The Effects of Painkillers on Drug Misuse

fighting-r-ish: Kristina White and Mahati Kalaparthy

We were interested in the effect of having taken certain painkillers on the degree of drug misuse, and chose to focus on the Canada dataset. We chose the DAST_CAT variable as our response variable because it synthesizes information about whether respondents have used drugs for non-medical purposes and effects this has had on their lives (neglecting family, medical issues, engaging in illegal activity, internal shame over drug use, etc.). We considered whether or not people had ever used the painkillers respondents were asked about in the Medications section of the survey. This includes if they were prescribed by a doctor for medical reasons. We felt it was important to include this information, as some patients struggle with addiction after being prescribed painkillers following surgery, for example.

DAST_CAT is an ordinal variable, so we used a proportional odds model. We initially considered the following predictor variables: FENT_USE, BUP_USE, METH_USE, MORPH_USE, OXY_USE, OXYM_USE, TRAM_USE, TAP_USE, COD_USE, HYD_USE, HYDM_USE, SUF_USE. We minimized AIC for model selection and eliminated TRAM_USE and SUF_USE from the final model.

According to this model, if we hold the other variables constant, for those who have used fentanyl the odds of having a higher DAST_CAT score (our proxy for drug misuse) are 1.38 times that of those who have not used fentanyl. For those who have used buprenorphine, methadone, morphine, oxycodone, oxymorphone, tapentadol, prescription or non-prescription codeine, or hydrocodone, the odds of having a higher DAST_CAT score are 1.68, 2.71, 1.17, 1.23, 1.67, 1.86, 0.72, 1.67, and 1.89 times higher than those who have not used these respective drugs, all other variables being constant. It is interesting that codeine use was linked to lower odds of having a higher level of DAST_CAT. This would be a good subject for further investigation.

The accompanying presentation contains histograms for the fitted values of our model. These fitted values represent the probabilities that a respondent received a DAST_CAT score of 1, 2, 3, 4, and 5, respectively. In general, it seemed respondents had higher probabilities of being in a lower category for DAST_CAT than being in a higher category.

The scope of interpretation for this model is limited. It only looks at painkillers, not other types of drugs such as hallucinogens or stimulants, and it does not consider the varying levels of addictiveness of each drug. It also does not consider any demographic factors. Further, we can not generalize these conclusions outside of Canada, and since we ignored the weights, this is not necessarily a representative sample. However, this is a good starting point to pose further questions about the connection between various painkillers and drug misuse.

*We feel our presentation would best fit the Best Insight or Best Visualization categories.