Understanding Treatment Preferences in Highly Sensitized ESKD Patients: A Latent Profile Analysis of Discrete Choice Data

RWD187

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INTRODUCTION

Over 800,000 Americans live with End-Stage Kidney Disease (ESKD)[1], which requires dialysis or kidney transplantation. More than 90,000 patients are currently on the U.S. kidney transplant waitlist, of which around 10–15% are highly sensitized (HS)[2], making it difficult to find compatible donor kidneys. These patients face a significant unmet need, often experiencing longer wait times, removal from waitlists, or death before receiving a transplant.

OBJECTIVE

Identify distinct patient subgroups based on treatment preferences, demographic characteristics and individual variables with the aim of informing doctor patient communication and supporting shared decision making. By highlighting what is important to HS patients this analysis seeks to address access barriers to transplantation and reduce disparities in kidney allocation caused by misalignment between clinical practice and patient priorities.

METHOD

Individual characteristics of participants who completed a Discrete Choice Experiment (DCE) (N=99) were combined with Mixed Logit Model to create predictive profiles through a Latent Profile Analysis (LPA). An AIC (Akaike Information Criterion) and BIC (Bayesian Information Criterion) analysis was completed to determine the number of profiles. 3 profiles were selected. 10 variables of individual characteristics from the DCE were selected to predict the LPA profiles, using multinomial regression analysis.

BACKGROUND

A DCE survey study reported else where was conducted with 99 highly sensitized ESKD patients, identified 5 attributes patients value when choosing between two different therapeutic options: remaining on dialysis or proceeding with desensitization and an HLA-incompatible kidney transplant. These attributes are Hope, Risk, Life Participation, Kidney Survival, and Support. Additionally, a correlation analysis highlighted three variables in the survey strongly correlated with the attributes: 1-Patients who discussed desensitization with a health care provider had a stronger correlation with Support, 2- Willingness to proceed with desensitization and transplantation had a significant correlation with Hope and Life Participation., 3- Proactiveness of the patients seeking a transplant had a significant correlation with Life Participation and Kidney Survival.

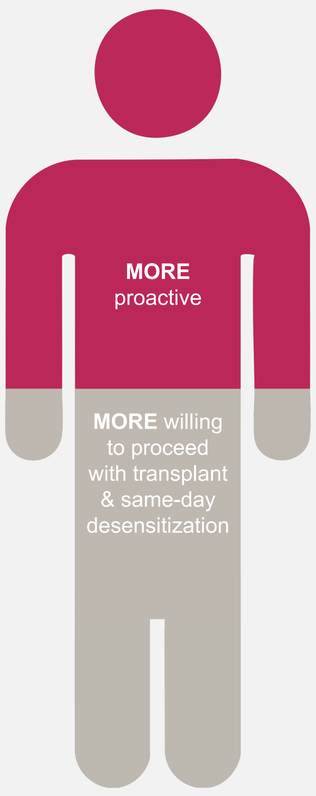
Based on the response patterns of the survey, an LPA was carried out to better understand the preferences and demographic characteristics of the subgroups of the population. 10 survey variables were selected to act as subgroup predictors: 1-Optimism about being offered a kidney, 2- Proactiveness in seeking a transplant, 3-willingness to proceed with transplant and same day desensitization, 4- dialysis experience, 5- discussing desensitization with a physician, 6- transplant history, 7- health-related quality of life, 8- PROMIS tool, 9- years on a wait list, 10- years of dialysis post-transplant.

RESULTS

The selected variables were added to the model to test the probabilities of belonging to each category. A multinomial logistic regression with Group 1 acting as the reference group was used to determine the probability of being in 1 of the 3 groups. **Years on Dialysis Post-Transplant and PROMIS** are not predictors. * indicates significance.

Predictors	Referent: Class 1	Estimate	SE	P-value
Optimism	Class 2 vs Class 1	0.2021	0.0734	0.0059**
	Class 3 vs Class 1	0.2809	0.1044	0.0071**
Proactiveness	Class 2 vs Class 1	-0.1440	0.0526	0.0062**
	Class 3 vs Class 1	-0.0308	0.0734	0.6744
Willingness	Class 2 vs Class 1	-0.3622	0.0779	0.0000***
	Class 3 vs Class 1	-0.1470	0.0850	0.0835
Dialysis Experience	Class 2 vs Class 1	0.4016	0.1050	0.0001***
	Class 3 vs Class 1	-0.5361	0.1451	0.0002***
Physician Discussion	Class 2 vs Class 1	-0.0548	0.2021	0.7861
	Class 3 vs Class 1	0.5880	0.2846	0.0388*
Transplant History	Class 2 vs Class 1	-0.1936	0.2294	0.3986
	Class 3 vs Class 1	-0.9474	0.3193	0.0030***
Health-Related Quality of Life	Class 2 vs Class 1	-0.1269	0.0625	0.0423*
	Class 3 vs Class 1	0.0759	0.0731	0.2991
PROMIS	Class 2 vs Class 1	-0.0162	0.0121	0.1795
	Class 3 vs Class 1	0.0098	0.0141	0.4851
Years on Waiting List	Class 2 vs Class 1	0.1092	0.0471	0.0204*
	Class 3 vs Class 1	0.1007	0.0810	0.2136

GROUP 1 (n=17)

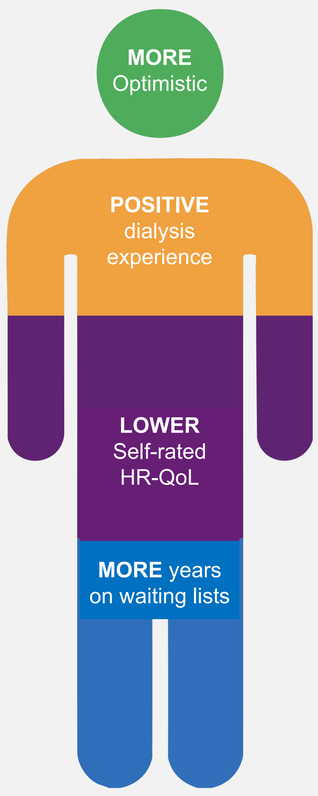


Risk:
LEVEL 1- Proceed with an acceptable kidney transplant enabled by same day desensitization

Life Participation:
LEVEL 1- Substantially increased life participation post-transplant

Support:
LEVEL 1- I have all the support needed to move forward with a transplant

GROUP 2 (n=67)

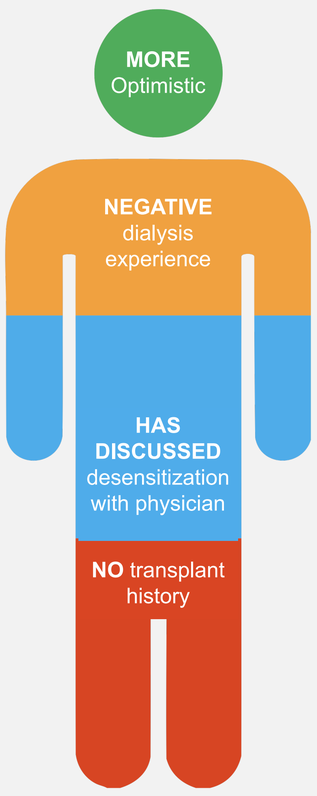


Risk:
LEVEL 1- Proceed with an acceptable kidney transplant enabled by same day desensitization

Hope:
LEVEL 2- Medium desire for kidney transplant. Right now, I prefer to continue dialysis until the right kidney and/or the time is right for me

Kidney Survival:
LEVEL 1- 5+ years; or average kidney survival

GROUP 3 (n=15)



Hope:
LEVEL 1- High desire for acceptable kidney transplant. I want the same opportunity of receiving a new kidney as everyone else on the waiting list

CONCLUSIONS

LPA is a well-established and utilized methodology for delving deeper into preferences. This LPA identified three distinct patient subgroups, each characterized by unique combinations of health behaviors, preferences, and individual traits. Recognizing these profiles enables the development of more personalized treatment strategies and policy approaches that better reflect the lived experiences and priorities of patients. By aligning interventions with the needs of each subgroup treatment plans and shared decision making conversations can become more informed, responsive, equitable, and effective.

LIMITATIONS

- Findings apply to the study population from the USA and should be validated with other populations to identify potential differences in preference and characteristics.
- The study N is the minimum cohort size.
- Health system settings, transplant access and patient experience influence preference and experience and are expected to create differences between this study population and others.

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References:

1. United States Renal Data System. 2023 *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, 2023.
2. OPTN data as of September 20, 2025.