Story 1

Title	Summary	Executive Summary	Age and Gender	Neighborhood	SMS, does it help?	Scholarship	All together now	Appointments for each patient ID	Time Difference Between Scheduled and Appointment Date	Insight

Data Set: https://www.kaggle.com/joniarroba/noshowappointments

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Summary:

A doctors office in Brazil has seen an issue with patients being no-shows to appointments, and am unsure as to why. They have asked for us to look at the data and to see if there is a findable answer.

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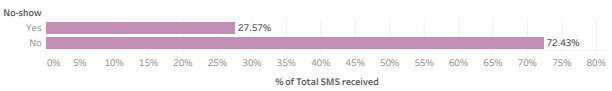
Non-Technical Executive Summary

Demographic has less to do with no-shows than the actual appointments themselves. Fixing the SMS system could result in more show ups, as would other types of reminders and communication.

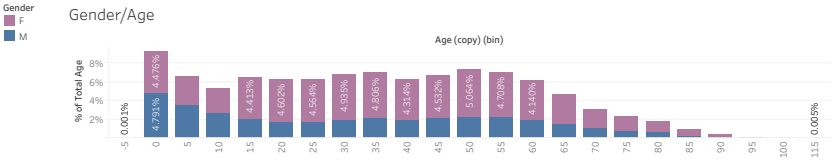
SMS



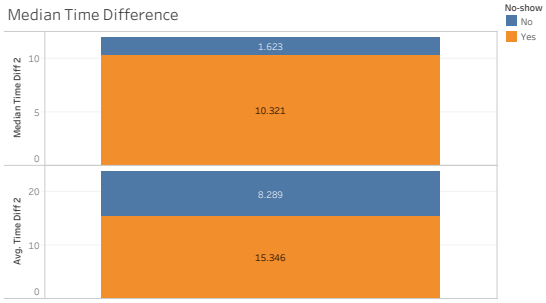
No-Show Percentage/Count

No-show	% of Total N..	Count of No-show
Yes	20.19%	22,319
No	79.81%	88,208

Gender/Age



Median Time Difference



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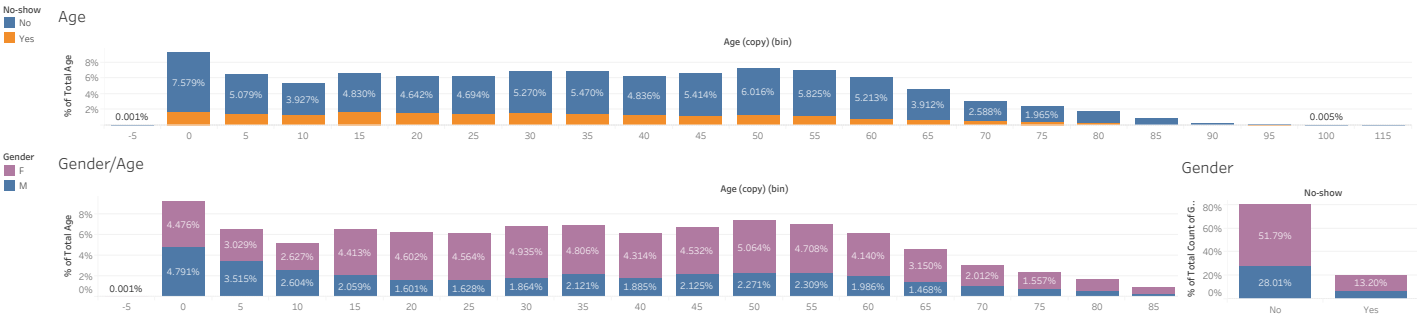
Age and Gender

I first started off by looking at age and gender, it seemed like an easy starting point. What these charts show is that younger kids ages 0-4 seem to no show the most at 1.687%, while also being the highest show ups. I believe this, along with ages 5-9, is due to kids being at the will of their parents. They cant choose to go to their appointments.

Note - This area has a hgher female population, this accounts for the higher percentage of female no-shows
Ages that no-show more
- 0-5 (1.68%)
- 15-20 (1.64%)
- 20-25 (1.56%)
- 30-35 (1.53%)



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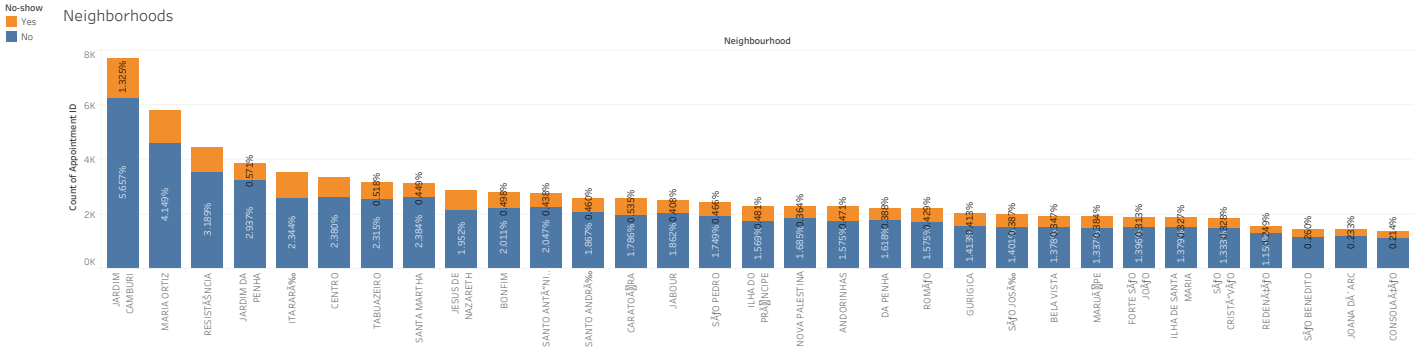
Neighborhoods

Excluded Values - Any neighborhood with non-no-shows under 1% (for ease of viewing)

None of the neighborhoods show abnormal amount of show ups or nowhows. Percentages seem to corrilate with amount of patients who live in that neighborhood.



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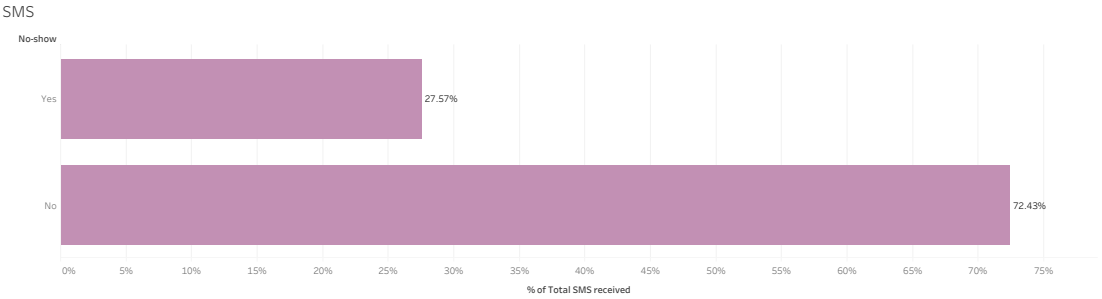
Does SMS Help?

The client states they also have been using SMS reminders that doesent seem to be helping. After looking at the data, that seems to be true. I compaired the percentages to the no-shows who got text messages against the percentages of no-shows in general and found that the SMS no-shows are actually higher than the overall percentage. That means patients who sign up for SMS reminders are 7% more likely to not show up for their appointment.



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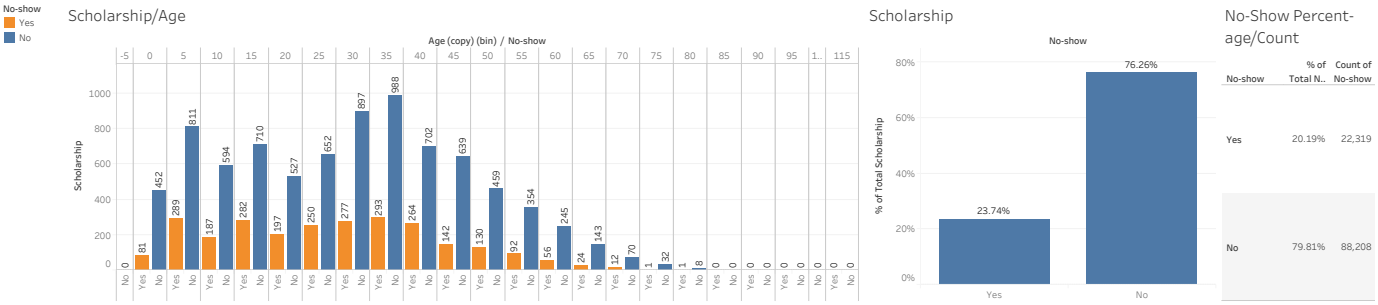
Scholorship

This slide and the next one are also going to compair percentages like the last one. In Brazil, scholorships are like welfare. The data has shown that patients on scholorships are 3% less likely to show up for their appointments. I was worried this was mostly children, as those in this program are families with children, but the first graph does not support that idea. Which would show a problem with fraud. One possibility is making an appointment and no longer having the money to travel to the clinic and maybe not having a phone to call and cancel.

More can be learned here: https://en.wikipedia.org/wiki/Bolsa_Fam%C3%ADlia#Benefit



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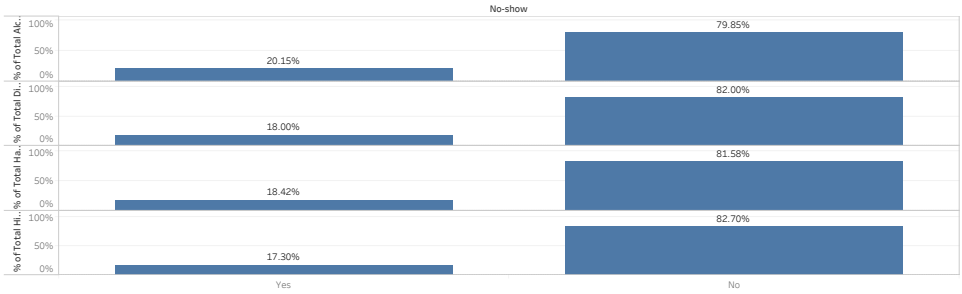
Other Ailments vs. No-shows

On this slide, I am seeing how alcoholism, diabetes, a handicap, and hipertension may affect a paitients possibility to not show up for appointments. Both of the percentages of patients showing up (79-82%)and not showing up (17-20%) for the four ailments are close to the overal percentages (79% and 20% respectively), but still are below the no-show percentages (and are above the show up percentages). This shows that these ailmants are not causing patients to not show up. So, what could be causing the no-shows?

Alcoholism, Diabetes, Handcap, Hipertension



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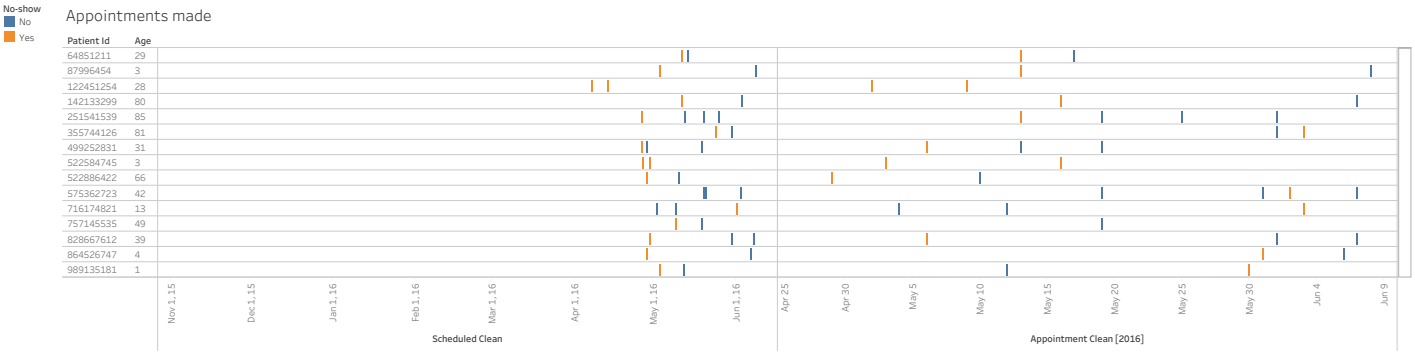
Catalog of Appointments Made

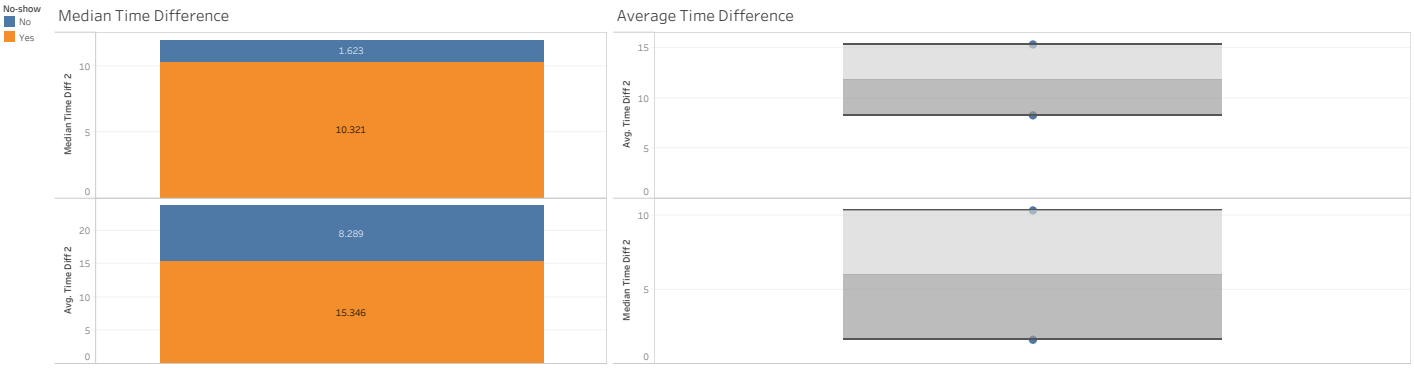
This is where I started to get my answer. Some no shows seem to be due to patients remaking appointments. Some appointments are made close to another that was a noshow. One patient I saw made an appointment closely after her first one that was sooner than the first one. Perhaps some of the noshows can be fixed by making sure unwanted appointments are cancled if one is made soon after another.



Story 1

Time Difference Between Appointments

This slide backs up my hypothosis from the last slide. Both of the average and median time difference for no-shows are higher than those who do show up. Meaning a longer waiting time between when the appointment is made and when the appointment actually is may be the reason patients dont show up.



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My Analysis

Impactful

The most useful information came from looking at age, appointments put in chronological order, and diffence of times between appointments.
What I can take from this is that children ages 0-4 have the most appointments and also the most no-shows. With the appointment dates and time analysis, I have concluded that most appointments are missed due to how far away they are in time resulting in forgetting the appointment, or no longer needing it.

My Recommendation

After my analysis, I suggest looking into why the SMS is having a and to refigure the set up so that it has a positive impact in patients showing up for appointments. I also suggest communica appointments, if they are actually needed or not, and to not schedual appointments so far out. If a patient does not have a pho r or a printout given to said patient at checkout.