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Short Communication

Distance Makes the Heart Grow Fonder

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Introduction

Hospital follow-up appointments are integral components of patient care. Patients who follow up are presumed to better their health with hopefully decreased readmissions. Emphasizing and analyzing the factors that correlate and affect patient compliance with follow-up visits is critical to provide the best possible care. Clinical observations demonstrate possible confounding factors that affect patient compliance with follow-up appointments; which may include distance from healthcare facility, gender, age, and type of insurance. This study's aim is to identify significant correlations between patient demographic information and likelihood of follow-up visit attendance. With this information, the plan is to implement strategies in the future that may further impact patient attendance of post hospital discharge appointments [1].

The approach to determining the likelihood of patient follow-up is not a new problem that has been plaguing the medical community. In 2000, Nelson et al found 78% of the psychiatric patients studied attended their follow-up visit when there was an outpatient follow-up appointment scheduled for them at the time of discharge [2]. 2% of patients are being lost to follow-up. Identifying potential factors that lead to decreased follow-up visits helps to target certain population for future quality improvement projects.

Medical research into the mystery of patient non-attendance of follow-up visits has continued. In 2010, the Mayo Clinic Internal Medicine Department discovered patients who had extended stays and lived in closer proximity followed up more frequently than their counterparts. Additionally, 30 and 180-day lead times were considered, with patients having a 180-day lead time (number of days between discharge and a scheduled follow-up visit) demonstrating a statistically significant increase in hospital readmissions [3]. Later in 2015, Jackson et al found "a greater than 20% baseline risk of readmission" when follow-up visits were scheduled within 7 days of discharge [4]. We decided to include lead time as a variable within our research project to identify correlations between lead time and likelihood of follow-up visit attendance.

Methods

A retrospective analysis was performed on adult patients admitted to SSM Saint Louis University Hospital, a 356-bed tertiary care facility between February 5, 2018 and February 28, 2018. Only patients who had documented follow-up appointments scheduled with Saint Louis University affiliated physicians were included in the data set. Patient charts were accessed through our EMR to acquire demographic and follow-up appointment information. We sought to examine the effect of multiple available predictors on appointment attendance: distance between clinic and patient's documented address, discharge disposition (home *v/s* facility), length of stay, chronic comorbidities, lead time to appointment, discharge diagnosis, follow-up service, and number of follow-up appointments [5]. A fixed model logistic regression was employed because an exceedingly small intra-class correlation coefficient indicated no violation of independence despite having repeated measures. The empirically best fit model based on AIC value via stepwise regression was identified [6].

Results

The fitted model on the subset data suggested two significant effects. For every additional mile in distance from the facility, the odds of attending are 3.38% higher ($p = .0447$) (Figure 1). The odds of attending were 94.47% less if the appointment had been rescheduled ($p=.0075$). For every additional day of lead time, the odds of attending decrease by 3.92% ($p = .0693$) (Figure 1). Other variables including age, gender, race, discharge disposition, insurance type, length of hospital stay, number of comorbidities, or follow-up specialty were not shown to be statistically significant as their p-values were > 0.05 (Figure 2). Two variables, age and gender, when ran together showed no statistical significance. Race and distance together also yielded no significant results.

Discussion

The main goal for this study was to identify potential variables that affect patient follow-up visit attendance. Two main variables were identified: (1) Distance from the hospital (2) Lead time: Number of days between hospital discharge and the scheduled follow-up appointment. First and foremost, the study was limited by missing information in patients' charts; disqualifying them from the data set. Most importantly the data set was limited to patients with active insurance accepted by St. Louis University affiliates. Patients without insurance are not scheduled for follow-up visits at SLU facilities and are then immediately disqualified according to the study requirements.

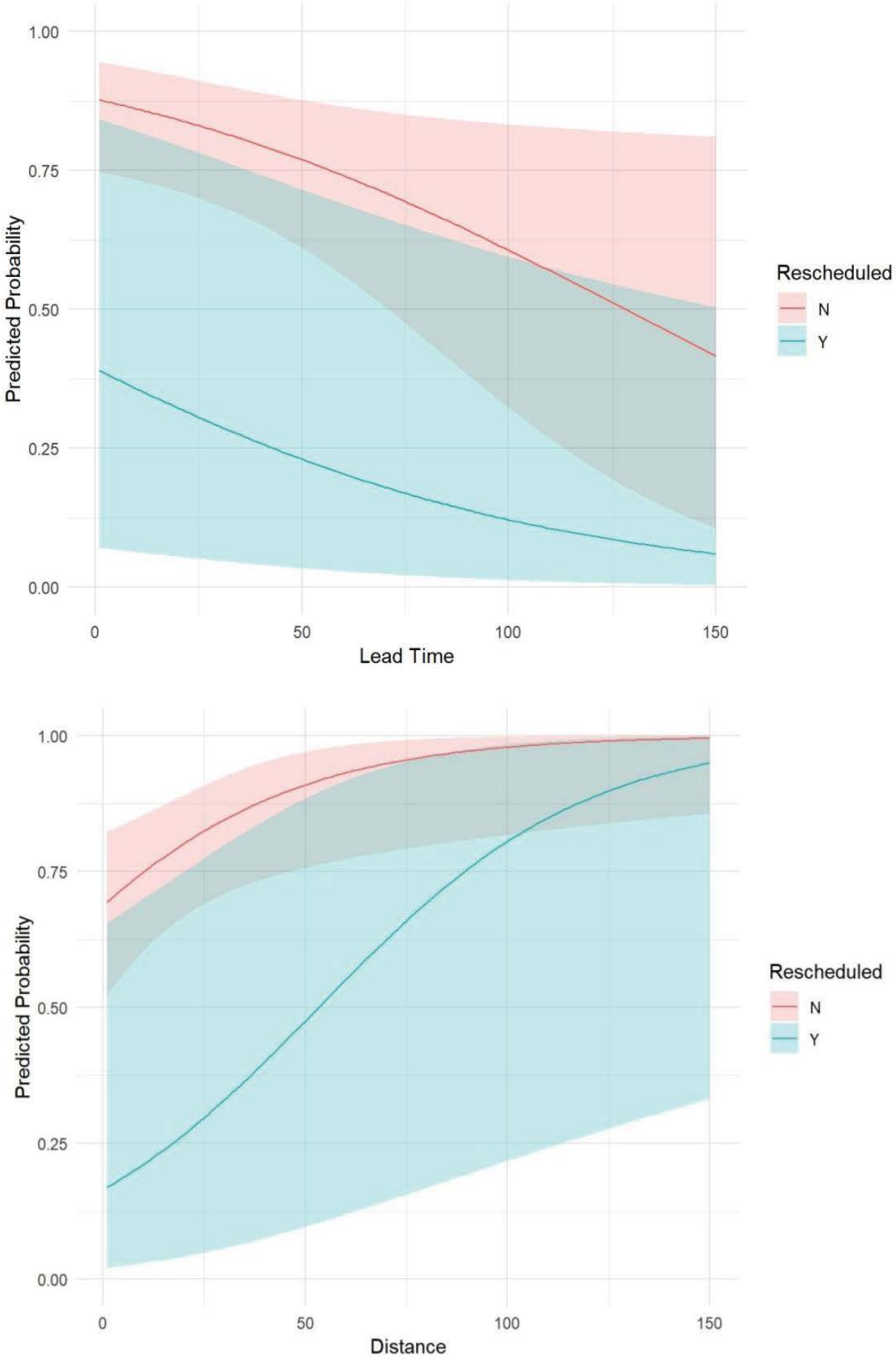

Figure 1: Chart with two main variables as Lead time and Distance from the hospital.

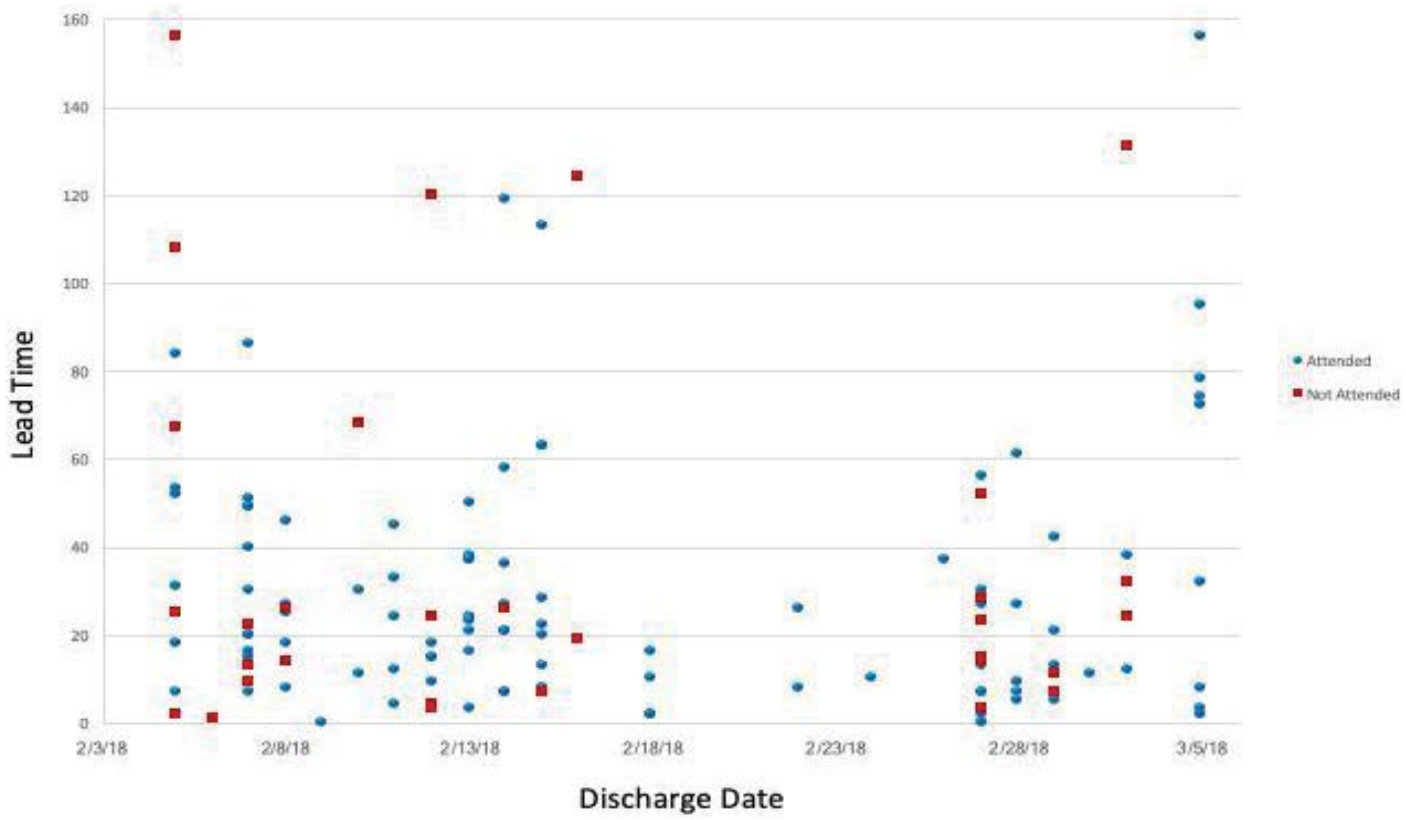

Figure 2: Chart showing other variable as Discharge date.

Conclusion

The success of this study has created opportunities to target specific patient populations in hopes of decreasing the number of no-show appointments; in turn increasing the productivity and availability of healthcare in the St. Louis region and beyond. With this information, the plan is to implement strategies in the future that may further impact patient attendance of post-discharge appointments following hospital discharge. Emphasizing and analyzing the factors that affect patient compliance with follow-up visits is critical in order to provide the best possible care.

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