Neglected by Assessment:

Industry versus Inferiority in the Competition for Scarce Kidneys

Submitted by

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Introduction

End stage renal disease (ESRD) is a terminal illness that results in physical and mental death (Center for Bioethics, 2004). Death is deferred by transplanting a healthy organ from another body into the unhealthy one. Unfortunately, since there are not enough kidneys to go around, individuals that need a kidney are placed on a waiting list and ranked by various physical and mental criteria. The length of time on the organ waiting list has been shown to be the key predictor of premature death from renal disease (Center for Bioethics, 2004; Patzer, 2011).

Despite this fact about the waiting list, the waiting time for transplantation is often biased against groups such as the physically old (a prejudice called ageism) and the intellectually disabled (a prejudice called ableism). The longer wait times experienced by these social groups means that these groups will not survive end stage renal disease (Curtis, 2006; Derrington et al., 2016; Grams et al., 2012; Wightman et al., 2014). Researchers suggest that this may be more than just cognitive bias or discrimination. This suggests a violation of international human rights in the selection of candidates and the allocation of kidneys (Danovitch, 2014; Grams et al., 2012; Wightman et al., 2014). Though these assessment biases have been studied, a survey of the literature suggests that less industrious groups such as older candidates (those who are physically unfit but mentally fit) and younger candidates (those that are mentally unfit but physically fit), wait longer to receive a kidney on the basis of inferior commercial value (Grams et al., 2012; Kivnick & Wells, 2014; Stone, Crooks, & Owen, 2013). An analysis of existing data in the US Renal Data System will allow the comparison of biases such as physical age bias and mental age bias, by analyzing mean wait times for kidney transplants for candidates on the list for significant differences (Grams et al., 2012). These longer wait times suggest that groups considered to be less valuable to industry have lower chances of reaching group warmth or group survival—which corresponds well to the Stereotype Content Model, Erikson's psychosocial stages (*industry versus inferiority* and *intimacy versus isolation*), and Marcia's psychological identity model (Kivnick & Wells, 2014; Stone, Crooks, & Owen, 2013). The results of this analysis may point to violations of the Universal Declaration of Human Rights by the industries of organ allocation and candidate assessment (United Nations, 1948).

The succeeding sections will explore the background of the problem, and the purpose of exploring it. Three research questions will help analyze the differences between groups of candidates, and additional sections will describe how this research is significant and will advance scientific knowledge. The research design, terminology, rationale, assumptions, limitations, and delimitations will also be outlined, followed by a summary of this chapter. The purpose of this proposal is to ask whether certain less desirable groups are being neglected by assessment and thus delayed long enough that the survival of their group is not possible (Roussos & Dunham, 2016).

Background of the Study

End stage renal disease (ESRD) is a serious physical condition the outcome of which is always loss of life (Patzer, 2011). Although medical science can delay death from ESRD, many perish while waiting for a kidney replacement, which is the only known temporary cure. The problem is that there are far more persons who need an organ than available organs, creating an ethical dilemma as to whom will be chosen to survive

(Patzer, 2011). Inevitably, those who are refused an organ will feel unequally treated by society (Fyson & Cromby, 2013; Ubel & Loewenstein, 1996).

Research has been conducted demonstrating bias during assessment against older (physically unfit), mentally fit candidates (Curtis, 2006; Grams et al. 2012). Research has also been conducted demonstrating bias during assessment against younger (physically fit), mentally unfit candidates (Derrington, Goldberg, & Frader, 2016; Wightman et al., 2014). A survey of the literature suggests that less industrious groups such as older candidates (those who are physically unfit but mentally fit) and younger candidates (those that are mentally unfit but physically fit), wait longer to receive a kidney because both are outside the ideal industrial age group (i.e. unimpaired and between 18 and 64 years of age), and thus are of inferior commercial value (please see Figure 2). Interestingly, this organ allocation crisis is similar to Erikson's psychosocial crisis stage *industry versus inferiority* (usefulness to society versus burden to society), and seems to apply to the selection of candidates for replacement kidneys (Kivnick & Wells, 2014; Stone et al., 2013). A visual of this concept, the Industrial Stereotype Model, is shown in Figure 4, using the theoretical framework of this proposal (the Stereotype Content Model). A survey of secondary data in the US Renal Data System will allow the comparison of less favored groups by analyzing mean kidney transplant wait times, suggesting that less industrious groups (such as the mentally impaired young or the physically impaired old) are delayed a kidney on the basis of commercial inferiority (Grams et al., 2012; Kivnick & Wells, 2014; Stone et al., 2013). The results of this analysis may point to violations of the Universal Declaration of Human Rights by the organ allocation and candidate assessment industries (Danovitch, 2014; Reese, Boudville, & Garg, 2015; United Nations, 1948).

Problem Statement

It is not known if less industrious groups such as older candidates (those who are physically unfit but mentally fit) and younger candidates (those that are mentally unfit but physically fit), wait longer to receive a kidney on the basis of inferior commercial value. This is an important research question because a survey of the literature suggests that physical age and intellectual disability are being discriminated against during the assessment of candidates and the allocation of kidneys (Cherkassky, 2011; Derrington et al., 2016). The delays experienced by the elderly (ageism) and by young people who may have special needs (ableism) mean that inferior (less industrious) groups will not survive end stage renal disease (Curtis, 2006; Derrington et al., 2016; Grams et al., 2012; Wightman et al., 2014).

The significance of this problem is that the current method of selecting candidates—which is based on professionally fixed criteria like physical aging and intellectual assessment—may be a violation of the Declaration of Human Rights. The primary affected population (less commercially valuable groups such as special needs youth and the elderly) are not being granted the same chance for life as other groups (Danovitch, 2014; Reese et al., 2015). This study may add to the literature with evidence of a delay of access to vital healthcare solutions that is targeting old age and delayed intellectual development while favoring groups that society considers the most productive (Mazzei, 2013).

Purpose of the Study

The purpose of this quantitative method with a causal-comparative design is to compare groups of candidates on the waiting list for a kidney transplant in the U.S. Renal Data System (USRDS), to test whether less industrious groups such as older candidates (those who are physically unfit but mentally fit) and younger candidates (those that are mentally unfit but physically fit), wait longer to receive a kidney on the basis of inferior commercial value. The data source will be the Organ Procurement and Transplantation Network (OPTN) registration data publicly available from the USRDS, which is “a national data system that collects, analyzes, and distributes information about chronic kidney disease (CKD) and end-stage renal disease (ESRD) in the United States” (U.S. Renal Data System, 2016, para. 1).

The independent variables for this study will be: (a) Physical Age Bias representing the chronological age of a candidate regardless of greater overall ability than the chronological age suggests and (b) Mental Age Bias representing the mental age of a candidate regardless of greater overall ability than the mental age suggests. Since chronological age is not typically a controllable or assessable quality, assessment bias related to the age of a candidate (regardless of being physically feeble or robust) can be detected. Since mental age (expected mental development at a given physical age) is not physically measurable the way chronological age is, mental age will provide a sufficient summary metric for potential bias during psychological assessment. The dependent variable for this study will be Transplant Wait Time representing the length of time in days that a candidate with the specified criteria has waited to receive a kidney organ transplant. This variable was chosen because it a metric in the US Renal Data System which is always present and can be used to compare which candidates were prioritized for transplant.

This study will follow the format in similar studies such as Grams et al. (2012), but for the purposes of this dissertation, the researcher will divide Physical Age Bias into three chronological age groups equivalent to prior Medicare physical age bias studies. These correspond to: the group of normatively unemancipated youth under 18 (Too Young), the group of normatively retired seniors over 64 (Too Old), and the normatively productive age group between 18 and 64 (Just Right). This study will also follow the detailed guidelines in Wightman et al. (2014) but simplify the names to match this study. The researcher will divide Mental Age Bias into three levels of increasing intellectual ability, equivalent to prior intellectual development bias studies of the USRDS. These correspond to: the group that is assessed in the system as incapable of self-care (Too Slow), the group that is capable of self-care but requires additional help (Somewhat Slow), and the group that is fully capable of self-care (Just Right), since the capacity for self-care is a predictor of the ability to host a replacement organ. These distinctions accord with existing categories in the USRDS and detailed studies of special needs youth representation in the USRDS (Wightman et al., 2014).

The group means for the wait times of each of these three age groups will be compared to test whether candidates of less value to industry wait longer to receive a transplant, meaning those groups are much less likely to survive.

Research Question(s) and Hypotheses

The purpose of this quantitative method with a causal-comparative design is to compare groups of candidates on the waiting list for a kidney transplant in the U.S. Renal

Data System (USRDS), to test whether less industrious groups such as older candidates (those who are physically unfit but mentally fit) and younger candidates (those that are mentally unfit but physically fit), wait longer to receive a kidney on the basis of inferior commercial value (Cherkassky, 2011). Three research questions will explain existing differences between groups of candidates (Johnson, 2001). These three questions are operationalized in the following.

Research Question 1 (Physical Age Bias):

RQ1: Do candidates whose Physical Age is Too Young or Too Old have significantly longer Transplant Wait Times compared to those who are Just Right?

$H1_0$: Candidates whose Physical Age is Too Young or Too Old do not have significantly longer Transplant Wait Times compared to those who are Just Right.

$H1_A$: Candidates whose Physical Age is Too Young or Too Old do have significantly longer Transplant Wait Times compared to those who are Just Right.

Research Question 2 (Mental Age Bias):

RQ2: Do candidates whose Mental Age is Too Slow or Somewhat Slow have significantly longer Transplant Wait Times compared to those who are Just Right?

$H2_0$: Candidates whose Mental Age is Too Slow or Somewhat Slow do not have significantly longer Transplant Wait Times compared to those who are Just Right.

$H2_A$: Candidates whose Mental Age is Too Slow or Somewhat Slow do have significantly longer Transplant Wait Times compared to those who are Just Right.

Research Question 3 (Physical Age to Mental Age Interaction):

RQ3: Do Physical Age Bias and Mental Age Bias interact to predict significantly longer Transplant Wait Times?

$H3_0$: Physical Age Bias and Mental Age Bias do not interact to predict significantly longer Transplant Wait Times.

$H3_A$: Physical Age Bias and Mental Age Bias do interact to predict significantly longer Transplant Wait Times.

Research Variables:

The variables for the above research questions include two independent variables (Physical Age Bias and Mental Age Bias) and one dependent variable (Transplant Wait Time).

Advancing Scientific Knowledge

Literature on the psychological assessment of candidates for life-saving renal transplants suggests potential bias for mental fitness (psychological robustness) over physical fitness (biological robustness) (Grams et al., 2012; Wightman et al., 2014). Identification of mental age bias during renal candidate assessment may advance scientific knowledge by highlighting a paradox in the health industry’s attempt to ethically accomplish what may be an unethical thing—for example an industry of the harvesting and grafting of living organs between humans, to extend the lives of those groups which have measurably superior mental fitness. Such a practice may represent violations of the Universal Declaration of Human Rights by the organ allocation and candidate assessment industries, which declaration at the close of global conflict sought to end such practices (United Nations, 1948).

Previous models of prejudice (group bias) have described cognitive bias using human to human and human to animal relationships. Human to human prejudice has been empirically researched using the Stereotype Content Model (Fisk and North, 2014). Human to animal prejudice has been empirically researched using the Interspecies Model of Prejudice (Costello & Hodson, 2014). The model for this dissertation will help enhance current models of prejudice and the classes that prejudice describes, by proposing that group bias is also prevalent in mental to physical relationships. The criteria used to assess and select candidates in the competition for scarce kidneys also exhibits cognitive bias in favor of intellectually superior groups (Furnham, Richards, & Paulhus, 2013; Molony, 2016; Newlands, 2014).

Significance of the Study

The problem of bias against certain ages and certain intellectual and developmental disabilities (IDD) in the allocation of scarce kidneys may be further analyzed by comparing groups on the waiting list for a kidney transplant. Previous studies have shown organ assessment and allocation bias against physically aged candidates despite mental fitness (labeled ageism), and against physically young candidates with intellectual and developmental disability (IDD) despite physical fitness (labeled ableism) (Curtis, 2006; Derrington et al., 2016; Grams et al. 2012; Wightman et al., 2014). The average wait time for a kidney is about five years (10 in many states), but the average length of survival on dialysis is less than 5 years (Grubbs et al., 2014).

This study will advance scientific knowledge on this topic by asking whether there is a significant difference between more or less commercially valuable groups on the kidney transplant waiting list, evident in the unusual delays these groups face while awaiting kidney transplant. The results of this analysis may point to (possibly significant) violations of the Universal Declaration of Human Rights by the organ allocation and candidate assessment industries (Danovitch, 2014; Reese et al., 2015; United Nations, 1948, art. 1).

These results may help empower disfavored groups such as those with an intellectual or developmental disability (IDD), but not yet emancipated from childhood status. These results may help them argue for their right to a kidney transplant on the basis of studies that show their post transplantation outcomes exhibit similar success to those without intellectual or developmental disability (Wightman et al., 2014). These results may suggest that different assessment criteria be used for persons aged 65 and over, since they are stereotyped as physically feeble and/or mentally feeble even when their physical and mental aspects exhibit robustness and their outcomes post transplantation are identical to younger candidates (Grams et al., 2012).

Rationale for Methodology

Qualitative or mixed methods are appropriate if the purpose is to observe and explore populations under natural conditions or to illuminate the depth of differences between groups (Park & Park, 2016). Quantitative methods are appropriate when the purpose is to predict, uncover, or control phenomena, for example to analyze measurements in numerical form taken from an existing population (Park & Park, 2016). Since the purpose of this research is to analyze measurements taken from an existing population (potential recipients of kidney organs), this study will use a quantitative, causal-comparative design to gather and analyze the numerical data (Johnson, 2001). These measurements will be queried from existing, secondary data sets which already contain the desired data, and is already in a form suitable for quantitative analysis but not randomly assignable to groups. Sociologically, this research pertains to the topics of prejudice and social justice, and an argument by researchers of social justice is that, in comparison to qualitative methods, quantitative methods are used by and appreciated by the same established ingroups that outgroups seek equality from (Cokley & Awad, 2013).

Nature of the Research Design for the Study

This research uses a causal-comparative (ex post facto) design because the data for this research is secondary data in national repositories of organ transplant data which has already been collected (Johnson, 2001). As a result, the principal investigator cannot manipulate the physical age and mental age conditions present in the fixed data. (Bleske-Rechek, Morrison, & Heidtke, 2015; Ejima et al., 2016). However, as a similar research design has been used recently to analyze data such as the presence of mental illness in existing data, it is appropriate for this similar purpose also (Riemersma, van Santvoort, Janssens, Hosman, & van Doesum, 2015). This research will also be analyzing existing data which includes mental conditions along with physical conditions.

This research will compare wait times for a kidney transplant, to test whether less industrious social groups are delayed a transplant on the basis of inferior value to industry. The population will consist of human participants awaiting their first kidney organ transplant. The population will consist of human participants with end stage renal disease (ESRD) in need of a replacement kidney. The target population will consist of human participants on the kidney transplant waiting list. The sample will consist of human participants listed as active on the OPTN waiting list for kidney organ transplantation from January 1, 2014 to December 31, 2014 and will include both first-time kidney transplant candidates and recipients. These will be grouped into three age groups (under 18, between 18 and 64, and 65 and over). These ranges were chosen to align this proposal with previous research in which physical age bias was found (Grams et al., 2012). The data will be requested using the non-sensitive data request format at the USRDS and participants will not be identifiable by the data requested.

All data will be drawn directly from the OPTN portion of the USRDS, which is the only official repository of data kept regarding organ candidates, donors, and outcomes.

Definition of Terms

Industry versus Inferiority. *Industry versus inferiority* is one of Erikson’s psychosocial stages, in which the developing human encounters a crisis—either feeling needed by society (industrious) or feeling unneeded by society, like a living burden (inferiority). Industry is a social attribution needed by the school-age youth of most cultures, marking a person’s successful passage from a potential burden to potential usefulness to society (Marcia, 2014). In return, the child acquires a sense of individual worth and social standing. Fiske (2013) operationalized this in the Stereotype Content Model as social *competence*. Competence may then be traded for social *warmth* when the age of social adulthood is reached (the *intimacy versus isolation* stage from ages 18 to 40 in Erikson’s psychosocial crises).

Ageism. Ageism is a form of prejudice and discrimination against the elderly, which often leads to restriction of access to resources and health issues such as depression (Kim, Noh, & Chun, 2016). A link between ageism and mental health has been identified and studied.

Ableism. Ableism is a form of prejudice and discrimination against the disabled (typically this means intellectually disabled with respect to resource allocation). This bias often leads to denial of access to the same resources and rights as the general population (Long, 2015). This form of bias has been described as “policies that institutionally discriminate, mainly against children with rare impairments, leaving their families desperate and consigning them to a life of pain and inevitable premature death (Long, 2015, pp. 1121-1122).

Physical Age. Physical age is the chronological age of a candidate regardless of a more robust ability than the age suggests. Research suggests that the elderly are being assessed using culturally biased stereotypes. These attitudes perceive individuals in this age group as less physically or socially valuable than they are (ageism bias). These prejudicial attitudes influence the physical assessment of a transplant candidate (Curtis, 2006).

Mental Age. Mental age is the relationship of mental development to chronological development regardless of greater or lesser overall ability or value. Mental age is the numerator of the Intelligence Quotient (IQ), which is the assessment of mental development relative to the norm for that chronological age. The young may be assessed as intellectually disabled or delayed based on culturally biased criteria (ableism and mental age bias), influencing the mental assessment of the potential success of a transplant candidate (Long, 2015).

Physical fitness. Physical fitness is defined in this dissertation as meeting the criteria for survival in terms of biomedical factors (such as foreign tissue rejection) usually outside the manageability of the human candidate (Cherkassky, 2011).

Mental fitness. Mental fitness is defined in this dissertation as meeting psychosocial criteria deemed to be within the control of the human candidate. The use of validated instruments such as the Stanford Integrated Psychosocial Assessment for Transplant (SIPAT) and the Psychosocial Assessment of Candidates for Transplantation (PACT) evidences the separation of physical criteria from mental criteria, when making difficult decisions regarding which human candidates should receive rare organs and survive (DiMartini, Crone, Fireman, & Dew, 2008).

Assumptions, Limitations, Delimitations

This study assumes the secondary data source used is representative of the populations under study. As this repository is regulated by strict criteria and used to help document and make life and death decisions, this assumption should hold (U.S. Renal Data System, 2015). This study will also have some limitations. Obtaining a representative sample will be limited to the availability of the appropriate data in the secondary data source (the OPTN). As well, the independent variables are not within the control of the researcher (because the data already exists), and can only yield causal-comparative results (Johnson, 2001). In causal-comparative studies, causal inferences cannot be drawn and the results cannot be generalized to other populations because the physical age and mental age of the participants cannot be manipulated (Donofrio, Class, Lahey, & Larsson, 2014). Interpretation of the secondary data source without adjustments to the data may exhibit modest differences from adjusted data in the annual reports (Grams et al., 2011; U.S. Renal Data System, 1992). Another limitation, is that although the allocation industry seeks unbiased decisions, the possibility of cognitive bias in medical record tracking and decision making has been expressed in Molony (2016). Observational biases during the discovery of causes, and during the formulation of prognoses, diagnoses, and administrative decisions are possible. However, as these same decisional biases are the subject of this proposal, this limitation may highlight the need for this study and strengthen rather than weaken its findings (Molony, 2016).

This study has some delimitations as well. A delimitation is the choice of literature included to sufficiently represent the state of the research of the phenomena under study (assessment bias and class prejudice). However, the breadth of literature suggesting evidence of assessment bias might make the study infeasible if fully included, much as a sample from a living population must be feasibly sized since interviewing the entire human population would not be feasible.

Summary and Organization of the Remainder of the Study

End stage renal disease is the last stage of an illness that results in death unless the individual receives a kidney transplant very soon (Patzer, 2011). Unfortunately, the need is much larger than the number of organs, so candidates must wait for one on a list. The waiting list ranks people according to criteria like age and intellectual ability, even though less than 35% survive more than four years, while the average wait time is five years (Center for Bioethics, 2004; Patzer, 2011). There may be a significant difference between the wait times for less industrious groups versus those of most value to industry.

This is important because the delays experienced by the elderly (ageism) and by young people with special needs (ableism) mean that industrially unqualified candidates will not survive end stage renal disease (Curtis, 2006; Derrington et al., 2016; Grams et al., 2012; Wightman et al., 2014). The significance of this problem is that current assessment procedures may be a violation of the Declaration of Human Rights which guarantees the rights and dignity of all persons, not certain favored groups of persons (Danovitch, 2014; Reese et al., 2015; United Nations, 1948).

There may be a significant difference between the mean wait times of physical age groups and mental age groups as they await a transplant. A quantitative method with a causal-comparative design can investigate these group differences by collecting and analyzing data from the USRDS wait list (Johnson, 2001). This research may advance scientific research models of prejudice and suggest that current assessment procedures are infringements of the human rights and dignity of protected groups.

The timeline with approximate dates for completing this dissertation are listed in the following. The level 2 Grand Canyon University committee member review and Academic Quality Review with recommendations for the proposal will be completed by May 9, 2017. The level 3 defense of the proposal will be completed by May 12, 2017. The level 4 Grand Canyon University Institutional Review Board’s Review and approval of the proposal will be completed by May 17, 2017. The acquisition of quantitative participant data, analysis, and interpretation of findings will be completed by May 26, 2017. The completion of chapters four and five will occur between May 20, 2017 and May 31, 2017, with the level 5 requirements completed by May 31, 2017. The level 6 status will be complete by July 19, 2017.

Chapter 2 will explore the literature to date on the model, concepts and variables, methods, instruments and themes of this study, funneling the gaps in that literature toward the key hypotheses that argue for the premise of this research. Chapter 3 will describe the methodology, design, population, sample, data collection, data analysis, and ethics proposed to test the hypotheses of this research. Taken together, these three chapters will analyze the potential neglect of protected groups during the process of assessment.

Chapter 2: Literature Review

Of two evils choose neither. Don't choose the least, but let all evils alone.

Spurgeon, 1889, p. 341

Introduction to the Chapter and Background to the Problem

Introduction to the chapter. The purpose of this chapter is to thoroughly present the background needed to understand the premise of this research. This chapter has been broken down into sections to make it easier to become acquainted with these underlying concepts. The main sections are (a) the background leading to this proposal, (b) the theoretical framework used to frame this proposal, (c) a review of relevant literature, (d) past methods leading to the method used in this proposal, and (e) past instruments leading to the data survey approach in this proposal.

The survey of relevant literature will be further broken down into smaller sections to make it easier to become acquainted with the literature underpinning this research. These will be: (a) the problem, (b) the prejudice, (c) the past, and (d) the premise itself. Briefly, the problem is that the number of persons with End Stage Renal Disease (ESRD)—all of which need a life-saving kidney transplant—is greater than the number of kidneys available. The prejudice is a possible preference for industrial fitness when reducing the larger number of needy persons to a practical number of recipients. The past includes a history of official assessments constructed to reduce a much larger pool of candidates to a smaller number, accompanied by accusations of bias in that criteria against less favored groups. The premise is that the psychosocial criteria used to screen candidates for kidney transplantation is biased against less commercially valuable groups such as the elderly and the intellectually and developmentally disabled.

Lastly, a summary of this content will review the information presented in this chapter, in preparation for the method introduced in chapter three. This background chapter will aid in understanding the premise of this research, and help argue for the systematic collection and analysis of observations to see whether this premise may contribute to the existing literature.

How the literature was surveyed. The background literature was explored using the search features of university libraries (Grand Canyon University, King University, and University of Phoenix), and Google Scholar, each of which permits discovery of peer-reviewed articles. The databases scanned included Academic Search Complete, Credo Reference, Dissertations and Theses, Dissertations and Theses at Grand Canyon University, eBook Collection, eBrary, EBSCO host, JSTOR, Mental Measurements Yearbook with Tests in Print ProQuest, PsychInfo, PsychArticles, Sage, Social Sciences Citation Index, and Web of Science. The curriculum vitae of the individual authors were also used to identify relevant scholarly works associated with primary authors' most recent (or seminal) research, along with recommended sources available by scanning academic ListServs such as the American Psychological Association's Division 24

ListServ. Search terms included “psychological assessment”, “end stage renal disease”, “ethics of solid organ transplantation”, “prejudice models”, “intellectual disability”, “discrimination”, “social justice”, “antipathy AND prejudice”, “prejudice AND Allport”, “semantic differential”, “stereotype content model”, “interspecies model of prejudice”, and “amensalism”. Religious works were identified and scanned separately, using tools such as SwordSearcher study software, which offers theologically studied content in multiple languages, keyword etymology and comparison, and corresponding links to authoritative reference works that expound on those themes. In addition to surveying existing literature, subscriptions to recent scientific developments in closely related fields were used to identify the most current research developments (including cell biology, sociology, anthropology, cognitive ethology, and neuroscience), and primary authors were interviewed to clarify relevant concepts.

Background of the problem. End stage renal disease (ESRD) is a serious physical condition the outcome of which is always loss of life (Patzer, 2011). Medical science can delay death using techniques such as hemodialysis, however the technique itself has been described as intolerable. Many take their own lives rather than face a future of treatments, and they will eventually die anyway because hemodialysis only delays the inevitable. Solid organ transplant offers a way out of this intolerable condition—a new kidney from a cadaveric or live donor to replace the old one. Persons with ESRD look forward with hope to receiving a donor organ (even if that future too can be difficult to manage). The problem is that there are far more persons who need an organ than available organs (Patzer, 2011). This creates an equally intolerable condition in which medical professionals are faced with the task of developing criteria to help decide who lives and who dies. Inevitably, those who are refused an organ will feel unfairly treated by society and agitate for inclusion in the general pool of those whose human rights are not in danger of exclusion (Fyson & Cromby, 2013; Ubel & Loewenstein, 1996).

The literature on the evolution of this problem will be thoroughly surveyed. The literature on the psychological study of prejudice against some groups and favoritism for others will be surveyed. The literature on the discovery of and industrialization of grafting living tissues between living things will also be surveyed, as well as the difficult ethics it has engendered. The history and current state of the premise of this research—which proposes that the criteria used to screen candidates for receipt of sparse organs is biased against less commercially valuable groups such as the elderly and the intellectually disabled—will also be surveyed. This survey of the literature will provide a backdrop against which this proposal will argue its hypotheses.

This survey of the organ recipient selection problem, the prejudice against certain groups, the past discovery of how to prolong life but not how to avoid trait bias in the process, and the premise that the intellectually and industrially fit enjoy prolonged life while the intellectually and industrially unfit are neglected by assessment, will point to a gap in the research. In summary, the problem is that the number of persons in need of a transplant is greater than the number of kidneys available. The research of selection criteria suggests that the elderly are delayed or denied a transplant because of age stereotypes, even though their post transplantation outcomes are similar to younger candidates (Grams et al., 2012). The research of selection criteria also suggests that those with intellectual or developmental disability are delayed or denied a transplant because of intellectual stereotypes, even though their post transplantation outcomes exhibit similar success to those without this disability (Wightman et al., 2014). The past of this problem includes a human perception that living tissue is mainly here to prolong mental life, or to exploit for industrial growth. This research will argue that assessments of mental fitness have been historically used to screen out mentally feebler candidates from among the population of physically viable candidates, whenever the demand for vital resources outweighs the supply.

Theoretical Foundations and/or Conceptual Framework

The model for this dissertation is based on a set of evolving models of prejudice in the psychological literature. Each of these models of prejudice has successfully described the various relationships between the classes that prejudice describes. This evolution of models may be summarized by three perspectives: (a) human v. human prejudice, (b) human v. non-human prejudice, and (c) human enough v. not human enough prejudice. In the first model, the Stereotype Content Model (SCM), prejudice has been modeled as human to human, and to reach affection each human must demonstrate competence (Fisk and North, 2014). In the second model, the Interspecies Model of Prejudice (IMP), prejudice has been modeled as human to animal, and to reach affection each animal must exhibit service (Costello & Hodson, 2014). In the third model, the Value/Threat model, prejudice has been modeled as more human versus less human. In this model, to reach acceptance and survival, each living thing (human or animal) must identify with one thing (a certain value), and dis-identify with every other (any threats to that value) (Hodson, MacInnis, & Costello, 2014). The Value/Threat Model uses “humanness” as the value which must be identified with, and this overvaluation results in the super-humanization of similars and the infrahumanization of dissimilars. In the past, the superhuman classes approached deification or enduring group value, and the subhuman classes approached demonization or enduring group threat (Gilhus, 2006; Hodson et al., 2014). According to Roberts (2015), estimates of intelligence have historically been used to define more human from less.

However, the hallmark of each of these models is a distinction between what is held to be superior (more) versus what is held to be inferior (less)—even when each side of the comparison is said to be the same species or in the same category. The splitting of similar things occurs because of a common need which is not common enough to go around. The splitting eventually looks like four quadrants (like the SCM model) with odd mixtures of likability and unlikability. The relative likability is used to justify the deprivation of disliked groups and to emphasize the need for the survival of the liked group (Fiske & North, 2014; G. Henriques, personal communication, June 17, 2016). In this dissertation's model of class prejudice, industrial fitness is held to be superior to simply being physically alive, with the former (an individual's value to human industry) often assessed to determine access to well-being (social intimacy) and even to determine the allocation of organs needed to survive.

This extension of the prior models is argued on the evidence that mental differences do not differ significantly from physical differences (because we view them both using the same mental processes). For instance, equivalent terms used to describe biological symbiosis (mutualism, commensalism, parasitism, and amensalism) may be used to aptly describe the mixed attitudinal dimensions in the four quadrants of the SCM model of prejudice (Brucker & Bordenstein, 2012; Paracer & Ahmadjian, 2000). This new model of prejudice appears in Figure 3. These well-defined and well-studied terms from the biological sciences seem to apply whether they occur between “more human” humans and “less human” humans, “real” humans and non-human animals, or simply “more cognitive” creatures and “less cognitive” creatures. The exceptionalism of mental attitudes approximates a perspective biased in favor of intellectual survival, rather than the manifest superiority of intellect over biological diversity (Debernardi & Serrelli, 2013; Margulis, Asikainen, & Krumbein, 2011).

The enduring overvaluation of one group or criterion can be framed as a group bias for the enduring undervaluation of every other group or criterion (Hodson et al., 2014). Fiske (2013) has argued that “prejudice” is a social psychological construct that stems from the human habit of mentally subdividing the members of a physical species into psychological classes. Consequently, those physical species struggle to identify with where they fit as individuals (or cluster as a group of individuals) within those mental classes. Curiously, this is what Erikson described with his famous psychosocial stages as well (and which Marcia described well as identity crises). According to Fiske (2013), this struggle is not so much natural as it is required to reach basic needs via social status. This too is the hypothesis of this dissertation, because whenever living things are assessed on the basis of psychological criteria, their physical needs take a back seat to mental criteria. As Biernat and Danaher (2013) put it, the mere act of categorizing some things as “in” and others as “out” is all that is required for a group prejudice (prejudgment). Darwin’s theory of a struggle for existence “in a large sense” continues to apply even if that struggle is extended to include mentally fit species versus physically fit species—whenever an egalitarian allocation of basic needs is not possible (Darwin, 1876, p. 39).

The theoretical model for this research suggests that mental classification is also a form of prejudice, and may be analyzed by exploring the process and outcome of selecting preferred candidates for kidney organ grafts.

Review of the Literature

The literature was researched to find the history of this topic and the current state of research on this topic. The themes that were identified were prejudice, psychological assessment, intellectual disability, and the allocation of sparse organs. These themes will be explained in the following.

The problem. The problem is that there are far more persons in need of a replacement organ than there are organs. This dilemma creates a new dilemma (because now medical professionals must agree upon criteria that decide who lives and who dies). Human beings denied an organ will invariably feel unfairly treated, whereas some kind of bias must be adopted to allocate too few between too many (Patzer, 2011).

End stage renal disease. The final stage of kidney disease is called End Stage Renal Disease (ESRD). According to Patzer (2011), this stage is when the physical body is no longer able to filter out and remove waste products through urination, resulting in uremia (i.e. the bloodstream becomes toxic and poisons the cells). Although kidney hemodialysis can prolong survival (by filtering the blood through an internal/peritoneal or external appliance), dialysis cannot prevent death—nor the gradual worsening of physical and mental symptoms that inexorably collapse hopes of well-being. A way out of this downward spiral is kidney replacement therapy, also known as a graft or transplant. The difference is dramatic—from an average maximum of 5.9 years of remaining life to 16.4 years, with the possibility of an additional graft when the first one wears out (Patzer, 2011).

Many need a transplant. Even though persons with ESRD may look forward to the medical advance of a successful transplantation procedure, there are too many persons in need of a transplant. As of January 11, 2016, about 100,791 persons were on the kidney transplant waiting list, not including those disqualified from the list due to inadequate mental or physical fitness (National Kidney Foundation, 2016). The median wait time for a first-time transplant was 3.6 years during which time the individual might succumb to the disease before a kidney becomes available. On average, 13 people a day succumb to end stage renal disease (die) while waiting for a transplant—even if they qualify. The growing deviation between the number of candidates on the waiting list (and undergoing dialysis) versus those that receive a transplant (successfully or unsuccessfully) is shown in Figure 1.

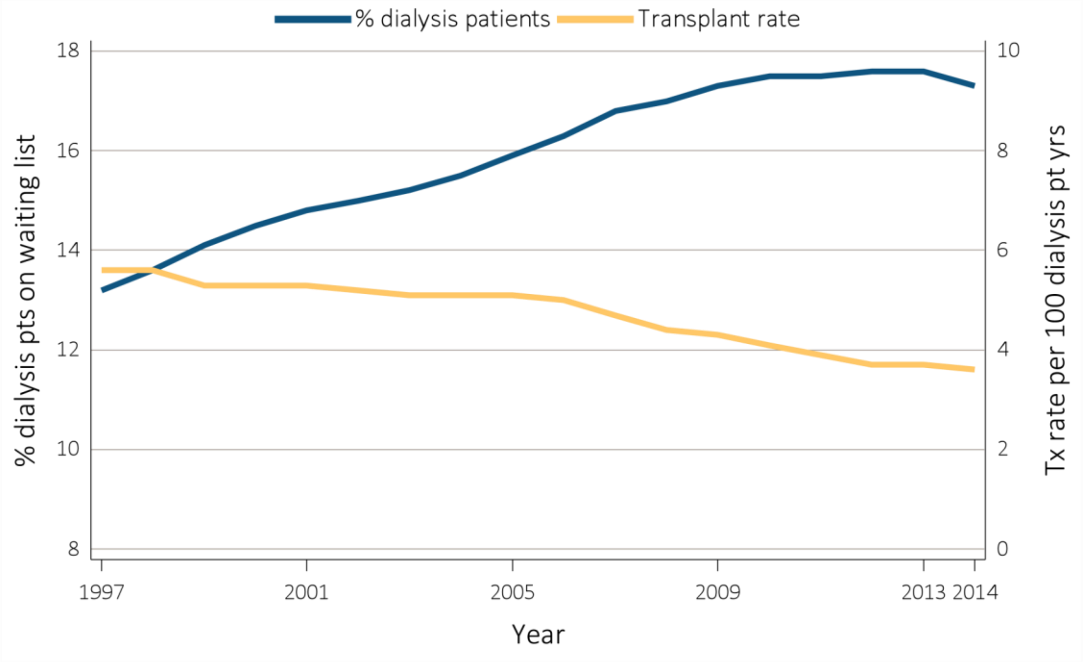

Figure 1. Wait-listed dialysis patients and unadjusted kidney transplant rates, 1997-2014

Few organs are available. Even though the demand is high, the supply of viable kidneys available for transplantation is much lower. The widening of this ratio (between persons in need of an organ and available organs) makes the odds of receiving one (before physical death occurs) less and less likely. Statistics show that 17,914 kidney transplants occurred in 2014, whereas over 88,231 persons needed one (not including persons in need of a kidney not on the list of persons undergoing dialysis and qualified for a kidney graft). The outcome of this relational inequality has been a competition to “make the list” and achieve an overall score of mental and physical fitness, so that the waiting time is lower than the chance of death.

The ethics of selection. A fundamental issue in the allocation of sparse kidneys to needy candidates, is that the demand is much higher than the supply, and this relationship continues to get worse (Choi, Gulati, & Posner, 2014). The limited supply creates the need for difficult decisions, and the criteria needed to make these decisions may engender moral and ethical questions more difficult than the decisions themselves. Several scales have gained popularity that can identify and prescreen candidates that have psychosocial risk factors, thus allowing some to be referred for further psychological testing prior to making the waiting list (Maldonado et al., 2012). Several groups argue that this practice is unfair to individuals with intellectual disability (Baynton, 2013). More importantly, any delay in reaching the waiting list increases the odds of dying from the illness, since waiting time (not criteria) has been shown to be the most significant risk factor (Meier-Kriesche & Kaplan, 2002).

One possible solution is to allow the buying and selling of organs, yet such a proposition is neither permitted by law nor would public opinion view this issue lightly

(Choi et al., 2014). Some legal researchers have suggested workarounds such as the ability to donate a kidney in exchange for a donation of funds to a designated charity. This is called an *altruistic exchange*. A one-sided or two-sided altruistic act would then indirectly provision the buying and selling of organs, if passed by Congress. Legal researchers have hypothesized that this would motivate more donors (out of altruistic motivation) and thus increase the supply, lessening the need for stringent criteria during the selection of candidates (Choi, Gulati, & Posner, 2014). However, new issues arise such as whether these altruistic contracts will be honored by both parties, or whether the organ will survive the donation/transplantation process. As well, altruistic exchange is still a commerce of human organs, albeit indirectly.

The prejudice. The prejudice is a bias during candidate assessment which results in groups with specific traits having to experience longer wait times for life-saving kidney transplants than others. Two such groups are the young with delayed intellectual development (a prejudice called ableism), and the elderly with failing mental abilities (called ageism). Psychological assessment is newer and its standardization is still in process, whereas physical assessment has established criteria which are more difficult to debate. The increasing number of qualified candidates and the incapacity to wait on a list more than a few years before succumbing to end stage renal disease, is requiring an increase in the criteria needed to score and thus screen out qualified candidates. This new criteria favors commercially viable qualities such as mental fitness over physical viability, on the basis that mental fitness is needed to hold a job and to host the care of the grafted organ. This form of mental age bias is equivalent to other forms of prejudice, such as heritable traits, race, age, gender, ethnicity, or socioeconomic status during the allocation of sparse resources among culturally favored groups. Those with healthy bodies but challenged mental faculties seem unfairly screened out, or delayed until they indirectly perish. The impact seems to be a large difference in the number of transplants for ideal physical and mental age groups (groups of working age) over other age groups (see Figure 2).

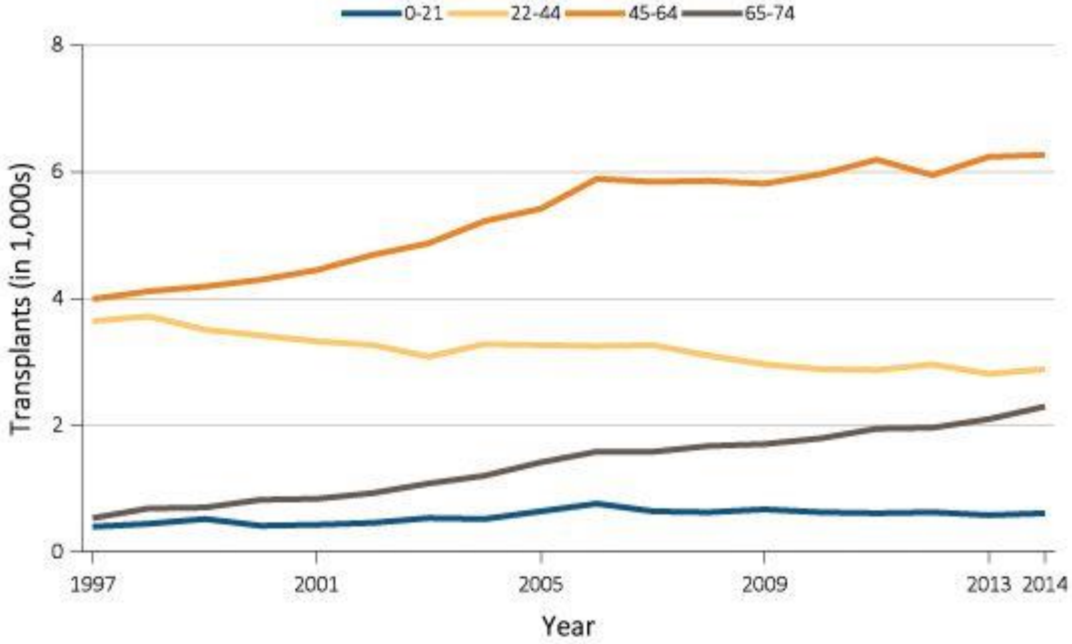

Figure 2: Number of kidney transplants by age, 1997-2014.

Mental Age Bias. Social bias against groups whose mental age seems less developed than their physical age has a long history, dating back at least to Francis Galton, who is credited as the father of the eugenics movement. This scientific movement argued that intelligence was an inherited trait, resulting in a kind of mental fitness and justifying of social privilege (Roberts, 2015). The first mental assessments were conducted in London in 1882, to emphasize a believed association between intelligence and inherited social status. These tests of cognitive superiority and cognitive inferiority allowed the ranking of individuals by a score of mental fitness, mainly to help legitimize and maintain the unfair social order. Although Alfred Binet—the author of the IQ test—objected to the use of his test as a means to measure the cognitive ability of school children, it gained widespread popularity in the United States for that purpose. This mental test was used after 1904 as an efficient way to measure large numbers of school children for cognitive impairment. Intelligence testing was further confused with moral ability, resulting in ranking the social worth of various groups of human beings according to intellectual superiority (Roberts, 2015).

Mental assessment also became a useful criterion on Ellis Island in 1913 for Goddard, who helped implement the screening of large numbers of immigrants for mental impairment. The similarity of screening large numbers of immigrants to reduce their number to a manageable figure, and the screening of large numbers of transplant candidates to reduce their number to a manageable figure, seems evidential. Goddard maintained, as Galton did, that cognitive impairment was inherited and would probably result in unproductive or criminal behavior if permitted entry (Roberts, 2015). Brigham, in 1923, concluded that the intelligence testing of army recruits in large numbers helped point out the inferiority of certain races such as those of Alpine or Mediterranean descent—along a spectrum from White to Black. Brigham’s analysis in particular suggested mental bias was present during the analysis of data from psychological assessments.

Roberts (2015) argued that psychological assessment still continues to try and rank persons by “higher or lower intelligence based on biological differences” and thus predict their suitability to fill productive social roles (p. 51). Baynton (2013) stated that the modern prejudice against disability (physical age or mental age) is part of a long tradition of justifying inequality across U.S. history—by means of "unequal and differential treatment" (p. 33). After accusations of prejudice and discrimination against the female gender and dark-skinned races, mental incapacity has also functioned as a justifiable discriminatory dimension. Similar to a causal-comparative design in which measured traits cannot be manipulated, marginalized groups cannot change their social categories and thus disprove society's reasons for them to be marginalized. Baynton (2013) explains that the same basis for unequal treatment of women (less rational, too emotional) is synonymous with 'mental disability' among men. Rather than deny these differences, these groups have appealed to the dominant group not to see these differences (which make them special as a group) as faulty or 'inferior'. Even handedness (chiral preference) has been historically viewed as a flaw in a right-handed norm and been compelled to conform (Corballis, 2014).

Physical Age Bias. Bias against a less-than ideal physical age has a long history as well. Different age cohorts (such as those Too Young, Too Old, or Too Slow to be productive) have experienced marginalization by the predominant age group. The elderly, having outlived their productive years, are frequently perceived as liabilities—unlikely to contribute as much as the "Just Right" group between the ages 18 and 64 (Curtis, 2006). The young, if they seem unlikely to develop academically and intellectually, are also seen as liabilities, with inconvenient (special) needs that detract from the common resource pool (Derrington et al., 2016). Yet, in 1901, G. Stanley Hall and Preston Willis Search published works on the growing overemphasis on intellectual development over physical well-being. Search (1901) described this as "a failure to recognize the physiological needs of pupils" and their "physical deterioration" (p. 51-52). Hall described it this way:

> When a child begins to go to school the change of his environment is very great. Instead of constant activity, he must now sit still and keep still; instead of moving his hands and arms freely, the strain of effort is now focussed [*sic*] upon the very few tiny, pen-wagging muscles. The eyes, instead of moving freely, are confined in the zigzag treadmill of the printed line. It is no wonder, therefore, that the child so commonly loses weight on first entering school; that short-sightedness and other eye troubles increase almost regularly through the school period; that headaches, anaemia, scoliosis, defects in development if not signs of disease, appear in the stomach, heart, and lungs, and especially in the nervous system, the gradual deterioration of which is hard to recognize (p. 55-56).

Search (1901) went on to emphasize that “there is absolutely nothing in the legitimate field of intellectual activities that need deteriorate physical health” (p. 57). Holman advocates the societal value of *non-knowing growing*, and Gray states “play is one of nature's methods for healthful development, and has a rightful place on the curriculum as any other subject” (Gray, 2013; Holzman, 2014; L. Holzman, personal communication, August 5, 2016; Search, 1901, p. 7). The emphasis on mental growth continues to result in negative developmental outcomes, and the incapacity to understand social boundaries or get along socially (Arger, Sanchez, Simonson, & Mezulis, 2012; Gray, 2013; Panksepp, 2010). Psychological assessments that favor intellectual development and age-related criteria (which are less likely among the very young and very old) may be neglecting other factors, such as how society treats people hoping to get a transplant (Ubel & Loewenstein, 1996). The industry of culling candidates with undesirable traits may eventually lead to genetically unsurvivable traits, while trying to accommodate untenable numbers of persons in need of psychological therapy (Fischer-Mamblona, 2000; Grandin & Johnson, 2005).

Competence over warmth. The Stereotype Content Model has accumulated significant empirical research, arguing that prejudice is not just about hostility, or black and white dimensions. According to Glick & Fiske (2012), this model can show how prejudicial and non-prejudicial attitudes tend to cluster into four quadrants. This occurs because human social cognition imagines a relationship between purely cognitive factors (criteria) and more viscerally appreciated affective factors (feelings). These symbolize the perceived “fitness” of another group (its *competence*) in terms of one’s feelings of trust/connectedness toward that group (*warmth*). So, if a group with a certain set of traits is viewed as both “fit” and with feelings of “warmth” too, that group is not seen as the competition (immediate threat) but as an ally (future security). The equivalence of these value judgments with assessment criteria against which candidates for survival are ranked is very strong (Ubel & Loewenstein, 1996). Per Roberts (2015), the history of ingroup prejudice shows a remarkable clustering of outgroups that have represented imaginary threats to ingroup status (for example, *feeblemindedness* during the eugenics and immigration fears eras). These correspond to fears of biological contamination embodied in abstract group cognitions of having been “chosen” to survive. This fear of mental mortality (rather than physical mortality) has a prominent place in psychological research as Terror Management Theory. In this theory, fears of ideological mortality (death of the social self) represent a lasting conflict between the mental ingroup and the biological outgroups it sees as impediments to its mental survival (Biernat & Danaher, 2013; Leyens, Cortes, Collange, & Renesse, 2014). This threat/value model is also posited by Hodson et al. (2014) and has a presence in the literature as the super-self or Übermensch (Crowell, 2016; Cybulska, 2015).

Grafting over natural outcomes. One of the questionable ethics of grafting plants has been the desire to scorn/avoid juvenility (skip the epoch of childhood due to lost time and increased costs) and thus reach flowering and fruiting sooner. The unproductive epoch of free growth (juvenility) does not seem favorable to human industry (Mudge, Janick, Scofield, & Goldschmidt, 2009). Lessons learned in agriculture seem to have been applied to human development, with a gradual foreshortening of undirected playtime in exchange for earlier mental education. The view that grafting one living thing into another does no harm may also be an inaccurate perspective, if researchers are correct. Margulis et al. (2011) use the term *chimera* to represent the human organism whose many living parts and purpose contribute like a diverse community to the survival of the living system. This unusual ecological perspective has challenged the enduring paradigm of Cartesian dualism (a mental half and a physical half). If so, mental prejudice is not only unfair, but inaccurately overvalues what only appears to be a separable mental actor with interchangeable (disposable) organs. The view of salvaging (harvesting) living things to prolong a phenomenal self may not be scientifically sound (Gilbert, Sapp, & Tauber, 2012; Margulis et al. 2011). If research frontiers continue to affirm these findings, a separate mental assessment contingency may need reevaluation—especially since many applicants do not even reach the waiting list. After a brief, gross mental assessment, they are referred out for further psychological tests which may or may not occur, and the delay in reaching candidacy means the person will perish (Meier-Kriesche & Kaplan, 2002).

Planned over natural propagation. Another questionable ethic of grafting plants has been the unnatural regulation of sexual activity to foster offspring with specific traits (Grandin & Johnson, 2005; Mudge et al., 2009). Human individuals with severe mental illness have also been prohibited from mating and bearing offspring in many cases—while those with sufficient mental fitness (meaning industrial fitness in most cases) are not constrained (Baker, 2017). A connection to the eugenics era is possible (since the eugenics movement also evolved from knowledge gleaned from the genetic study of and manipulation of plants). If those with intellectual disabilities are prevented from bearing offspring, it is possible their longevity is also not favored when faced with the decision to allocate scarce organs to psychometrically evaluated candidates.

The bell curve of human intelligence. In 1994, a book called *The Bell Curve* was published reiterating a scientific basis for mental prejudice. This work argued against social programs for the impoverished on the basis that their condition was genetically irreversible, similar to stereotypes about persons of Asian or African descent outlined by Rushton (Mason, 2013). The scientific literature exhibits prominent works such as this, arguing for the non-allocation of sparse resources to those of inferior mental capacity. These arguments have sought theoretical and empirical evidence to alter public opinion in the interests of cost-efficiency and ethical use of resources, while raising questions about actually representing the interests of the public. According to Ubel and Lowenstein, for example, the decisions made by the transplant system do not agree with the value the general public places on equity (Ubel & Loewenstein, 1996). The authors state: “It is possible that many transplant surgeons would not transplant a patient whose chance of surviving after transplant was only 20%. Yet a majority of subjects in this study would give them almost equal priority in receiving organs as patients with much better prognoses" (p. 1054). Moreover, the bell curve symbolizes the predominant group's right to human rights violations (United Nations, 1948).

The past. The problem (that some groups are being neglected by psychological assessment) can be understood in part by investigating the past literature on assessment construction and use, prejudice research, the origins of grafting, and the struggle to deal with the difficult ethics associated with grafting. These topics will be addressed in the following sections.

The history of assessment. A succinct history of psychological testing is mentioned in Greenwood (2015). The testing of levels of intelligence and the ability to fill social roles dates back at least to ancient China around 2200 BC to determine fitness for public offices. Criteria were based on cultural belief systems at the time, such as Confucianism, and were continually updated in search of the most effective selection criteria. Modern psychological assessments of general mental fitness may be traced back to the late 1800s with the experimental work of Wundt and Galton, and early 20th century work by Cattell. Binet introduced the intelligence scale in 1905 and Goddard drew from this work to develop criteria to reduce the overwhelming number of immigrants to a more reasonable number representative of desirable candidates. Terman revised Simon and Binet's work and developed the Stanford-Binet test. The need to develop criteria to reduce the overwhelming number of recruits during the world wars also added to the development of testing criteria. The Wechsler Intellience Scales for adults and children were added between 1939 and 1949 (Greenwood, 2015).

The history of prejudice research. A succinct history of the psychological study of prejudice as mentioned in Zuma (2014). At the beginning of the 20th century, prejudice was framed and studied as an unresolved racial problem. Thurstone is credited with studying nationality-based prejudicial attitudes among undergraduate students. Soon after, Bogardus conducted work on “social distance” to distinguish superior things from inferior things on dimensions such as intimacy, antipathy, and friendliness. Guilford’s work questioned whether the new psychometric restrictions aimed at reducing immigration were excluding the opinions of the public at large in those decisions as to whom to allow entry to (Greenwood, 2015; Zuma, 2014). Up until World War II, however, prejudice was still perceived as an unfounded racial bias. The advent of that war expanded the concept to groups that saw themselves as superior in general, since superiority is a predominant factor in racism, and measurable using scales such as Social Dominance Orientation/SDO (Pratto et al., 2013). Allport developed what became the dominant theory of prejudice based on intergroup hostility studied under the term antipathy, remediation of which might be accomplished via intergroup contact and common goals, studied under the phrase Contact Hypothesis.

The Osgood Semantic Differential Model suggested the existence of social attitude dimensions such as evaluation, potency, and activity based on the meaning of social concepts (Kervyn, Fiske, & Yzerbyt, 2013). This scale allowed observation of hidden attitudes toward any mental object, such as events or non-human objects in addition to other humans. Rather than challenging the extant antipathy model or more recent models, the SD model has allowed inspection of mental/social attitudes in general, using spectrums of attitudinal contrast such as unsatisfactory/inadequate to satisfactory/adequate, bad/evil to good, and valueless to valuable (Fennell & Baddeley, 2013; Mattson, Rogge, Johnson, Davidson, & Fincham, 2013).

The antipathy model of prejudice was challenged when researchers provided evidence that both positive *and* negative emotions were involved in prejudice, often blended into inexplicable combinations (Glick & Fiske, 2012). Prejudice between genders was shown to exhibit both negative and positive attitudes toward women by paternally placing women on pedestals while treating them as inferior (Rollero & Fedi, 2012). By 2002, this model of prejudice as a mixture of unfair social categorizations had matured into the Stereotype Content Model or SCM (Fiske & North, 2014). The SCM model eventually became a significant challenge to the antipathy model, demonstrating that prejudice was a combination of stereotypical emotional and cognitive attitudes. The endearing aspect was captured in a maternalistic vertical axis as affiliative warmth/coldness, while the inferiority aspect was captured by the paternalistic horizontal axis as competence/incompetence (Kervyn, Fiske, & Yzerbyt, 2015). This breakthrough permitted dissonant emotional mixtures to cluster into quadrants that helped explain the often inexplicable combinations of antinomous social attitudes. In exchange for acceptance of inferior status along one axis, outgroups could attain a measure of affiliative warmth on the other.

However, models of prejudice have centered around the human species only—while maintaining implicit prejudice against non-human species by continuously denying their inclusion in the calculation of biological fairness. In seminal work by Costello and

Hodson (2014), researchers asked whether prejudice was excluding something more than a single dimension like antipathy, or even a mixture of clustered dimensions suggesting ambivalence. Perhaps research on the social psychological concept of prejudice was excluding irreconcilable mixtures toward living things in general, since the same animals (dogs and cats for example) were viewed as both endearing companions and as inferior species too, just like women. Across multiple studies, these authors have shown how human to human prejudice is a developmentally learned cognition variously applied to immigrants, the Black race, outgroups, and non-human animals—but first acquired as the belief in the superiority of the human species over animals (Costello, 2013; Costello & Hodson, 2014; Hodson, Kteily, & Hoffarth, 2014). Further, these authors have shown that rethinking the human-animal divide can alleviate human to human prejudice too (Dhont, Hodson, Costello, & MacInnis, 2014).

Although the model of prejudice has been expanded to be far more encompassing, a gap remains connecting the notion and science of prejudice to the study of human cognitive distinctions themselves. In the competition for survival, biological species seem to be losing the struggle against mental species, even though mental activity cannot survive without them (Gibbons et al., 2000). This suggests a strong equivalence to an ecologically amensal relationship between mental and physical species. An opportunity exists to add mental bias to the long list of types of bias. Much like the demeaning attitudes often held by males for females, or humans for non-human animals, mental values seem to view physical values as *endearing yet inferior* (Glick & Fiske, 2012). The same quadrants of mixed emotions—antipathy, apathy, pity, reverence, contempt and more—seem to aptly describe relationships between psychological concepts and physical concepts. These equivalent relationships are visualized in a proposed model of mental favoritism in Figure 3.

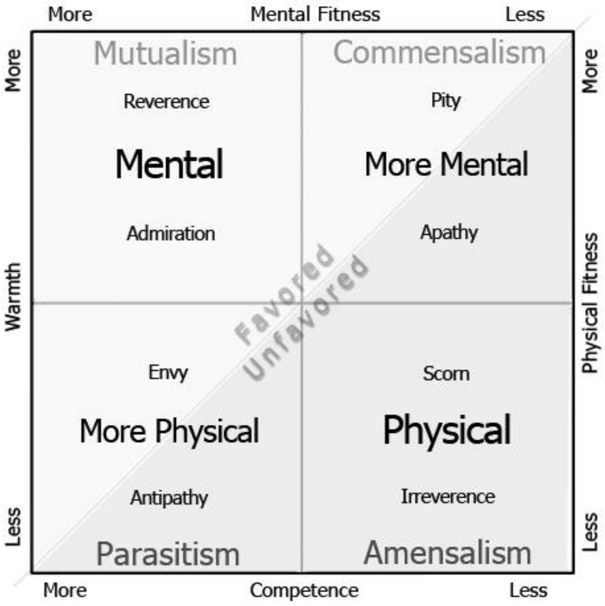

Figure 3. Intellectual Stereotype Model of mental favoritism, based on the dimensions of the Stereotype Content Model.

The history of excluded traits. The history of groups excluded because of undesirable traits is well-studied. Prejudice among the human species has separated rich from poor, citizen from non-citizen, White from Black, old from young, obese from fit, healthy from unhealthy, man from woman, European descent from Mediterranean and Asian descent, highlander from lowlander, faith from faith, class from class, and ingroup (of any kind) from outgroup (of any other kind). The study of prejudice continues to broaden to include interspecies models with significant data to support the hypothesis that human prejudice is first learned by viewing animals as inferior.

This “evolution” of the study of class prejudice may be summarized by three perspectives and their respective models: (a) human v. human prejudice, (b) human v.

non-human prejudice, and (c) human enough v. not human enough prejudice. In the Stereotype Content Model (SCM), prejudice is human v. human (Fisk and North, 2014). In the Interspecies Model of Prejudice (IMP), prejudice is human v. non-human animal (Costello & Hodson, 2014). In the Value/Threat model, prejudice has been modeled as more human (superhuman) versus less human (not human enough) (Hodson, MacInnis, & Costello, 2014). However, the hallmark of each of these models is a distinction between what is held to be superior (more) versus what is held to be inferior (less)—even when each side of the comparison is said to belong to the same species or the same category. Though the mind and the body are essentially one creature, they are often treated as two different creatures with differing rights.

Group differences are frequently used to help explain/justify societal prejudice, which in turn justifies unequal benefits (social privileges), often by withholding access to basic biological needs fundamental to survival (Fiske & North, 2014; G. Henriques, personal communication, June 17, 2016). In this dissertation's model of class prejudice, industrial fitness is held to be superior to simply being physically alive, with the former (an individual's value to human industry) often assessed to determine access to social intimacy and even continued physical survival.

The history of grafting living things. Experimental surgery on living tissue—to find a cure, grow medical knowledge, or to prolong the life of one creature by shortening the life of another—has a long history prior to its scientific application. This practice is called grafting, and has been practiced on both plants and animals since the first civilizations began to experiment with agriculture and animal husbandry. Grafting and transplantation are similar terms and are sometimes used interchangeably. However, a graft is a piece from one organism joined to another host organism whereas a transplant is the uprooting of an organism and its implantation in another. Grafting of plants can been traced back to Mesopotamia circa 1800 BCE when human nomadism and migration gave way to settlements, agriculture, and horticulture (Mudge et al., 2009). Grafting and vivisection originated with experimentation on and modification of living things. These intentional modifications sought to increase favored traits such as the edible grain and fruit of seed bearing and fruit bearing plants. According to Mudge et al. (2009):

> Grafting can be defined as the natural or deliberate fusion of plant parts so that vascular continuity is established between them (Pina and Errea 2005) and the resulting genetically composite organism functions as a single plant. (p. 439)

This experimentation on plants logically extended to animals, in which view the organs and parts of animals and plants were seen primarily in terms of a composite, surviving entity (even if the grafted parts frequently did not survive). The widespread practice of animal testing to better predict human health outcomes, can be traced to the ancient practices of *haruspicy* and *anthropomancy*. During haruspicy, animals were sacrificed to divine hidden meanings important to human futures (Gilhus, 2006). The same word—sacrifice—is still used in science today and acknowledged by science as such (King & Meehan, 1973; Seligman, 1967). This same word still evokes both an odd sense of compulsion to continue with the practice, and an apologetic sorrow for doing so, else risk the survival of the species or fragile members of it. Anthropomancy was a similar practice on humans (often children). The incidental scientific knowledge gleaned from widespread ritualization and commercialization of these divination practices is recorded as part of the history of human autopsy and animal testing (King & Meehan, 1973). Both of these practices grew scientific knowledge and provided industries for the acquisition, transport, management, and sacrifice of animal subjects for civilizations like Rome (Gilhus, 2006). An opportunity exists to ask whether haruspicy continues in modern times under the auspices of scientific and commercial enterprises, with no benefit to the test subjects (U.S. Department of Health and Human Services, 2016; Wanderer, 2015).

The paradox of ethics while grafting living things. The practice of grafting organs from one body to another was not always looked on favorably. This experimentation on plants and animals was challenged by some as unethical or unnatural, just as some challenged the practice of human slavery to benefit food production (Glaholt, 2012). These challenges were not unsubstantiated, because the practice of grafting sought asexual propagation (unnatural mating), scorn/avoidance of juvenility (loss of the unproductive epoch of childhood growth), unusual growth forms for ornamental use or entertainment, unusual size limitations, and the selective nurture of traits favorable to human food production—rather than consideration of the plant’s or animal’s needs (Mudge et al., 2009). The widespread use of animals for vivisection to train students in anatomy and physiology continues to engender debates. These ethical debates ask whether the learned objectivity (cognitive detachment) derived from cutting open live subjects is separable from the willingness to vivisect the human species (Vasudevan, K., & Supriya, 2011). These live subjects (which would not be labeled participants in a human study) do not have rights, although various groups strive to grant them rights. Intellectually disabled persons also seek rights, for example the right to be included equally when sparse organs are available to continue living.

The favoring of specific traits has not led to better outcomes. Factory farming has resulted in poultry bred to emphasize physical attributes such as meat volume and egg color. This has led to biological and psychological side effects that have decreased physical well-being and increased the incidence of mental disorders (Grandin & Johnson, 2005). Factory farmed chickens exhibit legs and feet that cannot support their weight, leading to considerable suffering. Specially bred roosters exhibit “raping” behaviors—both suggesting hidden, undesirable impacts of unnatural selection when the affected species are not permitted to elect their own futures. Science research and the education of future researchers dissects large numbers of living, non-human animals. Many of these are endangered wild animal species, and those not in danger survive only because they are raised solely for use by human industry (Vasudevan, K., & Supriya, 2011).

In modern cinema, the ethics of hoping for the death of one individual so that his or her organs may be harvested for another individual have not gone unnoticed. Movies such as *Lifebreath* contrast the SCM’s dimensions of warmth versus competence when a husband is faced with his wife’s death unless a matching set of organs becomes available (Watkins, Fogel, & Posner, 1997). The impending death of a beloved attachment is perceived as outweighing the ethics of hastening the deaths of less-beloved people to make their organs available for harvest. Similar to the famous Trolley Problem, many surveys suggest that “anything goes” when faced with the imminent death of a loved one (the SCM’s status premise). The willingness to take the lives of millions of animals to save a few human lives connects to a long history of animal divination, experimentation, and live animal sacrifices to mental idols (what some have called *cognitive idolatry*) (Wanderer, 2015).

The history of organ transplantation. The methodology for this research study will analyze kidney transplantation data, representing the allocation of sparse organs to a much larger number of candidates (Appel & Vaidya, 2014; U.S. Renal Data System, 2015). That history is very recent—with the first kidney successfully transplanted in 1954 (United Network for Organ Sharing, 2015). Other crucial organs (the heart, liver, and pancreas) were successfully transplanted in the 1960s and 1980s (the lungs and intestines). However, organ rejection, biological factors, and psychological factors have plagued the effort to extend human life. The struggle to overcome these rejection factors with an ever-increasing demand for donor organs continues, by seeking to identify the best criteria for candidacy (Maldonado et al., 2012).

The history of candidate selection. The selection of suitable candidates to receive organ replacement therapy originated with the need to overcome biological rejection factors (between organ and recipient) during kidney transplantation (Maldonado et al., 2012). From the first kidney transplant in 1954 to an almost routine procedure (able to extend human life) took only 30 years to develop. Eventually, the physical criteria were standardized and could almost be methodically matched (Maldonado et al., 2012). However, the ratio of viable organs to needy candidates could not be standardized. The need for additional criteria was proposed by the psychiatric and psychological communities, as a means to fill this gap in the medical need for difficult decisions. According to Chacko (1996):

> Given the extraordinary stresses associated with organ failure and terminal illness, and the complex process involved in the selection of transplant candidates for scarce organs, the participation of psychiatrists and behavioral scientists has

> become increasingly commonplace and virtually universal for certain organs. (p. 100)

As a result, over the next 30 years (from 1980 onward) there arose a new need to formulate additional criteria—because of the increasing number of applicants and a fairly stable number of limited donor organs. These ethical challenges evolved into a number of empirical arguments from the mental health community, which argued for the addition of psychiatric and psychosocial assessments to the biological rejection factors (Kumnig & Jowsey-Gregoire, 2015; Trzcinska & Włodarczyk, 2011).

As the allocation of sparse organs to a subset of candidates became more commonplace, mental health professionals argued for inclusion. Available metrics included the Health Status Questionnaire (HSQ) which surveyed both physical capability and overall mood, the Beck Depression Inventory, and the Mini-Mental State Exam which could detected gross cognitive abnormalities (Chacko, 1996).

Once the need to argue for interdisciplinary decision-making was no longer a need, the need to develop a means for mental health professionals to assess candidates in a more standard fashion became important. Perhaps the most notable scale in use has been the Psychosocial Assessment of Candidates for Transplantation (PACT). This scale uses a 5-point scale and contains eight items, along with the ability for the rater to express his or her impressions (Maldonado et al., 2012). Other scales include the Psychosocial Levels System (PLS) and the Transplant Evaluation Rating Scale (TERS). The advantage of the TERS is that it offers a summary score along with weighted scores for each of its variables, permitting both a gross score and the ability to weigh individual factors. A newer development has been the Stanford Integrated Psychosocial Assessment for Transplantation (SIPAT). This standard scale, similar in form and evolution to the Stanford-Binet intelligence test, has systematically evolved in an effort to ethically but efficiently screen out candidates which meet physical criteria but not mental criteria (DiMartini, Crone, Fireman, & Dew, 2008). The SIPAT has been tested against the PACT, PLS, and TERS, suggesting that it may be both more comprehensive and become a standard for transplantation centers in general (Maldonado et al., 2012). However, to date each center uses its own method, often using these scales in the process of screening hopeful candidates, but reserving the final decision for internal decision-makers.

Even if candidates overcome selection anxiety and make the list, the candidate does not get an organ but is only placed on a waiting list. Tragically, a large number of applicants perish after being accepted while waiting for their turn to receive an organ (Ingsathit, Kamanamool, Thakkinstian, & Sumethkul, 2013). Considerable data about applications for a transplant along with relative worthiness for transplant (i.e. candidates who have passed preferred physical and mental criteria) is available in the USRDS database which tracks data needed for Medicare insurance information. The exact cause for being rejected as a candidate by a transplantation center, however, versus physical tissue rejection outside human decision-making processes, may not be evident in the USRDS and other public renal databases (S. Morisette, personal communication, December 5, 2016).

The premise. The premise is that the psychosocial and commercial criteria used to screen candidates are biased against less industrially valuable groups, mainly because mental assessment requires mental fitness, and commercial value requires industrial fitness. Natural (or random) selection may actually help to avoid selection bias.

Neglected by a history of assessment (preference for industrial fitness). The separation of individuals into groups according to favored traits has a broad presence in history and literature (Adams et al., 2013). The criteria needed to determine these preferential distinctions has varied though, over the past 150 years (see Table 1). Less-favored groups have been persons of color, different appearance, different ancestry, or supposed inferior genetic origin (racism) (Chen, Purdie-Vaughns, Phelan, Yu, G., & Yang, 2015). Less-favored groups have been persons of "primitive" or indigenous origin (usually the former owners of colonized lands) (Moses & Stone, 2013; Wildcat, 2015). Less-favored groups have been equally advanced neighboring cultures seeking employment during lean years or seeking safety during regional conflicts (immigrants). Less-favored groups have been the same culture's women, children, and elderly (suffrage, ageism, and adultism). Less-favored groups have been those who were equivalent in every other way except by socioeconomic status (classism). The assessment of favored traits has excluded those of different faiths, persons of different sexual attraction/sexual identity, or those whose traits may actually be preferred during one era (in times of unusual need) and unwanted in another (in times of plenty) (Baker, 2017). Such groups have included domestic women and migratory workers normally excluded from working during times of plenty, but invited to work during times of need such as during global conflicts (Adams et al., 2013). A more recent favored trait (social productivity, employability) associated with discrimination of the less productive or the physically or mentally incapacitated has been termed *ableism*.

The new set of unfavored races seem to be the disabled (the physically aged and the mentally or physically impaired) because they are less employable and thus a societal burden (Baker, 2017). Ableism (the discrimination against those of lesser ability) includes those with both physical and mental handicaps. However, although the physically handicapped have enjoyed a degree of acceptance and compassion, those whom are mentally handicapped have been regarded with fear, avoidance, exclusion, and social derision (Fiske & North, 2014; Roberts, 2015).

Table 1

Types of Assessment Bias

Bias	Assumption
Inheritance	Genetic superiority
Race	Favored races
Ethnicity	Favored groups
Gender	Inferiority, social role
Age	Physical/mental inferiority
Intelligence	Mental superiority
Disability	Social liability

Distributive justice over random selection. The problem of how to best decide an outcome by voting on the most desirable qualities is not new. The modern democratic election process for the best candidate began as a random election process in ancient Athens. Originally, the Greeks could not decide on a fair way to elect certain public officials, and decided that the best way was to draw the winner from a pool including every citizen’s name, much as researchers select random samples from the general population (Aristotle & Lord, 2013). Although this was an unbiased way to decide, the winner might not be capable enough (politically competent enough) for the position. Competence could not be known in advance, otherwise it would not be random. (This same dilemma seems to plague the recent presidential election of 2016 too, with one candidate chosen by popular vote but politically unqualified, and the other politically qualified but unselected by popular vote).

As far back in time as ancient Greece, it was realized that election criteria would help guarantee competence—but at a cost of potential bias in that criteria. A random selection process would be more fair—but then one could not know whether that individual would be qualified. The process of assessing candidates to see which might be the best recipient of a rare organ engenders the same dilemma. If the organ candidate were randomly selected, the organ might not survive, but the transplant industry would escape these ethical criteria altogether. If the organ candidate were selected based on criteria regarding his or her competence to host the organ (as now), the transplant industry would be faced with accusations of bias during the selection (because of that criteria).

The ethics of organ transplantation are complicated (Center for Bioethics, 2004). The problem of how to divide insufficient resources fairly is called *distributive justice*. Unfortunately, although there are many ways, but none of them seem able to approximate the idea of fairness. They can be divided (a) equally (randomly), (b) according to need, (c) according to effort, (d) according to contribution, (e) according to merit, and (f) according to free-market exchanges. Worthiness may enter in (screening out those society feels do not deserve an organ), or maximum benefit (screening out those who might not maximize the benefit). Currently, each transplant center can set its own criteria—

although most centers share some agreement as to absolute contraindicators, for example dementia, drug dependency, active psychotic symptoms such as schizophrenia, a history of non-adherence to treatment regimen, and the absence of a social support system (Maldonado et al., 2012).

According to peer-reviewed articles, questionnaires at transplant centers, and analyzed criteria, many centers view mental inferiority/instability as an absolute contraindication—because of worries of non-compliance with complicated self-care after surgery (Patzer, 2011). Persons of color, the poor, the illiterate, those whose parents are illiterate, the mentally infirm, those unlikely to follow physicians' orders without question, those who use tobacco, those who have misused substances, those who are very obese, and those who are beyond middle age are often screened out before being referred to a transplant center for assessment (Patzer, 2011). As with Adorno's concept of an apparent *banality* toward life while making life and death decisions, these hard decisions seem to say less about the kinds of people that make them, than the unnatural need for otherwise sympathetic people to have to make them (Cohrs, Petzel, & Funke, 2012; Jetten & Mols, 2014; Newlands, 2014; Newman, 2014).

Human rights over natural selection. Representing the needs of the minority has sometimes created a need to redefine which groups are covered by human rights. Minorities of different color, different gender, uncertain gender, and various disabilities have expanded the definition to include groups once excluded from representation (Baynton, 2013). However, groups labeled with intellectual disability have been faced with a dilemma—because (by definition) mentally challenged humans who cannot navigate a world of rational choices are excluded from claiming those choices (Baker, 2017; Fyson & Cromby, 2013). This conundrum is made plain in the Universal Declaration of Human Rights:

> All human beings are born free and equal in dignity and rights. They are endowed with reason and conscience and should act towards one another in a spirit of brotherhood. (United Nations, 1948, art. 1)

The words *reason* and *conscience*, according to legal researchers, create criteria that intellectually challenged groups would have difficulty meeting (Fyson & Cromby, 2013). Historically, the mentally challenged have faced a future of exclusion and scorn by the normative majority which place significant value on a superior intellect. The neoliberal paradigm makes an assumption that consumers of choices are capable of self-care. The inability to care for themselves—in an intellectually oriented and highly competitive/industrialized world—rapidly marginalizes groups that are not only less able, but deemed a liability by a world of swelling populations and dwindling resources. The process of allocating life-saving organs to worthy candidates seems to summarily screen out those incapable of self-care from the additional burden of taking care of a replacement organ (Ubel & Loewentsein, 1996). Though persons born with or faced with mental challenges did not choose to be poor, nor choose to be excluded from human rights and human relationships, the dominant group does not let them choose whether or not they will survive when in need of a transplant, because they do not meet the criteria for being human (Fyson & Cromby, 2013).

Methodology Literature. The ANOVA has been used recently and efficiently to evaluate and estimate concepts such as prejudice and consumer liking behavior (Costarelli & Gerłowska, 2015; Norton, Frost, & Ariely, 2013). Interactions between physical and mental fitness can be analyzed well using a factorial ANOVA which is used in this study (Costarelli & Gerłowska, 2015).

The concept of mental prejudice, though unique to this dissertation, has been studied empirically under other names using multidimensional models similar to the semantic differential model, which has been likened to the Fiske model when applied to concepts versus people (Kervyn et al., 2013). Psychological reward has been explored in this way, in which reward is defined as the evaluation and selection of a choice based on reward, risk, and uncertainty, indicative of hidden favor processing (Fennell & Baddeley, 2013). Relationship satisfaction has been studied by inclusion of a second dimension (indifference versus ambivalence), in which psychological evaluation of a social relationship was measured in terms of relationship satisfaction (similar to reward; Mattson et al., 2013). The meaning of the relationship was shown to include multiple dimensions (bad to good in one dimension and mixed attitudes in the other). These were indicative of the same model of prejudice by the Fiske lab (with an axis representative of endearment/favor, and an axis representative of the inferior nature of the otherwise endearing relationship—either a form of apathy or a set of mixed emotions).

In addition to empirical studies whose methods have studied either human attitudes toward done another and human attitudes toward meaningful concepts, recent studies have explored human attitudes toward animals as those relate to human prejudice. Human children were shown to acquire prejudicial, dehumanizing attitudes toward minorities after first acquiring prejudicial, dehumanizing attitudes toward animals Costello & Hodson, 2014). Further, the study demonstrated reversal of this effect (an inferior view of certain groups of humans) after improving the positive attitude toward non-human animals. Recent methods have surveyed the USRDS and analyzed both groups in this proposal separately, and for a similar purpose (Grams et al., 2012; Wightman et al. 2014).

Instrumentation literature. This proposal will use the OPTN portion of the ESRDS to collect existing observations of transplant candidate applications and outcomes. This method has a presence in recent studies looking to see whether a diagnosis of serious mental illness should be a contraindicator for transplant candidates (Evans et al., 2015). One of the co-authors was also contacted regarding this technique (S. B. Morissette, personal communication, December 5, 2016).

Other methods have been used as well. Questionnaires with Likert-scale items have been frequently used in the study of prejudice, including predominant models of prejudice such as the SCM (Fiske & North, 2014). These have consisted of five or seven response options from ‘not at all’ to ‘extremely,’ although the number of options (and whether a neutral option is offered) have varied from study to study. Examples are the Stereotype Content Model (SCM), symbolic racism scale (SRS), the Modern Sexism Scale (MSS), the Neosexism Scale (NSS), Ambivalent Sexism Inventory (ASI), Fraboni Scale of Ageism (FSA), and the Succession, Identity, and Consumption Scale of Prescriptive Ageism (SIC). The survey respondent is presented with a hypothetical situation or an attitudinal opinion, and responds along an intensity scale of lesser to greater agreement. These are frequently analyzed using chi-square analysis when the questions request qualitative rather than quantitative responses (such as participant preferences rather than physical attributes).

Questionnaires are not the only means of measuring prejudice however, and Likert-scale items are not always the preferred method of indicating responses. The Implicit Association Task (IAT) and Indirect Priming Measure of Racism (IPMR) rely upon subliminal suggestion or priming to gather implicit rather than explicit responses, usually by presenting both images and text prompts. The IAT has been challenged on a number of aspects, one being the need for conscious association even if the instrument is based on nonconscious association. However, it has also evidenced response components not available in questionnaires alone, such as physiological responses and visceral certainty (Fiske & North, 2014; Nascimento, Limeira, de Pinho, & Santa Rosa, 2014). Another technique is the feelings thermometer rather than a Likert-scale item, which has shown both validity and greater ease of use, along with caveats about the need for more explanation than a questionnaire (Liu & Wang, 2015).

This research will not need survey instruments, however. This research study will collect observations from a secondary data source, which has already gathered organ candidate data using various official survey instruments. As this method has been used recently to see evaluate whether mental illness should be a contraindicator for transplant candidates, it will suffice as the method for this proposal (Evans et al., 2015; Wightman et al., 2014).

Summary

The purpose of this chapter has been to thoroughly present the background needed to understand the evolution of peer-reviewed psychological research which has led to the identification of a research gap. The background of the problem is that is that there are far more persons who need an organ than available organs (Patzer, 2011). This has resulted in the need for medical professionals to use criteria to help decide who lives and who dies. Those who are refused an organ will feel unfairly treated by society (Fyson & Cromby, 2013). The ethics of this dilemma are called distributive justice. The evolution of models of prejudice up to the current model may be summarized by three perspectives: (a) human v. human prejudice, (b) human v. non-human prejudice, and (c) human enough v. not human enough prejudice. However, the hallmark of each of these models is a distinction between what is held to be superior (more) versus what is held to be inferior (less)—even when each side of the comparison is said to belong to the same species or the same category. This dissertation's model of class prejudice argues that industrial fitness is held to be superior to simply being physically alive, with the former (an individual's value to human industry) often assessed to determine access to social intimacy and even continued physical survival.

The review of the literature was divided into four sections. These were the problem, the prejudice, the past, and the premise. The problem is that there are far more persons in need of a replacement organ than there are organs. The prejudice is a bias for industrial fitness, to solve the problem of too many people and not enough organs. The past has seen the use of psychological assessments dating back to ancient China to help decide which persons receive special treatment when there are more persons in need of a resource or social position than there are resources or social positions. These assessments have excluded candidates on the basis of undesirable traits, creating questions about the ethics of selection. The history of grafting itself has also been questioned regarding its ethicality, while the mental health professions have argued for greater inclusion in the selection process. The premise is that the psychosocial and commercial criteria used to screen candidates for kidney transplantation are biased against less industrially valuable groups, mainly because mental assessment requires mental fitness, and commercial value requires industrial fitness. Issues of the violation of human rights during the decision-making process suggest that natural selection may be one of the few means of avoiding selection bias.

Lastly, a section was presented regarding relevant methods employed to investigate these concepts, and the relevant instrumentation used by researchers to help reveal and measure these concepts. The content and arguments presented express a depth of substance in extant literature supporting the viability of exploring this gap in the research. This gap suggests that mental fitness is preferred over physical fitness in the application of distributive justice. Among the natural sciences, such a preference is called *unnatural selection*, whereas the absence of psychosocial criteria may be a return to natural selection and offer a form of distributive justice less prone to the violation of human rights.

Chapter 3: Methodology

Introduction

End stage renal disease (ESRD) is a terminal illness which results in physical and mental death (Center for Bioethics, 2004). In an effort to solve this dilemma and defer death, living organs (kidneys) are removed from living and deceased persons and transplanted into select candidates—as a temporary solution. Without a timely kidney transplant, the inevitable result is hemodialysis and death (Patzer, 2011). Unfortunately, the number of candidates in need of kidneys vastly exceeds the number of viable organs, and the demand for organs continues to grow faster than the organ donor supply. Persons with ESRD are placed on a waiting list, and the length of time on that list is a predictor of their premature death (Center for Bioethics, 2004; Patzer, 2011).

In an effort to solve this dilemma and defer death, physical and mental criteria are used to rank the vast waiting list of hopeful candidates and thus choose only the best candidates for receipt of the timeliest transplant. Unfortunately, the outcome of this effort is another dilemma. Many groups claim the industry of kidney organ assessment practices bias in the selection of survivors—violating human rights policies by delaying the date of transplant of less desirable groups (Danovitch, 2014; Reese et al., 2015). However, the average wait time for a kidney is about five years (10 in many states), whereas the average length of survival on dialysis is less than 5 years—therefore groups that are delayed face unusually high risks compared to the norm (Grubbs et al., 2014). Studies like Grams et al. (2012) and Curtis (2006) show that there is a bias against more advanced physical age in the selection of older candidates—despite the mental fitness of the transplant candidate (ageism). Studies like Wightman et al. (2014) and Derrington et al. (2016) also show that there is a bias against less advanced mental age in the selection of younger candidates—despite the physical fitness of the transplant candidate (ableism). A survey of the literature suggests that the impact of assessment bias on how much longer these two groups wait for a kidney may not have been researched, with respect to a preference for the survival of the organ industry over the unlikely survival of large numbers of living candidates deemed industrially inferior (Kivnick & Wells, 2014; Stone et al., 2013). A survey of secondary data in the US Renal Data System will allow the comparison of these two groups by analyzing mean wait times for kidney transplant across potential groups of physical age bias and mental age bias (Grams et al., 2012). This comparison will allow the possible identification of favored traits during the candidate selection process (to prolong the physical and mental survival of certain candidates), despite international policies governing the right to life to all human beings (Danovitch, 2014; Reese et al., 2015).

This chapter is organized into a problem statement, a set of research questions, the design and methodology which will be used to explore and test those questions, the population of study, and a representative sample. Following these sections will be the study instrument (source of data), a discussion of validity and reliability, how data will be gathered and analyzed, and the ethical considerations, limitations, and delimitations involved in carrying out the study. A summary will conclude the chapter.

Statement of the Problem

It is not known if less industrious groups such as older candidates (those who are physically unfit but mentally fit) and younger candidates (those who are mentally unfit but physically fit), wait longer to receive a kidney on the basis of inferior commercial value. This is an important research question because a survey of the literature suggests that physical age and intellectual disability are being discriminated against in the process of screening and wait-listing candidates for life-saving kidney transplants (Cherkassky, 2011; Derrington, Goldberg, & Frader, 2016). The delays experienced by the elderly (ageism) and by young people who may have special needs (ableism) mean that inferior (less industrious) groups will not survive end stage renal disease (Curtis, 2006; Derrington et al., 2016; Grams et al., 2012; Wightman et al., 2014).

The significance of this problem is that the number of candidates in need of organ donations is growing faster than the number of available healthy organs, resulting in a growing need for the transplant industry to favor some human traits over others. This problem has in turn resulted in a proliferation of ethical dilemmas while trying to find a standard set of disqualifying criteria (Ubel & Loewenstein, 1996). The search for a standard for the ethics of organ transplantation evinces how challenging and complicated such a goal is—even for experts across multiple disciplines (Center for Bioethics, 2004). The problem of how to divide insufficient resources fairly is called *distributive justice*. Unfortunately, although there are many ways (equally, or according to need, effort, contribution, economic exchange, or merit), none of them seem able to approximate the idea of fairness. Worthiness may enter in (screening out those society feels do not deserve an organ), or maximum benefit (screening out those who might not maximize the benefit).

Currently, each transplant center can set its own criteria, although most centers share some agreement as to absolute contraindicators. These include dementia, drug dependency, active psychotic symptoms such as schizophrenia, a history of non-adherence to treatment regimen, and the absence of a social support system (Maldonado et al., 2012). Even so, the need to discover a standard set of ethical criteria has also raised the possibility of violations of human rights (social justice) with respect to protected groups—like increasing numbers of special needs youth and the growing elderly population (Danovitch, 2014; Reese et al., 2015).

Research Question(s) or Hypotheses

The purpose of this research is to compare groups of candidates on the waiting list for a kidney transplant in the U.S. Renal Data System (USRDS), to test whether less industrious groups such as older candidates (those who are physically unfit but mentally fit) and younger candidates (those that are mentally unfit but physically fit), wait longer to receive a kidney on the basis of inferior commercial value. These questions will ask which group (physically robust candidates or mentally robust candidates) is more likely to receive scarce kidney organs (Cherkassky, 2011). Data will be collected from the U.S. Renal Data System (USRDS). The range of data collected will consist of human participants on the OPTN waiting list for kidney organ transplantation from January 1, 2014 to December 31, 2014 and will include both first-time kidney transplant candidates and recipients. These will be grouped into three age groups (under 18, between 18 and 64, and 65 and over). These ranges were chosen to align this proposal with previous research in which physical age bias was found (Grams et al., 2012).

The data source will be the Organ Procurement and Transplantation Network (OPTN) registration data publicly available from the U.S. Renal Data System (USRDS). The USRDS is “a national data system that collects, analyzes, and distributes information about chronic kidney disease (CKD) and end-stage renal disease (ESRD) in the United

States" (U.S. Renal Data System, 2016, para. 1). This database is in the public domain and affords researchers an opportunity to analyze national organ transplant data. This includes details about applicants for organ transplants versus eventual recipients of organ transplants. Three questions will be used to query the database. These three questions are operationalized in the following.

Research Question 1 (Physical Age Bias):

RQ1: Do candidates whose Physical Age is Too Young or Too Old have significantly longer Transplant Wait Times compared to those who are Just Right?

$H1_0$: Candidates whose Physical Age is Too Young or Too Old do not have significantly longer Transplant Wait Times compared to those who are Just Right.

$H1_A$: Candidates whose Physical Age is Too Young or Too Old do have significantly longer Transplant Wait Times compared to those who are Just Right.

Research Question 2 (Mental Age Bias):

RQ2: Do candidates whose Mental Age is Too Slow or Somewhat Slow have significantly longer Transplant Wait Times compared to those who are Just Right?

$H2_0$: Candidates whose Mental Age is Too Slow or Somewhat Slow do not have significantly longer Transplant Wait Times compared to those who are Just Right.

H2$_A$: Candidates whose Mental Age is Too Slow or Somewhat Slow do have significantly longer Transplant Wait Times compared to those who are Just Right.

Research Question 3 (Physical Age to Mental Age Interaction):

RQ3: Do Physical Age Bias and Mental Age Bias interact to predict significantly longer Transplant Wait Times?

H3$_0$: Physical Age Bias and Mental Age Bias do not interact to predict significantly longer Transplant Wait Times.

H3$_A$: Physical Age Bias and Mental Age Bias do interact to predict significantly longer Transplant Wait Times.

Research Variables:

IV1: **Physical Age Bias** – an ordinal/categorical variable representing the chronological age of a candidate regardless of greater overall physical/mental ability than the chronological age suggests. Following a study by Grams et al. (2012) but rephrasing for the purposes of this dissertation, the researcher has divided Physical Age Bias into three chronological age groups equivalent to prior Medicare physical age bias studies. These correspond to: the group of normatively unemancipated youth under 18 (Too Young), the group of normatively retired seniors over 64 (Too Old), and the normatively productive age group between 18 and 64 (Just Right). These categories allow the comparison of physical age groups based on criteria that seem to divide human chronological age using an industrial focus, wherein 18 to 64 (the Just Right or working age group) is considered the period of industrial value to society. The renal database follows this format as well.

IV2: **Mental Age Bias** – an ordinal/categorical variable representing the mentally assessed age of a candidate regardless of greater overall physical/mental ability than the mental age suggests. Following a detailed study by Wightman et al. (2014) but rephrasing for the purposes of this dissertation, the researcher has divided Mental Age Bias into three levels of increasing intellectual ability equivalent to prior intellectual development bias studies of the USRDS. These correspond to: the group that is assessed in the system as incapable of self-care (Too Slow), the group that is capable of self-care but requires additional help (Somewhat Slow), and the group that is fully capable of self-care (Just Right). These distinctions accord with existing categories in the USRDS, the criteria regarding the predictability of a candidate's ability to host a replacement kidney, and detailed studies of special needs youth representation in the USRDS (Wightman et al., 2014). These categories allow the comparison of mental age groups based on criteria that seem to divide human developmental age (mental age relative to physical age) using an industrial focus, wherein the ability for self-care (absence of intellectual/developmental delay) is considered to be of greatest industrial value to society. The renal database follows this format as well.

DV: **Transplant Wait Time** – a continuous variable representing the length of time in days that a candidate with the specified criteria has waited on the waiting list to receive a kidney organ transplant. Candidates who have not yet received an organ will be indicated by a wait time up to the end of the sampling period.

The rationale for these questions is that there is a limited supply of donated organs but a larger number of living individuals in need of an organ to continue living. The need to decide who receives an organ and who does not, requires health screening of recipients

(Petrini, 2012). Since assessments used to screen candidates include both physical decline (physical feebleness/chronological age) and mental impairment (mental feebleness/chronological age), it is possible that less industrious groups wait longer to receive a kidney on the basis of their inferior commercial value. Those who are under working age but seem unlikely to acquire adequate mental fitness, and those beyond working age and unlikely to acquire adequate physical fitness, seem to be less favored for continued life because they represent less value to industry—even if “all human beings are born free and equal in dignity and rights” (United Nations, 1948, art. 1).

Studies have sought the presence of ageism bias against candidates 65 in the USRDS database (an assessment of physical feebleness despite physical robustness) (Grams et al., 2012). Studies have also sought ableism bias against young candidates with intellectual disability in the USRDS database (an assessment of mental feebleness despite physical robustness) (Wightman et al., 2014). Though these assessment biases have been studied, a comparison of less industrious groups such as older candidates (those who are physically unfit but mentally fit) and younger candidates (those that are mentally unfit but physically fit), may indicate that groups of less industrial value to society wait significantly longer to receive a kidney.

Research Methodology

The two primary types of research methodology are qualitative and quantitative. A qualitative or mixed method is appropriate if the purpose of the research is to observe and explore populations under natural conditions, resulting in rich descriptions rather than numerical data (Park & Park, 2016).

A quantitative method is appropriate when the purpose of the research is to predict, uncover, or control phenomena, for instance to analyze measurements in numerical form taken from an existing population (Park & Park, 2016). As the purpose of this research is to analyze measurements taken from an existing population (potential recipients of kidney organs), this study will use a quantitative, causal-comparative design to gather and analyze the numerical data. These measurements will be queried from existing, secondary data sets which already contain the desired data, and already in a form suitable for after-the-fact (causal-comparative), quantitative analysis.

Research Design

There are five primary kinds of quantitative research designs available to choose from. These are descriptive, correlational, experimental, quasi-experimental, and causal-comparative (Johnson, 2001). A descriptive design is used to observe and describe behaviors. A correlational design is used to look for an association between two or more variables, but cannot state that one variable causes the other to change. An experimental design is used to determine causality, for example to demonstrate that one variable causes another variable to change. A quasi-experimental design is used in place of an experimental design when the researcher cannot randomly assign participants to groups (Johnson, 2001). A causal-comparative design is used after the fact (ex post facto) when the conditions already exist therefore the treatment variable cannot be manipulated.

This research uses a causal-comparative design because the data for this research is secondary data in national repositories of organ transplant data which has already been collected (ex post facto). As a result, the principal investigator cannot manipulate the physical and mental conditions present in the fixed data (Bleske-Rechek et al., 2015;

Ejima et al., 2016). This research design has been used recently to analyze data such as the presence of mental illness in fixed data (Riemersma et al., 2015).

Each of the independent variables (Physical Age Bias and Mental Age Bias) will be categorical, and the dependent variable (Transplant Wait Time) will be continuous. Following a study by Grams et al. (2012) but rephrasing for the purposes of this dissertation, the researcher has divided Physical Age Bias into three chronological age groups equivalent to prior Medicare physical age bias studies. These correspond to: the group of normatively unemancipated youth under 18 (Too Young), the group of normatively retired seniors over 64 (Too Old), and the normatively productive age group between 18 and 64 (Just Right). Following a detailed study by Wightman et al. (2014) but rephrasing for the purposes of this dissertation, the researcher has divided Mental Age Bias into three levels of increasing intellectual ability equivalent to prior intellectual development bias studies of the USRDS. These correspond to: the group that is assessed in the system as incapable of self-care (Too Slow), the group that is capable of self-care but requires additional help (Somewhat Slow), and the group that is fully capable of self-care (Just Right). These distinctions accord with existing categories in the USRDS and detailed studies such as Wightman et al. (2014). These variables and their levels will fulfill the requirements for factorial ANOVA.

Population and Sample Selection

The population will consist of human participants with end stage renal disease (ESRD) in need of a replacement kidney. The target population will consist of human participants on the kidney transplant waiting list. The sample will consist of human participants listed as active on the OPTN waiting list for kidney organ transplantation from January 1, 2014 to December 31, 2014 and will include both first-time kidney transplant candidates and recipients. These will be grouped into three age groups (under 18, between 18 and 64, and 65 and over). These ranges were chosen to align this proposal with previous research in which physical age bias was found (Grams et al., 2012). The data will be requested using the non-sensitive data request format at the USRDS and participants will not be identifiable by the data requested.

Since the sample will be analyzed using a 3 X 3 ANOVA (a between groups factorial ANOVA), nine cells will be needed. The nine cells will be the three possible age groups (Too Young, Too Old, and Just Right, corresponding to under 18, over 64, and the productive age group between 18 and 65), with three levels each for possible intellectual disability (see Table 2). Sample size for this type of design was calculated using power analysis, with G*Power 3.1.9.2 for Windows (Button et al., 2013). The effect size was set to a medium effect size convention set by Cohen for this type of test, which was .25 (Faul, Erdfelder, Buchner, & Lang, 2009). The alpha error probability was set to a standard of 0.05, with a corresponding power of 95%. The numerator *df* (degrees of freedom) were set to 2 (for a main effect) and the number of groups were set to 9. These settings indicated a denominator *df* (degrees of freedom) of 242, and a minimum sample size of 251 (total) or 27.88 per cell for nine cells . This total will be rounded up so that each of the nine cells (each of the three levels of the three factors), will come out evenly, which would be 252 total and 28 per cell. Since the data is official, preexisting data, no random assignment to these groups will be involved. This number per cell can easily be exceeded, since the number of transplants performed each year is much higher. This will amount to approximately N = 66,000 or 7,333 per cell for the sample period of January 1, 2014 to December 31, 2014. The data is made public by the USRDS and does not require special authorization for data unless connectable to individuals, however application for authorization will be made using the website form at the USRDS to fulfill this part of the proposal. Provisional permission has already been granted by the program manager at the USRDS (see Appendix E). The data is public, however, confidentiality will be maintained by securing all collected research data in protected folders on a local PC and encrypted in compressed WinRAR files. The geographic area covered by the secondary data is the United States only.

Instrumentation

All data will be drawn directly from the U. S. Renal Data System, which is the only official repository of data kept regarding kidney organ candidates, donors, and outcomes. The validity and reliability of this data meet compliance with federal, state, and local guidelines for the recording and documenting of conditions such as end stage renal disease, also known as ESRD (Centers for Medicare and Medicaid Services, 2008; U.S. Renal Data System, 2015). Annual reports describe the maintenance and standards of this system, and the validity of its web-based systems which are available to researchers. This use is authorized for purposes described as “to create core metrics and measures, such as the assessment and reporting of provider performance” (U.S. Renal Data System, 2015, para. 2). The type of data consists of completed forms (for example, candidate registration forms listing current physical age and physical debility, and intellectual disability (cognitive impairment and/or academic underdevelopment). These forms contain categorical and numerical data the group means of which can be analyzed by researchers for potential relationships.

Validity

The validity of a test is its ability to show that it is measuring what it says it is measuring, and that those measurements can be trusted (Yaremko, Harari, Harrison, & Lynn, 2013b). The validity of these measurements may concern internal or external validity. Internal validity concerns how true an observation or test might be within its experimental limits, whereas external validity concerns how generally a claim might be applied outside its experimental limits (Fowler, 2013). Construct validity is also important, and represents how well a test can measure what it claims to measure (Fowler, 2013).

The data sources from which this research study will collects its observations are as valid as they and the community they serve can gather and verify for these crucial physical and psychological observations. That community includes the medical personnel, administrative personnel, organ donors, and recipients of transplanted organs (U.S. Renal Data System, 2015). Data from the USRDS and tentative conclusions drawn from that data exhibit both confidence and caution within the nephrology community. Its primary strengths are size and representativeness (Foley & Collins, 2013). The USRDS represents the recording of statistical physical (and mental) information about nearly all U.S. patients treated for end stage renal disease (ESRD).

Its limitations are that it continues to be difficult to validate the methods by which the data is recorded, to include ancillary conditions or lab data when the patients are registered, or directly report whether survival bias is present in the end stage renal disease treatment community (Foley & Collins, 2013). A systematic review of existing datasets suggested considerable variability when attributing the primary cause of death, with 31%

agreement between sources, and a *kappa* of 0.24 (Grams et al., 2011). However, the review also concluded these percentages were likely due to the need to classify patient cause of death for initial claims purposes, misattributing the primary condition with comorbidities not covered by the claims directly. With these limitations in mind, research conducted on the datasets can reduce inaccuracy of interpretation (Foley & Collins, 2013).

Reliability

The term reliability refers to a test's ability to obtain consistent responses each time it is taken (Yaremko, Harari, Harrison, & Lynn, 2013a). A key concern when assessing patients in life or death situations such as the screening of organ transplant recipients, is interrater reliability. Interrater reliability refers to the degree of agreement between different experts regarding the same observation (Smith, 2013). Agreeing on observations which might involve individual bias—when the scarcity of something needed for survival is at stake—raises fundamental moral issues (Rogge & Kittel, 2016; Tong et al., 2010).

The secondary data sources from which this research study collects its observations contain data which has been carefully gathered, entered, and checked for consistency (U.S. Renal Data System, 2015). Crucial patient data is collected at the time of service both for medical needs and insurance claims coverage, using forms completed by professional personnel and some self-reported questionnaires. This is needed both to facilitate making expert medical decisions, and to comply with the need to account for the costs of these medical procedures.

The reliability and completeness of the USRDS data has been studied and shown to be reliable against regional datasets such as Michigan's kidney registry (U.S. Renal Data System, 1992). The treatment data agreed within 87.2% to 93.2%. The primary deviations from the two means of gathering patient and candidate data, were shown to be related to items of mostly national concern (Medicare) versus regional concern (the Michigan Kidney Registry). This is expected given the differing mission and goals of these programs. Tests for consistency and reproducibility showed some caution should be involved in interpreting the data as completely independent; however, an annual report described these minor deviations as validating these are different sources with national versus regional needs. suggesting significant consistency and sufficient reliability provided these limitations are accounted for (Grams et al., 2011; U.S. Renal Data System, 1992).

Data Collection and Management

Data will be obtained from a secondary data source. The OPTN portion of the USRDS database was identified as a good repository of the data needed for this study, because all organ transplants conducted in the U.S. must report candidate and recipient data to these organizations. The data are available for researchers to make requests from without special permission, so long as no patient-identifiable data is gathered. A written request with the desired data fields will be made from the USRDS. Provisional permission has already been granted by the USRDS project manager (see Appendix E). The request will specify only the data needed to identify the active candidates for kidney transplantation for the period from January 1, 2014 to December 31, 2014, and will include both first-time kidney transplant candidates and recipients. These will be grouped into three age groups (under 18, between 18 and 64, and 65 and over). These ranges were chosen to align this proposal with previous research in which physical age bias was found (Grams et al., 2012). Field data will be gathered as described in Wightman et al. (2014) and the Researcher’s Guide to the USRDS Database (U. S. Renal Data System, 2015). Database fields for inclusion have been identified as age at intake (to the waiting list), age at transplant (as appropriate), cognitive development, academic progress, and academic level. Academic progress and academic level are being included because the study by Wightman et al. (2014) used these specific fields for their study on intellectual disability (academic progress is also a measure of developed intelligence for school-age children). The exact variable names for cognitive and academic data are: COGNITIVE_DEV, COGNITIVE_DEV_L, ACADEMIC_LEVEL, ACADEMIC_LEVEL_L, ACADEMIC_PRG, ACADEMIC_PRG_L as described in the Researcher’s Guide to the USRDS Database (U. S. Renal Data System, 2015). Since the phrasing related to chronological age and delayed intellectual development can become complicated (as outlined in detail in Wightman et al., 2014), these factors have been simplified by the researcher as the capability for self-care, thus the predictability of the candidate’s ability to host a replacement organ and learn and adhere to sometimes complicated medical regimen post-transplantation. These correspond to: the group that is assessed in the system as incapable of self-care (Too Slow), the group that is capable of self-care but requires additional help (Somewhat Slow), and the group that is fully capable of self-care (Just Right). These distinctions accord with existing categories in the USRDS and detailed studies of special needs youth representation in the USRDS (Wightman et al., 2014).

Prior to the actual study, this study design will be submitted to the IRB. Standards of human participants research will be followed for the protection and well-being of participants, as well as the respect of their privacy. These standards include respect for persons, beneficence, and justice, which will be applied by requiring informed consent, assessing risk versus benefit, and ensuring the selection of participants does not take advantage of protected groups (U.S. Department of Health and Human Services, 2016). As the data is secondary and no patient-identifiable data will be requested, application for exempt review will be sought. Also in accordance with these principles, data will be kept by the principal investigator only, and secured so as not to compromise anonymity of participants. Only the data needed for the design will be gathered, in keeping with best practices. Data will be stored and encrypted after the primary analysis on a password-protected computer for a period of three years minimum—per the research standards of the American Psychological Association (Devereaux & Gottlieb, 2012). After this period, all copies of the data will be wiped (erased and scrambled) so as to be unrecoverable. The timeline for these data gathering procedures should not extend beyond two weeks from approval by the IRB. The availability, privacy, and protection of any data collected will continue for a minimum of three years beyond which digital data will be electronically wiped and physical data shredded to protect participants, unless approved for retention (FDA Protection of Human Subjects, 2009).

Data Analysis Procedures

The research questions and hypotheses are relisted in the following.

Research Question 1 (Physical Age Bias):

RQ1: Do candidates whose Physical Age is Too Young or Too Old have significantly longer Transplant Wait Times compared to those who are Just Right?

H1$_0$: Candidates whose Physical Age is Too Young or Too Old do not have significantly longer Transplant Wait Times compared to those who are Just Right.

H1$_A$: Candidates whose Physical Age is Too Young or Too Old do have significantly longer Transplant Wait Times compared to those who are Just Right.

Research Question 2 (Mental Age Bias):

RQ2: Do candidates whose Mental Age is Too Slow or Somewhat Slow have significantly longer Transplant Wait Times compared to those who are Just Right?

H2$_0$: Candidates whose Mental Age is Too Slow or Somewhat Slow do not have significantly longer Transplant Wait Times compared to those who are Just Right.

H2$_A$: Candidates whose Mental Age is Too Slow or Somewhat Slow do have significantly longer Transplant Wait Times compared to those who are Just Right.

Research Question 3 (Physical Age to Mental Age Interaction):

RQ3: Do Physical Age Bias and Mental Age Bias interact to predict significantly longer Transplant Wait Times?

$H3_0$: Physical Age Bias and Mental Age Bias do not interact to predict significantly longer Transplant Wait Times.

$H3_A$: Physical Age Bias and Mental Age Bias do interact to predict significantly longer Transplant Wait Times.

Collected data will be analyzed using a 3 X 3 between groups factorial ANOVA using IBM SPSS version 24. The assumptions for a factorial ANOVA include:

1. The two independent variables (IVs) are categorical
2. The dependent variable is continuous
3. The observations for the IVs are independent of one another (there is no relationship between the two groups)
4. The observations exhibit homogeneity of variance
5. The dependent variable is normally distributed
6. There are no significant outliers

The first, second, and third assumptions will be met by the design (IV1 and IV2 are both categorical variables and operationalized as mutually exclusive, and the DV is a continuous variable). If these assumptions had not been met, the variables could have been grouped differently. The fourth assumption will be verified in SPSS using Levene’s homogenity of variance test. If this assumption is violated, a non-parametric test can be substituted (Morgan, Leech, Gloeckner, & Barrett, 2013). The fifth assumption will be checked using the Kolmogorov-Smirnov test for normality in SPSS. If this assumption is violated, deleting observations that contribute to the non-normality or transforming the data may help, given these changes do not alter the data as a representative sample. The sixth assumption will be checked in SPSS by visually inspecting the descriptive statistics output table and box-plots. If this assumption is violated, outliers may be deleted, given this can be substantiated and does not alter the sample's representativeness.

The data is not expected to have any missing or unusual values. However, data will be inspected using descriptive analysis in case of unusual values (e.g. out of range), missing values (e.g. no data), skew (ideal skew is zero plus or minus 1.0 to 2.0), and kurtosis (ideal kurtosis is also plus or minus 1.0 to 2.0). Any univariate outliers can be identified by running explore/frequencies with boxplots. If there are outliers, they will be deleted unless this would affect the retained data significantly.

Neutral results will be logically fit to the closest matching level. Data will then be analyzed using the factorial ANOVA approach in IBM SPSS version 24 (Morgan, Leech, Gloeckner, & Barrett, 2013). Analysis in SPSS 24 consists of running the General Linear Model/Univariate menu item on the Analyze menu. If there is a statistically significant difference between the group means, a post hoc procedure will be run to identify where the differences between the groups are. The post hoc involves choosing Tukey from among the post hoc options during analysis. Tukey's HSD was chosen because Least Significant Difference (LSD) is an older solution in which the *p*-values of multiple LSD tests can be inaccurate, and Scheffe's is less statistically powerful, and better suited to more complex tests. As Tukey's was designed for groups of equal sizes and this research uses equal-sized groups, Tukey's HSD is appropriate.

After running the ANOVA, the Tests of Between-Subjects Effects output will be checked for the two separate IVs (main effects) and their combination/interaction (in the middle of the output table). The Levene's table will be checked to make sure there is no significance figure less than .05 (otherwise equality of variances could not be assumed).

If the Levene's test shows significance (indicating a violation of the assumption of homogeneity of variances), results from the ANOVA may not be fully reliable. If either assumption (homogeneity of variances or normality) are not met, the data values can be transformed to correct for non-normality or inequality of variances. Alternatively, a non-parametric independent samples test can be substituted (since these two assumptions are not needed for non-parametric tests). The Test of Between-Subjects Effects will be checked for a significant relationship (indicated by $p < .05$ in the Significance column). If there is a statistically significant effect for physical age bias or intellectual disability bias, the Tukey post hoc results will be checked in the Multiple Comparisons table to determine the relationship between them. Tukey's HSD was chosen because Least Significant Difference (LSD) is an older solution in which the *p*-values of multiple LSD tests can be inaccurate, and Scheffe's is less statistically powerful, and better suited to more complex tests. As Tukey's was designed for groups of equal sizes and this research uses equal-sized groups, Tukey's HSD is appropriate.

Ethical Considerations

The data collected for this research is from the OPTN portion of the U.S. Renal Database System, an existing repository of publicly accessible data. None of the data collected will identify specific persons. The USRDS offers two kinds of request formats—one of which does not return sensitive data—and this format will be used. The principal investigator will follow all appropriate procedures for human participants research, and under approval by the Institutional Review Board (IRB) before collecting data.

In accordance with the Belmont Principles, standards of human participants research will be followed for the protection and well-being of participants, as well as the respect of their privacy. These standards include respect for persons, beneficence, and justice, which will be applied by assessing risk versus benefit, and ensuring the selection of participants does not take advantage of protected groups (U.S. Department of Health and Human Services, 2016). Also in accordance with these principles, only the data needed for the design will be gathered, in keeping with best practices. Data will be kept by the principal investigator only, and secured so as not to compromise anonymity of participants. As per the research standards of the American Psychological Association, data will be stored and encrypted after the primary analysis on a password-protected computer for a period of three years minimum (Devereaux & Gottlieb, 2012).

Informed consent will not be required because the data has already been collected in a national repository under medical standards (U.S. Department of Health and Human Services, 2015). Site permission for the data collection portion will be officially requested prior to IRB approval, and provisional approval has already been granted (see Appendix E). There are no known conflicts of interest, and the risk of participating in the research is minimal, because the data has already been recorded and will be retrieved as anonymous data. No incentive for participation will be offered because the data has already been collected in the secondary data source.

Limitations and Delimitations

This study will have some limitations. For the sample, obtaining a representative sample will be limited by the availability of the appropriate data in the secondary data source. The variables in this study are primarily preexisting data and can only yield causal-comparative (ex post facto) results. Tests for validity, consistency, reliability, completeness, and reproducibility of the secondary source suggest interpretation of the secondary data source without adjustments to the data may exhibit modest differences from adjusted data in the annual reports (Grams et al., 2011; U.S. Renal Data System, 1992). The annual report concluded, however that these differences exhibit sufficient reliability (Grams et al., 2011; U.S. Renal Data System, 1992). As well, the reliability and completeness of the USRDS data has been studied and shown to be reliable against regional datasets such as Michigan's kidney registry (U.S. Renal Data System, 1992). The treatment data agreed within 87.2% to 93.2%. Although the professional allocation effort is toward unbiased decisions, the possibility of expert cognitive bias in medical record tracking and decision making has been expressed in Molony (2016). There is the possibility of observational biases with respect to causes, prognoses, diagnoses, and administrative decisions. However, as these same decisional biases are the subject of this proposal, this limitation may highlight the need for this study and strengthen rather than weaken its findings (Molony, 2016).

This study has some delimitations as well. A delimitation is the choice of literature included to sufficiently represent the state of the research of the phenomena under study (assessment bias and class prejudice). However, the breadth of literature suggesting evidence of assessment bias might make the study infeasible if fully included.

Summary

This study will use a quantitative method with a causal-comparative design to compare groups of candidates on the waiting list for a kidney transplant in the U.S. Renal Data System (USRDS), to test whether less industrious groups such as older candidates (those who are physically unfit but mentally fit) and younger candidates (those that are mentally unfit but physically fit), wait longer to receive a kidney on the basis of inferior commercial value. This is an important research question because a survey of the literature suggests that less industrious groups such as those of advanced physical age and intellectual disability are being discriminated against in the process of screening and wait-listing candidates for life-saving kidney transplants (Cherkassky, 2011; Derrington, Goldberg, & Frader, 2016). A comparison of less favored groups (as viewed by human industry) may not have attempted, for example a potential preference for the survival of the organ industry over the unlikely survival of large numbers of living candidates deemed industrially inferior (Kivnick & Wells, 2014; Stone et al., 2013). A survey of secondary data in the US Renal Data System will allow the comparison of these two groups by analyzing differences between mean wait times for kidney transplant across potential groups of physical age bias and mental age bias (Grams et al., 2012). In this dissertation’s model of class prejudice, industrial fitness is held to be superior to simply being physically alive, with the former (an individual’s value to human industry) often assessed to determine access to social intimacy and even continued physical survival.

End stage renal disease (ESRD) is a terminal illness which results in physical and mental death unless a new kidney organ is transplanted without significant delay (Patzer, 2011). Since the number of candidates greatly exceeds the number of organs, candidates are ranked by physical and mental criteria and placed on a waiting list, even though the length of time on that list is a predictor of their premature death (Center for Bioethics, 2004; Patzer, 2011). A survey of secondary data in the US Renal Data System will allow mean wait times for kidney transplant to be analyzed using a 3 X 3 between-groups factorial ANOVA to compare the means of age-related and intellectually disabled groups to analyze whether international human rights guidelines may be violated during candidate assessment and preference (Grams et al., 2012). The data will be measured by surveying a sample size of at least 252 participants (based on G*Power results) using data collected from a secondary data source, the OPTN portion of the USRDS. The secondary data source contains physical and psychological data ascertained to be valid and reliable by the organ transplantation community.

Prior to the actual study, the design will be submitted to the IRB, and standards of human participants research will be followed for the protection and well-being of participants, as well as the respect of their privacy. Data will be analyzed using a 3 X 3 between-groups factorial in IBM SPSS version 24 (Morgan et al., 2013). Age-related bias, intellectual disability-related bias, and transplant wait time will be analyzed for a statistically significant relationship. The factorial ANOVA method was chosen because this study uses a statistical test with two ordinal/categorical independent variables, one continuous dependent variable, and a between-subjects design (Morgan et al., 2013). If there is a statistically significant effect for physical age bias or intellectual disability bias, the Tukey post hoc results will be checked in the Multiple Comparisons table to determine the relationship between them.

Following the successful completion of this data collection and data analysis, chapter 4 will present the data gathered from these measures, along with an exploration of the findings. These findings will be aligned with the research questions and variables, and summarized with respect to the problem statement and purpose of the study.

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Appendix A

Research Model

Table 2

Research Concepts and Operationalized Variables

		Physical Age Bias		
		Just Right	Too Young	Too Old
Mental Age Bias	Just Right	(A)	(B)	(C)
	Somewhat Slow	(D)	(E)	(F)
	Too Slow	(G)	(H)	(I)

Appendix B

Industrial Stereotype Model

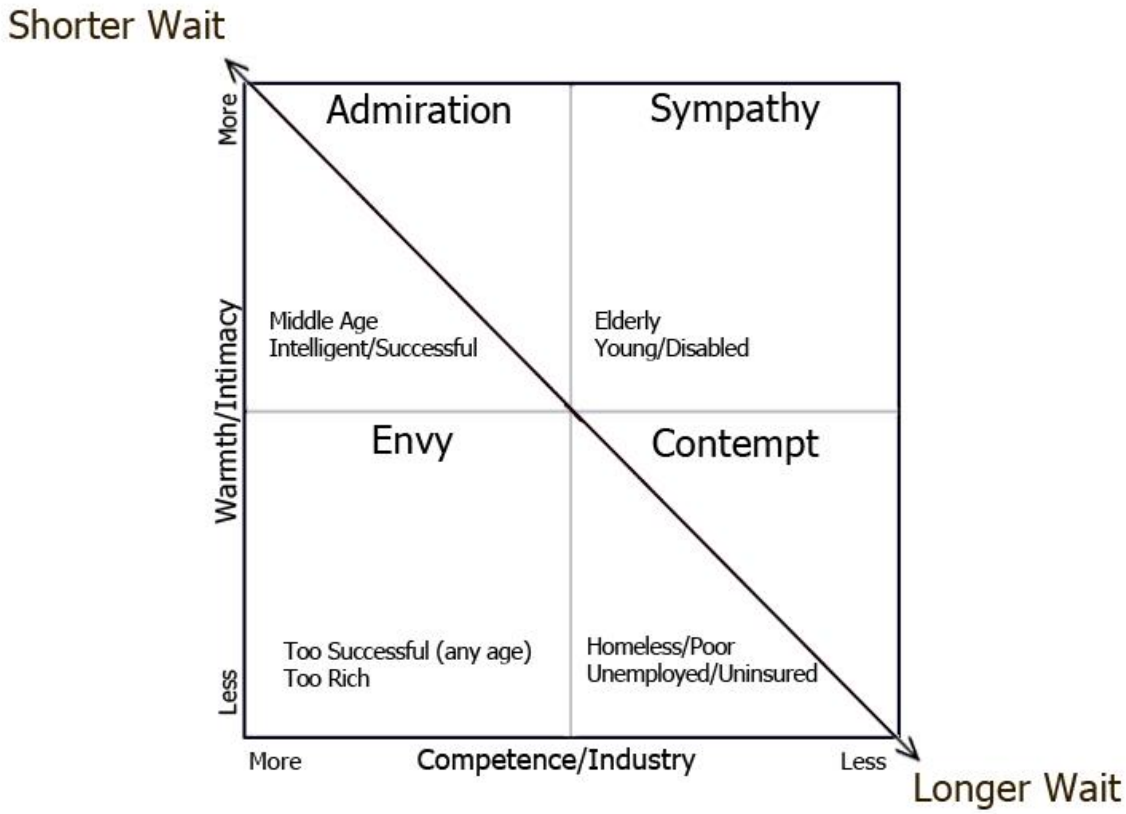


Figure 4. Industrial Stereotype Model, based on Stereotype Content Model. In the SCM model, social perceptions are mixtures of competence and warmth. In the Industrial Stereotype Model, the personal capacity for industry is needed to trade for social intimacy (a social perception that affection must be earned). This is based on Erikson's psychosocial stages and Marcia's psychological identity model (an extension of Erikson's work).

Appendix C

IRB Approval Letter

Appendix D

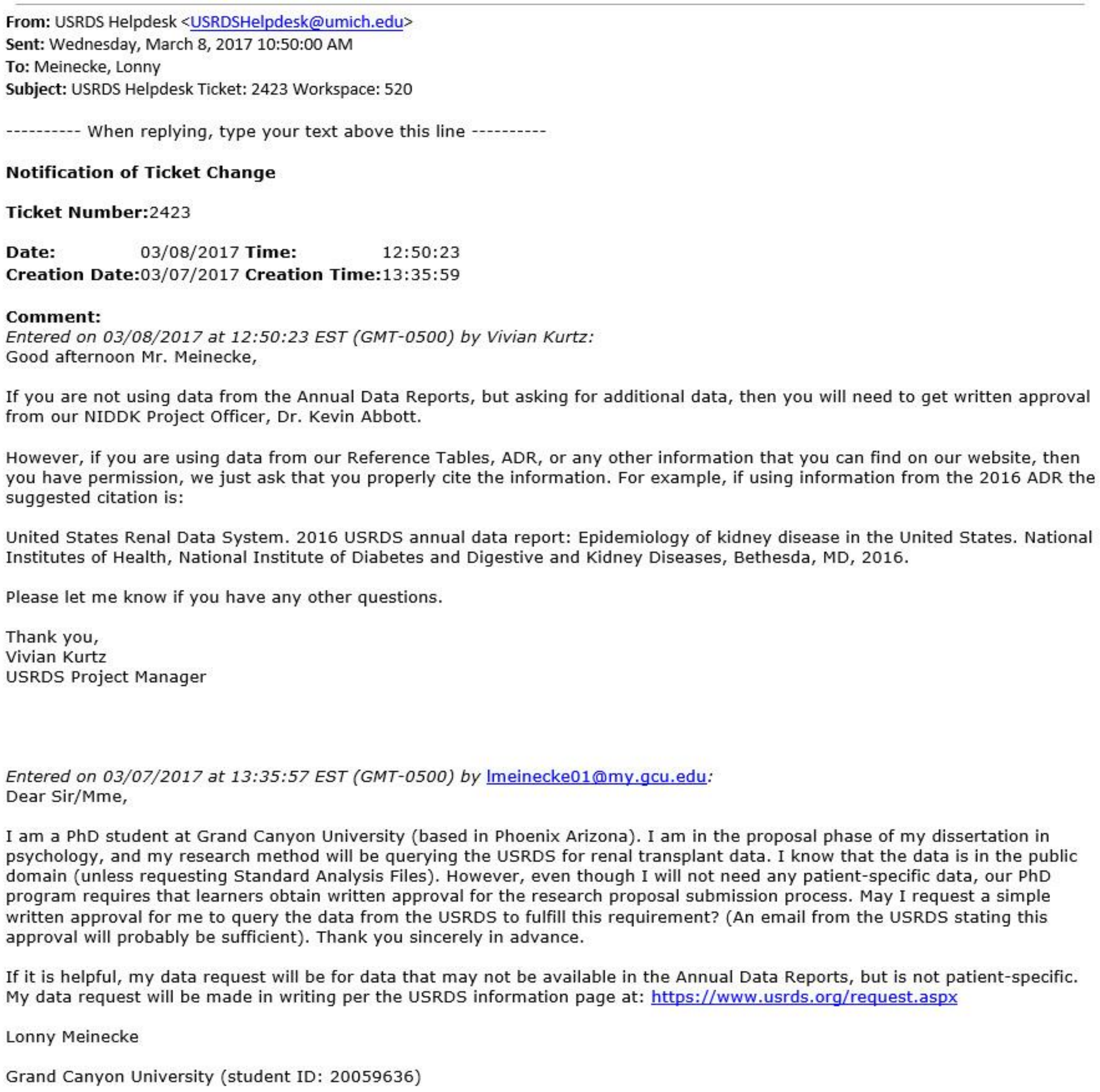
Informed Consent

No informed consent was required for this study. Data was collected from secondary sources.

Appendix E

Copy of Instruments and Permissions Letters to Use the Instruments

No instruments were required for this study. Data was collected from secondary sources.



From: USRDS Helpdesk <USRDSHelpdesk@umich.edu>
Sent: Wednesday, March 8, 2017 10:50:00 AM
To: Meinecke, Lonny
Subject: USRDS Helpdesk Ticket: 2423 Workspace: 520

---------- When replying, type your text above this line ----------

Notification of Ticket Change

Ticket Number:2423

Date: 03/08/2017 **Time:** 12:50:23
Creation Date:03/07/2017 **Creation Time:**13:35:59

Comment:
Entered on 03/08/2017 at 12:50:23 EST (GMT-0500) by Vivian Kurtz:
Good afternoon Mr. Meinecke,

If you are not using data from the Annual Data Reports, but asking for additional data, then you will need to get written approval from our NIDDK Project Officer, Dr. Kevin Abbott.

However, if you are using data from our Reference Tables, ADR, or any other information that you can find on our website, then you have permission, we just ask that you properly cite the information. For example, if using information from the 2016 ADR the suggested citation is:

United States Renal Data System. 2016 USRDS annual data report: Epidemiology of kidney disease in the United States. National Institutes of Health, National Institute of Diabetes and Digestive and Kidney Diseases, Bethesda, MD, 2016.

Please let me know if you have any other questions.

Thank you,
Vivian Kurtz
USRDS Project Manager

Entered on 03/07/2017 at 13:35:57 EST (GMT-0500) by lmeinecke01@my.gcu.edu:
Dear Sir/Mme,

I am a PhD student at Grand Canyon University (based in Phoenix Arizona). I am in the proposal phase of my dissertation in psychology, and my research method will be querying the USRDS for renal transplant data. I know that the data is in the public domain (unless requesting Standard Analysis Files). However, even though I will not need any patient-specific data, our PhD program requires that learners obtain written approval for the research proposal submission process. May I request a simple written approval for me to query the data from the USRDS to fulfill this requirement? (An email from the USRDS stating this approval will probably be sufficient). Thank you sincerely in advance.

If it is helpful, my data request will be for data that may not be available in the Annual Data Reports, but is not patient-specific. My data request will be made in writing per the USRDS information page at: https://www.usrds.org/request.aspx

Lonny Meinecke

Grand Canyon University (student ID: 20059636)