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| **Client:** | Kara Shields | **File:** 24-109 |
| **Dept:** | Nutrition Science | **Faculty:**  **Student:** |
| **Date:** | 10/30/24 | **Initial Meeting:**  **Follow-up:** |
| **Consultant and Attendees:** Sumeeth Guda, Kara Shields, Dr. Brandon Kistler, Dr. Chong Gu | | |
| **Statement of Problem:**  To determine how chronic kidney disease treatment policies are influenced by dietician experience and clinic location. | | |
| **Goal of this Project:** Journal Publication, Grant Application, Undergraduate Senior Thesis | | |
| **Background:**  The client is an undergraduate student from Nutrition Science doing an undergraduate honor’s project with her professor. They created a survey for inpatient dietitians to see how they handle people with chronic kidney disease. The client is working with primarily descriptive data, and they are looking to compare data (categorical) within a training and practice setting. The client and her research advisor are seeking help to do a power analysis for a grant application. The client is presently taking STAT 301 and is not confident with the power analysis calculations for this survey. | | |
| **Progress of project at this time:** Design (No data collected) | | |
| **Relevant information presented at the meeting:**  Survey Notes:   * Continuous variables will be binned into meaningful categories based on responses from the participants. * The survey is mostly collecting descriptive categorical data about 30 questions ranging from multiple choice, selecting all that apply, and text input.   + The survey has the assumption that the taker is either a dietician or is a hospital administrator who has a staff of dieticians. The survey is sent to individual dieticians, not to any journals or organizations.   Meeting Notes: | | |
| Right at the start of the meeting, the client and her advisor told us that they needed help doing power analysis for both the grant application and the IRB application. They need the results for the power analysis to determine the ideal sample size for their study, as well as they wanted the SCS to validate the survey design. The main goal of their survey is to gauge if the treatment policies for chronic kidney disease differ between clinics, investigating if dietician experience and hospital location have an effect on the policies. For example, a typical chronic kidney disease treatment in a smaller hospital would be to reduce the menu items of the patient while in a larger hospital they can put the patient on medication to mitigate the effects. This is the main question the survey is trying to answer: Asks dieticians about their experiences and the policies their clinics have for chronic kidney disease.  According to Dr. Gu, while the client originally came to SCS to get feedback to make sure this is a sound experimental design, ultimately, he pointed out that this is more of an observational study. However, standard regression techniques could be used for this project. Additionally, they didn’t have a hypothesis defined before which was a bit of a concern to Dr. Gu. Since without a clearly defined hypothesis, power analysis cannot be completed.  Dr. Gu also had concerns about the effect of the participant’s location or organizational affiliation on the survey. This was because the client came for power analysis, and needed to get help figuring out what sample size was good enough for the survey analysis. Dr. Gu felt that if the client wants to analyze multiple factors in her analysis beyond her primary analysis variable, she will need to get data from more participants. If the location of where the participant works (teaching clinic, private practice, hospital, etc.) has an effect on the analysis, then the samples from each of these groups would need to be representative. When the client gets the samples, they need to narrow the scope for the variables. One of the scopes that could be narrowed is the location of the clinics. Different locations can have an effect on the samples since mixing the different locations might complicate the analysis. The reason why this is problematic is because the same independent variable might function differently based on the locality. | | |
| **Recommendations for Design and/or Analysis:**   1. Power analysis cannot be done for this project since this is an observational study. What the client can do instead is to propose a specific hypothesis in which regression analysis can be used to answer the hypothesis. Additionally, to address the client’s question regarding how many people they need to answer the survey and what number to report for the IRB and grant applications. While it was emphasized that getting as many participants as possible is best, ultimately what the client and her professor could do in the meantime is to look at previous studies which focused on solving similar problems and quote the sample size of that study for both of the applications. The client needs to also determine what variables are significant in their hypothesis that could be used for regression analysis. 2. To address the location effect, Dr. Gu recommended that the client limit the data collection based on location (IN, CA, etc.). From here we can break from the data into multiple homogeneous sub-groups within the same model. Depending on the model results, we might only limit the data to only 1 state since a homogenous dataset is preferred since we can detect signal easier at the expense of a lower scope. 3. Since the client cannot directly get access to specific dieticians in the hospitals. When we do analysis, we can account for the correlation of the individuals working in the same system. If dieticians work in the same hospital or system, their work is definitely correlated. If we want to preserve anonymity, we could assign codenames to the hospitals but with certain changes. If different individuals are affiliated in any way we could anonymize the data. 4. Sumeeth suggested that if they have a limited amount of data or dummy data, we could use that as a baseline to come up with the analysis for the full dataset after they collect the data in Summer 2025. | | |
| **Who will carry out these actions?**  Client:   1. Come up with specific hypothesis questions for the study. 2. Look at past studies and quote the size of the past studies on the application for the IRB and grant applications. 3. Consider limiting the scope of the survey to one locality. | | |
| **Status:** Follow up needed | | |

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