a relationship type among those present in their network if they did not report having a tie of that type. The presence of family members in the respondent’s network was determined using the kin availability measures just described; co-workers were inferred from non-mTurk employment status; and friends were assumed. (This assumption was eliminated in the next round.) Among existing tie types, the tie used in the vignette was randomly selected according to the types available; once a relationship type had been selected, the gender of the potential recipient was randomized if ties of that type of both genders were reported, and assigned to the present gender in that tie type otherwise. The presence of gender heterogeneous friendship networks was assumed (an assumption that was also eliminated in the next round).

Vignette Design and Experimental Variations

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[1] We did not include siblings in initial batches of data collection, but added them as an option to later batches due to their high representation in the pool of living donors.

In the Round 1 experimental study, we decided to test the following variations in the vignette, jointly motivated by the medical literature which focuses interventions on patient and donor education about the risks, benefits, and procedures of living donation, as well as original hypotheses concerning moral attribution for diseases with different causes and interest in the difference between direct and indirect appeals.

Relative Type: We hypothesized that respondents are likely to respond more favorably to living donor scenarios in which they are asked to consider living donation for a close family member (parent, sibling, child) compared to a more distant family member (aunt/uncle), friend, or coworker.

Direct & Indirect: Based on medical education efforts promoting the use of living donor advocates that separate the potential donor recruitment role from the patient role, we tested whether individuals respond differently to living donor scenarios in which they learn about the patient's plight directly, rather than through a common family member, friend, or coworker.

Cause: Based on our pilot data in which many respondents with genetic conditions causing their kidney disease received many offers for donation, we hypothesized that individuals are likely to respond more favorably to living donor scenarios in which the patient's disease was attributed to genetic rather than lifestyle causes.

Recipient Effect: Here, we seek to mirror medical education interventions by varying descriptions of the benefit of LDKTs for the recipient, in the following conditions: none, quality of life benefits, length of life benefits, and both quality and length of life benefits.

Donor Effect: Here, we further seek to mirror medical education interventions by varying descriptions of the effect of living donation on donors, in the following conditions: none, positive effects, negative effects, and both positive and negative effects.

In the Round 1 experimental study, we tested the following vignette and variations (marked with brackets and underlined markup):

> "{(In)Direct 1 + Relative Type} tells you that {(In)Direct 2} is having medical troubles. They have been told by doctors that {Cause} irreversibly reduced their kidney function below acceptable levels, and recommends a kidney transplant. Although they can be kept alive on dialysis, this greatly

increases their risk of death, and it may take 3 or more years to receive a kidney from a deceased donor. Therefore, their doctor recommends getting a kidney transplant from a living donor {Recipient Effect}.

People who volunteer as potential living kidney donors and meet basic criteria, such as general health and blood type, must then undergo testing to find out if their kidneys are likely to be compatible with the recipient's body. {Donor Effect}"

In this vignette, the randomized fields are filled in as follows:

{(In)Direct 1 + Relative Type}:

- *If direct*: "Your {closest} {Relative Type}", where {closest} is replaced with "closest" if the relationship category is coworker, friend, or a family relation that one reports having more than one of.
- *If indirect*: "Another {Modified Relative Type}", where modified relative type is replaced with "coworker" for coworkers, "friend" for friends, and "family member" for any kin relation.

{(In)Direct 2}:

- *If direct*: "they"
- *If indirect*: "your {closest} {Relative Type}", where {closest} is treated as above.

{Cause}:

- *If genetic*: "a genetic (birth) condition has"
- *If lifestyle*: "lifestyle factors have"

{Recipient Effect}

- *If none*: ""
- *If quality of life*: "improve their quality of life"
- *If length of life*: "help them live longer"
- *If both*: "help them live longer and improve their quality of life"

{Donor Effect}:

- *If none*: “”
- *If positive*: “After donating, living kidney donors often report feeling a sense of fulfilment or a closer relationship with the recipient.”
- *If negative*: “While living kidney donors are rarely responsible for the cost of testing or donation surgery, employers and schools may not provide accommodation or compensation for time missed as a result of the surgery.”
- *If both*: “After donating, living kidney donors often report feeling a sense of fulfilment or a closer relationship with the recipient. However, while living kidney donors are rarely responsible for the cost of testing or donation surgery, employers and schools may not provide accommodation or compensation for time missed as a result of the surgery.”

mTurk Round 1 Quantitative Results

Table 1 describes the sample who participated in the 2016 mTurk Round 1 study. Experimental conditions were appropriately balanced. Responses to the donor volunteer item were highly bifurcated, as 18.7% of respondents marked a 1 or 2 (low values) and 41.1% marked an 8 or 9 (high values), with an additional heap at 5 (16.1%) and the rest spread relatively evenly on intervening values. Respondents were slightly more likely to be male, not black or Latino, age 39 and younger, and have attended college than the general population.

Table 2 lists the results of the experimental effects of the mTurk Round 1 experimental vignette study. Because these were randomly assigned (or conditionally randomly in the case of relationship to patient), we test all effects bivariately to maximize our statistical power to detect effects.

The results of this table are easy to summarize: none of the experimental variations in the vignette were significantly associated with willingness to donate, whereas relationship to the hypothetical patient exerts large and statistically significant effects (with an R-squared of 0.109). Comparing each relationship to father, we may rank order tested relationships as follows: mother (sig.), brother, sister, daughter, son, father, female friend (sig.), aunt (sig.), uncle (sig.), male friend (sig.), female coworker (sig.), male coworker (sig.). Thus, we see that the primary effect of gendered relationship assignment is attributable to the non-gendered relationship, but for parents, friends, and coworkers, there is evidence of gendered modification of these effects such that female alters are associated with somewhat higher ratings. To test this systematically, we recoded relationship variables into non-gendered relationship and alter gender variables then tested their interaction, and found that it was not statistically significant at the p<=.05 level.

In other words, while social relationships are a robust predictor of hypothetical willingness to be tested as a donor, none of the factors that we (genetic vs lifestyle cause) or current medical education efforts (direct vs indirect, recipient effect, donor effect) imply should influence willingness to donate were significantly associated with respondent ratings thereof in this convenience sample.

mTurk Round 1 Qualitative Codebook Development and Distribution

In order to assess how we might better craft a verbal script intervention, we turned to the open-ended response data in which respondents explained their willingness ratings. Because our other intervention addresses potential donor selection (which these results suggest is a promising avenue), and because the other manipulable factors we tested in Round 1 were not significantly associated with willingness to donate, we decided to adopt the following approach: we would classify the reasons that respondents offer in response to the open-ended item into broad categories ‘for’, ‘against’, and ‘ambivalent about’ donation (‘grandparent codes’), then create non-specific (‘parent’) and specific (‘child’) codes within these broad categories. We decided to apply these codes when they are invoked as a consideration, even when they were not determinative, in order to attempt to map the set of reasons for, against, and in the middle that come to mind most often for our respondents. We would then use these data to craft the verbal script, designing it to emphasize the most common ‘for’ reasons and address the most common ‘against’ reasons.

The development of this codebook proceeded as follows: First, the lead author read a 10% subsample of open-ended responses and developed a preliminary coding scheme. Next, the lead author and a team of two research assistants, in consultation with the other authors, applied this coding scheme to out of sample responses, adding and refining codes as necessary. We repeated this process iteratively until we reached saturation. Next, we collectively organized these child codes into parent and grandparent codes. Finally, we conducted several rounds of practice coding, conducted separately and then comparing codes, and discussed cases where our codes disagreed and why, collectively resolving how to handle these sorts of codes, until a point was reached where the same or highly similar codes were consistently applied. Finally, we performed final coding using a Qualtrics-based survey-like instrument in which one open-ended response at a time was presented to the coder. The two research assistants were then asked to mark whether the response was codeable, then mark all grandparent codes that apply, then all parent codes that apply within each grandparent code, and then all child codes that apply within each parent code, then mark responses that they felt were exemplary of that child code and leave any comments on their coding decisions for use in subsequent review. Both research assistants separately coded every open-ended response, and the lead author resolved all cases where all child codes did not align.

Inter-rater reliability on the research assistants' codes was assessed using the kappa statistic (calculated using the –kappa- command in Stata MP 14), calculated separately at the level of grandparent, parent, and child codes, weighted by the total frequency with which codes were applied (so that rare codes count less than very common codes). To help us benchmark these findings, Landis and Koch (1977) describe kappa statistics below 0 as 'poor', between 0 and 0.20 as evidence of 'slight' reliability, 0.21-0.40 as 'fair', 0.41-0.60 as 'moderate', 0.61-0.80 as 'substantial', and >0.80 as 'almost perfect'. Thus it is encouraging that our weighted kappa statistics are 0.81 for parent codes ('almost perfect') and 0.70 for child codes ('substantial'). 1,249 open-ended response codes by the two research assistants differed in at least one child code (55%) and were therefore adjudicated by the lead author.

Table 3 presents the resulting qualitative codebook. The distribution of these codes is described in the next section. Parent codes A through G were grouped under the 'Against' grandparent code. Code A is 'Bad Relationship Reasons', which captures antagonism and relative indifference toward the potential recipient. Code B is 'Health, Risk, & Matching Reasons', which incorporates a variety of health-related reasons – fear of surgery, negative health effects of donation, poor current health status, fear that the disease runs in the family, doubt about being an adequate match, and vague invocations of risk. Code C is 'Fear of Non-Health Consequences', which largely concerns missed work, foregone income, general financial concerns, and recovery time. Code D is 'Relationship Restrictions', which captures divisions between individuals respondents would and would not consider donating to, which can be imagined as a series of concentric circles – children are always included, then sometimes close family, then any family, then for family and friends. Other child codes within parent code D specifically exclude a particular relationship type (usually coworkers), highlight other potential donors who they deem more appropriate, or invoke the respondent's family responsibilities. Code E is 'Recipient Attributes', which highlights various non-relational aspects of the potential recipient that exclude them from consideration – their advanced age, likely refusal of offers, their blame for their situation, or distance. Code F is 'Would Not Donate', which describes a set of reasons that respondents invoke that they would not donate a kidney to anyone under their circumstances – for religious/spiritual reasons, total exclusion, exclusion of living donation, a desire to keep one's kidneys, a preference to simply let the alter die, self-interest, or a meaningful invocation of their kidney as a part of their body. Code G captures reasons 'against' donation not otherwise categorized.

Parent codes H through K index reasons for ambivalence about donation. Code H ('Depends on… / Need more…') combines a wide variety of additional sources of information that respondents say they would need to make a decision. Code I ('Testing-Related Reasons') separates out reasons directly associated with the results of the donor evaluation protocols. Code J ('On the one hand, On the Other') codes responses where both positive and negative reasons were invoked relatively equally. Code K captures other sources of ambivalence that are not otherwise categorized.

Parent codes L through Q describe broad reasons 'for' donation. Code L ('Good Relationship Reasons') captures responses invoking positive aspects of their relationship with the alter, such as positively invoking their relationship (e.g., "It's my mom") or familial (e.g., "They're family!") status, expressing relationship-oriented values, invoking histories of support and reciprocity, intensified expression of willingness, feelings of love and closeness. Code M ('Moral, ethical, religious, and emotional reasons') incorporates reasons like what respondents view as right, would feel good, sympathy, non-relationship values, potential guilt for not donating, social repercussions for not donating, and religious motivations. Code N ('Benefit Recipient') focuses on reasoning related to how donation would benefit the recipient, such as by saving their life, improving their quality of life, helping them avoid suffering, giving them a 'gift', 'help'ing them to unspecified ends, and avoiding a long wait for a deceased donor transplant. Code O ('Medical reasons could donate') covers reasoning such as the respondent's good health, the fact that they have a 'spare' kidney (e.g., "You only need one kidney!"), the likelihood they would be a match for the recipient, and implied conditional statements expressing cautious optimism that the evaluation process would not turn up anything concerning. Code P ('Non-medical reasons could donate') covers reasons that respondents could donate such as being unemployed or flexibly employed. Code Q covers 'for' reasons not otherwise categorized.

Table 4 presents each grandparent, parent, and child code's regression-adjusted proportions in the data. We regression-adjusted because the data collected included experimental manipulations that might bias the popularity of certain qualitative codes. Thus, all proportions are the marginal proportion in which the given code was assigned after controlling for experimental (direct/indirect, cause, recipient effects, donor effects) and conditionally random (relationship) characteristics. The percentages are displayed as percentage of the sample as well as the upward-abutting coding level (grandparents for parent codes; parents for child codes).

At the grandparent level, 'for' codes are the most common – 60.9% of respondents invoked at least one 'for' code, 39.9% did so for 'against' codes, and 17.4% did so for 'ambivalent' codes. (These figures do not add to 100 because more than one grandparent code could apply to a given response.) At the parent level, 5 codes are found in 10% or more of responses, and four of them are 'for' and one 'against'. The most common 'for' codes are Benefit Recipient (code N; 40.6%), Good Relationship Reasons (L; 34.0%), Medical Reasons Could Donate (O; 13.1%), and Moral, Ethical, Religious, and Emotional Reasons (M; 10.6%). The most common 'against' code was Health, Risk, & Matching (B; 26.7%).

The most common child codes for each parent code are also displayed in Table 4. Overall, the ten most common 'for' child codes were Would Do Anything (code 57; 17.3%); Vague "Help" (code 73; 15.7%); Save recipient's life, help recipient live longer (code 69; 12.8%); Positive, specific relationship invocation (code 52; 9.1%), Shortened life, worsened health (code 5; 7.6%); Respondent in poor health / has disqualifying health condition (code 6; 7.5%); Not close enough (code 2; 5.0%); "Love" (code 58; 4.9%);

Improve recipient quality of life (code 70; 4.9%); and Invocation of non-family/relationship values (code 64; 4.6%).

mTurk Round 2: Developing and A/B Testing the Verbal Script

Based on the patterns of qualitative codes just described, we developed a script that sought to emphasize the most common 'for' codes, potentially address some of the more common 'against' codes, and use framing devices supported by health communication research for maximum effectiveness. Because we did not have evidence for framing devices on this topic, in mTurk Round 2A we compared all four combinations of two dichotomous variants:

Gain vs Loss: When asking for something, the stakes can be framed in terms of what will happen if one does receive it (Gain), and what will happen if one does not receive it (Loss)

Sure vs Risk: The benefits or receiving something or costs of not receiving something can similarly be framed in terms of a certain (Sure) and uncertain (Risk) benefit.

Additionally, there was some question of what the 'something' the respondents are being asked for is – should they be asked to donate a kidney, or to be evaluated as a potential donor? While pre-donation evaluation is mandatory, it was not prospectively clear what the preferred 'ask' was. Therefore, we decided to test these alternatives against each other:

Donate vs Test: The respondents will sometimes be asked to donate a kidney, and other times be asked to be evaluated as a potential donor.

Accordingly, we developed a verbal script that varied these previous elements, and invoked the most common qualitative codes described above (with superscripted child codes corresponding to each element of the script noted below):

> "Hi. Can I talk to you about something important? I need help.^{73} I'm suffering^{71} from kidney failure and a living donor kidney transplant is my best option. If I {Gain/Loss 1} receive one, {Sure/Risk 1} I {Sure/Risk 2} {Gain/Loss 2} be able to live a better^{70} and longer^{69} life. Because we're close^{59} and we've always been there for each other, would you be willing to {Test/Donate 1}? Typically, there are no health consequences^{5,79} in donating a kidney. And, you can trust^{64} my health care team to

give you all the information[43] you need. Thanks for your support[54] and for listening[54] during my time of need[64]."

The manipulated variables are filled in as follows in alternative versions of the script:

{Gain/Loss 1}

- *If Gain*: ""
- *If Loss*: "don't "

{Sure/Risk 1}

- *If Sure*: ""
- *If Risk*: "chances are that"

{Sure/Risk 2}:

- *If Sure*: "will"
- *If Risk*: "may"

{Gain_loss_2}:

- *If Gain*: ""
- *If Loss*: "not "

{Test/Donate}:

- *If Test*: "get tested to see if you can donate one of your kidneys to me"
- *If Donate*: "donate one of your kidneys to me"

Elements of the script (marked with superscript numbers above) correspond to our qualitative codes as follows:

73: Vague "Help"

71: Help recipient avoid/end suffering

69: Save recipients life; help recipient live longer

70: Improve recipient quality of life

59: Expressions of closeness, not otherwise classified

57: Would do anything

5: Shortened life, worsened health

79: Don't anticipate health consequences; Assuming we match

64: Invocation of non-family/relationship values

43: Need more information

54: Relationship-oriented values

64: Invocation of non-family/relationship values

In subsequent rounds of data analysis, we will also test variations of the script that more concretely address support available for donors, such as the Family and Medical Leave Act, funds available to defray direct costs of donation, and the fact that recipient insurance covers the full costs of the kidney donation surgery. We will also test variations that appeal to physician and scientific authority to support the claims of minimal medical risk. The collection and analysis of these data should be completed before the 2019 PAA meeting. Additionally, it should be noted that due to a programming error, a phrase following "because we're close" that positively invoked their relationship was omitted in the tested script. We will include this phrase in subsequent testing, but this is omitted in this version.

The first round of A/B testing the gain/loss, risk/sure, and test/donate variations of this script has been completed. In addition to substituting the verbal script for the vignette, a few changes were made compared to Round 1. First, a few minor items in the previous survey were eliminated in order to minimize respondent burden, and respondent survey compensation was reduced proportionally, to $0.80. Second, the attention check item was changed to whether the respondent could correctly identify their relationship to the potential recipient in the script provided. Third, we changed the relationship selection and relationship randomization procedures. We elected to eliminate aunts/uncles and coworkers from the set of relationships tested, and added spouses, for five relationships tested. Additionally, we no longer initially assigned respondents to a given relationship – instead, we randomly chose (with equal probability) among the relationships that the respondent reported having at least one of, then randomized the gender of the potential recipient proportional to the number of male and female alters of that relationship type the respondent reported. Finally, we preregistered our data collection and analysis procedures, and made detailed, a priori directional hypotheses and accordingly performed all hypothesis tests using one-tailed tests. We also conditioned all relationship tests on having the relationship in question in common – thus, when comparing the spouse effect to the parent effect, we subset the analytical sample to those who had parents (and controlled for other relationship types).

Out of 1863 respondents recruited for participation in this wave of the study, 1725 were retained after dropping rejected cases, those who failed the attention check, provided clearly meaningless open-ended responses, or were missing significant data. We analyzed demographic patterns of rejection and found that African Americans, men, respondents aged 29 or younger, and more highly educated respondents were more likely to be rejected. We tested the random assignment to experimental conditions and to relationships and found that it was consistent with true randomness.

Descriptive statistics of the mTurk Round 2A sample are presented in Table 5, and the results of the experimental and conditionally random relationship effects are displayed in Table 6. The descriptive statistics show that, reflecting the network structures of our respondents, our selected alter distribution includes a high proportion of siblings, relatively few children, and relatively clustered percentages of parents, spouses, and friends. In this round, but not the previous one, a very large proportion of the sample gives the maximum possible rating of their willingness to donate (56.4%, compared to 31.4% in Round 1). The sample is reasonably well balanced by gender (53% female). Blacks and Latinos are underrepresented in the sample, consistent with the general mTurk population. Our sample also skews young, and education skews high, compared to the general population. However, although survey takers on mTurk are in no way representative of the general population, previous research has shown that survey experiments conducted on mTurk and a phone-based, nationally-representative platform for experimental surveys found highly similar treatment effects (Mullinix et al. 2015).

Turning to Table 6 and the experimental results, our analysis shows no statistically significant advantage for one framing over another according to the hypothesized directions. However, with two-tailed tests, one option falls marginally short of the top option: gain+sure is significantly lower at p<=.10. On the basis of this finding and theoretical perspectives that Gain+Sure and Loss+Risk framings are considered the most effective for general purposes, we will use the Loss+Risk framing in subsequent rounds of verbal script development.

We also find that the Test ask compared to the Donate ask performs significantly better (advantage of 0.458 points on a 9-point scale in the no controls model; and 0.479 in the controls model). Accordingly, we will ask respondents to be evaluated as donors, rather than become donors, in future rounds of testing of this verbal script.

Next Steps

Prior to PAA, we will conduct two additional rounds of A/B testing for elements of this script noted above, then test it in a Qualtrics sample of respondents with kidney disease patients in their families, and conduct focus groups of transplant candidates and family members to solicit feedback on the script.

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Tables and Figures

Figure 1: The Broader Project

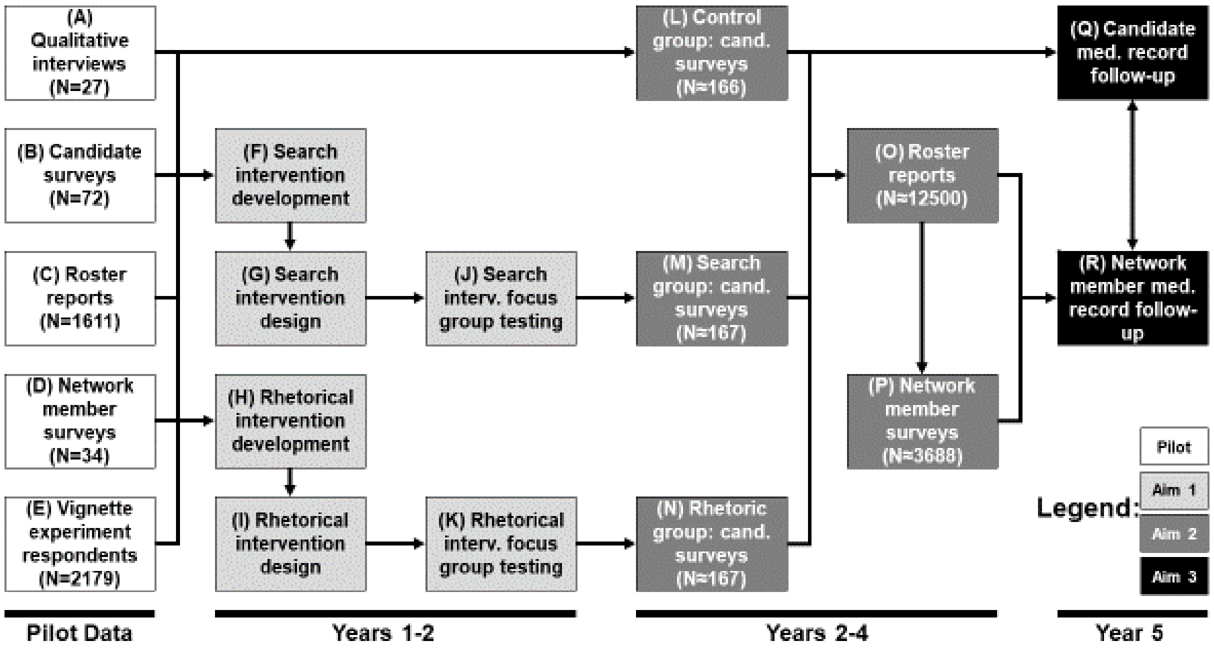

Table 1: Descriptive Statistics, mTurk Round 1

Variable	**Category**	**Categ. N**	**%**
How Learned	Indirect	1,119	49.78
	Direct	1,129	50.22
Cause	Genetics	1,128	50.16
	Lifestyle	1,121	49.84
Recipient Effect	None	570	25.34
	Length of Life	555	24.68
	Quality of Life	564	25.08
	Both	560	24.9
Donor Effect	None	561	24.94
	Positive	564	25.08
	Negative	562	24.99
	Both	562	24.99
Recip. Relat.	Child	391	17.39
	Friend	401	17.83
	Parent	398	17.7
	Sibling	266	11.83
	Co-Worker	396	17.61
	Aunt/Uncle	397	17.65
Recip. Gender	Female	1,122	49.89
	Male	1,127	50.11
Volunteer	1	278	12.38
	2	130	5.79
	3	131	5.84
	4	90	4.01
	5	361	16.08
	6	148	6.59
	7	184	8.2
	8	225	10.02
	9	698	31.09
Resp. Gender	Female	1,077	47.89
	Male	1,172	52.11
Race/Eth.	White	1,733	77.16
	Black	152	6.77
	Hisp	141	6.28
	Asian	136	6.06
	Mixed	84	3.74
Age	18-29	751	33.39

	30-39	780	34.68
	40-49	363	16.14
	50+	355	15.79
Education	<=HS	242	10.77
	SC	722	32.15
	BA	737	32.81
	Grad	230	10.24
	In School	315	14.02
Kin Presence	Parent	1,995	88.71
	Sibling	1,924	85.55
	Child	977	43.44
	Aunt/Uncle	1,955	86.93

Table 2: mTurk Round 1 Experimental Effects

Experimental Condition	**N**	**Conditional Mean (R-Squared)**
(In)Direct		(0.001)
Indirect (Ref.)	1,117	6.05
Direct	1,127	5.85
Cause		(0.000)
Genetic (Ref.)	1,127	5.96
Lifestyle	1,118	5.93
Recipient Effect		(0.000)
None (Ref.)	570	5.95
Length of Life	553	5.88
QOL	563	6.01
Both	559	5.94
Donor Effect		(0.002)
None (Ref.)	560	6.06
Positive	564	6.07
Negative	562	5.94
Both	559	5.73+
Gendered Relationship		(0.109)
Father (Ref.)	199	6.50
Mother	199	7.20**
Son	195	6.67
Daughter	196	6.69
Brother	131	6.89
Sister	135	6.86
Uncle	198	5.61**
Aunt	198	5.67**
Male Friend	200	5.55**
Female Friend	199	5.78**
Male Coworker	197	4.02**
Female Coworker	198	4.56**

Table 3: Qualitative Codebook

Grandparent	**Parent**		**Child**	
Code	**Code**	**Description**	**Code**	**Description**
Against	A	Bad Relationship Reasons	1	"I dislike/hate them"; "They dislike/hate me"
			2	Not close enough
			3	Other bad relationship reasons
	B	Health, Risk, & Matching Reasons	4	Fear of surgery; "Don't like doctors/hospitals"
			5	Shortened life; worsened health
			6	Respondent in poor health / has disqualifying health condition
			7	Disease that may run in family
			8	Would not be a match
			9	Vague "risk"
			10	Other health and matching reasons
	C	Fear of Non-Health Consequences	11	Missed work; Lost income; Could lose job
			12	Cost of medical care/insurance concerns
			13	Fear of other or unspecified financial consequences
			14	(Recovery) time
			15	Other fear reasons, including non-specific fear or unmentioned consequences
	D	Relationship Restrictions	16	Save for kids
			17	Save for close family
			18	Save for any family
			19	Save for family and friends
			20	Not for a ___
			21	"They have their own family/kids"
			22	Responsibilities to family
			23	Other relationship restrictions

	E	Recipient Attributes	24	Too old
			25	Would refuse offer
			26	"Their own fault"; lifestyle
			27	Too far away
			28	Other recipient attributes
	F	Would Not Donate	29	Religious or spiritual reasons
			30	Not even if deceased
			31	Only if deceased
			32	"I need/want to keep my kidneys"
			33	"Just let them die"; mentions overpopulation, pointlessness of care
			34	"Selfish"; mentions self-interest
			35	"Part of my body"
			36	Other would not donate reasons
	G	Other reasons against	37	Other reasons against
Ambivalent	H	Depends on…/ Need more…	38	Depends on who exactly
			39	Depends on whether someone else could do it
			40	Depends on reason for the disease
			41	Depends on the urgency / gravity / nearness of death
			42	Depends on what my spouse / family says
			43	Need more information
			44	Need more time to think
			45	Depends on / Need more of something else
	I	Testing-related reasons	46	Depends on results of the test/exam
			47	At least get tested, then decide
			48	Get tested, but hope not a match
			49	Other testing concerns

	J	On one hand, on the other	50	On one hand, on the other
	K	Other reasons ambivalent	51	Other reasons ambivalent
For	L	Good relationship reasons	52	Positive, specific relationship invocation
			53	Positive “family” invocation
			54	Relationship-oriented values
			55	"They would do it for me"
			56	They've done so much for each other
			57	Would do anything
			58	"Love"
			59	Expressions of closeness, not otherwise classified
			60	Other positive relationship reasons
	M	Moral, ethical, religious, and emotional reasons	61	"Right thing to do"
			62	It would feel good to do
			63	Would be grateful in their place; sympathy
			64	Invocation of non-family/relationship values
			65	Would feel guilty if didn't
			66	Social repercussions if didn't
			67	Spiritual and religious motivations
			68	Other moral and emotional reasons
	N	Benefit recipient	69	Save recipient's life; help recipient live longer
			70	Improve recipient quality of life
			71	Help recipient avoid suffering / end sickness
			72	"Gift"
			73	Vague "Help"
			74	Avoid a long wait (for a deceased donor kidney)
			75	Other benefit recipient reasons

	O	Medical reasons could donate	76	Healthy respondent
			77	Spare kidney
			78	Likely match
			79	Don’t anticipate health consequences; Assuming we match
			80	Other medical reasons could donate
	P	Non-medical reasons could donate	81	Not employed
			82	Flexible employment
			83	Other non-medical reasons could donate
	Q	Other for reasons	84	Other reasons 'for'

Table 4: Experiment-Adjusted Percentages of Grandparent, Parent, and Child Codes

Grandparent	**Description**	**Regression-Adjusted %**	**Share of Grandparent Code**	**Most Common Child Code**	**Description**	**Regression-Adjusted %**	**Share of Parent Code**
Against Codes (39.9%)							
B	Health, Risk, & Matching Reasons	26.7%	50.4%	5	Shortened Life; Worsened Health	7.6%	32.3%
D	Relationship Restrictions	9.6%	18.1%	18	Save for Any Family	3.3%	28.2%
A	Bad Relationship Reasons	6.9%	13.0%	2	Not Close Enough	5.0%	74.7%
F	Would Not Donate	6.4%	12.1%	32	"I need/want to keep my kidneys"	3.0%	40.7%
C	Fear of Non-Health Consequences	2.0%	3.8%	11	Missed work; Lost income; Could lose job	2.0%	43.3%
E	Recipient Attributes	1.4%	2.6%	26	"Their own fault"; lifestyle	2.0%	50.6%
G	Other	0.0%	0.0%	--	--	--	--
Ambivalent Codes (17.4%)							
H	Depends on / Need More	6.8%	38.4%	43	Need more information	3.0%	26.1%
I	Testing-Related Reasons	5.2%	29.4%	47	At least get tested, then decide	2.4%	56.4%
J	On One Hand, On the Other	4.1%	23.2%	--	--	--	--
K	Other	1.6%	9.0%	--	--	--	--
For Codes (60.9%)							
N	Benefit Recipient	40.6%	40.8%	73	Vague "Help"	15.7%	42.2%
L	Good Relationship Reasons	34.0%	34.2%	57	Would do anything	17.3%	38.1%
O	Medical reasons could donate	13.1%	13.2%	79	Don't anticipate health consequences; Assuming we match	4.5%	49.3%
M	Moral, ethical, religious, and emotional reasons	10.6%	10.7%	64	Invocation of non-family/relationship values	4.6%	35.0%
Q	Other	0.8%	0.8%	--	--	--	--
P	Non-Medical Could Donate	0.3%	0.3%	82	Flexible employment	0.5%	44.4%

Table 5: Descriptive Statistics, mTurk Round 2A Sample

Variable	Category	Categ. N	%
Frame	Gain+Risk	447	25.9
	Gain+Sure	418	24.2
	Loss+Risk	445	25.8
	Loss+Sure	415	24.1
Test	Donate	880	51
	Test	845	49
Recip. Relat.	Child	213	12.3
	Friend	422	24.5
	Parent	413	23.9
	Sibling	396	23
	Spouse	281	16.3
Recip. Gender	Female	883	51.2
	Male	842	48.8
Volunteer	1	83	4.8
	2	35	2
	3	42	2.4
	4	36	2.1
	5	155	9
	6	58	3.4
	7	130	7.5
	8	213	12.3
	9	973	56.4
Resp. Gender	Female	915	53
	Male	801	46.4
	Other	9	0.5
Race/Eth.	White	1319	76.5
	Black	109	6.3
	Hisp	78	4.5
	Asian	115	6.7

	Mixed	104	6
Age	18-29	499	28.9
	30-39	661	38.3
	40-49	298	17.3
	50+	267	15.5
Education	<=HS	188	10.9
	SC	634	36.8
	BA	693	40.2
	Grad	210	12.2
Kin Presence	Parent	1561	90.5
	Sibling	1556	90.2
	Child	901	52.2
	Friend	1605	93
	Spouse	1176	68.2

Table 6: Results of A/B Testing, Verbal Script

	No Controls			**Controls**		
Hypoth. Descript.	**B Hypothd. Higher**	**B Hypothd. Lower**	**P**	**B Hypothd. Higher**	**B Hypothd. Lower**	**P**
Gain+Sure > Gain+Risk	-0.133	-0.105	0.572	-0.163	-0.1	0.658
Gain+Sure > Loss+Sure	-0.133	0	0.796	-0.163	0	0.849
Loss+Risk > Gain+Risk	0.095	-0.105	0.099	0.111	-0.1	0.084
Loss+Risk > Loss+Sure	0.095	0	0.274	0.111	0	0.238
Gain+Sure > Loss+Risk	-0.133	0.095	0.949	-0.163	0.111	0.949
Test > Donate	0.458	0	0	0.479	0	0
Spouse > Parent if have spouse	0.617	0	0	0.669	0	0
Spouse > Sibling if have spouse	0.617	-0.046	0	0.669	-0.012	0
Spouse > Child if have spouse	0.617	1.091	0.994	0.669	1.11	0.989
Spouse > Friend if have spouse	0.617	-1.373	0	0.669	-1.321	0
Parent > Friend if have parent	0	-1.189	0	0	-1.289	0
Sibling > Friend if have sibling	-0.108	-1.388	0	-0.029	-1.393	0
Child > Friend if have child	1.042	-1.519	0	1.128	-1.44	0
Spouse > Parent if have parent	0.894	0	0	0.709	0	0
Spouse > Sibling if have sibling	0.789	-0.108	0	0.664	-0.029	0
Spouse > Child if have child	0.757	1.042	0.929	0.705	1.128	0.984
Spouse > Friend if have friend	0.756	-1.359	0	0.712	-1.306	0
Parent > Friend if have friend	0	-1.359	0	0	-1.306	0
Sibling > Friend if have friend	0.029	-1.359	0	0.076	-1.306	0
Child > Friend if have friend	1.206	-1.359	0	1.255	-1.306	0