

Plotting results of logistic regression (binary outcome):

Plotting the odds ratios (forest plot) from regression makes the results more readable and visually appealing. R has a suite of packages among which sjplot, sjmisc and oddsplotly are the commonly used ones.

Here are some examples:

Data: Cameroon DHS 2018.

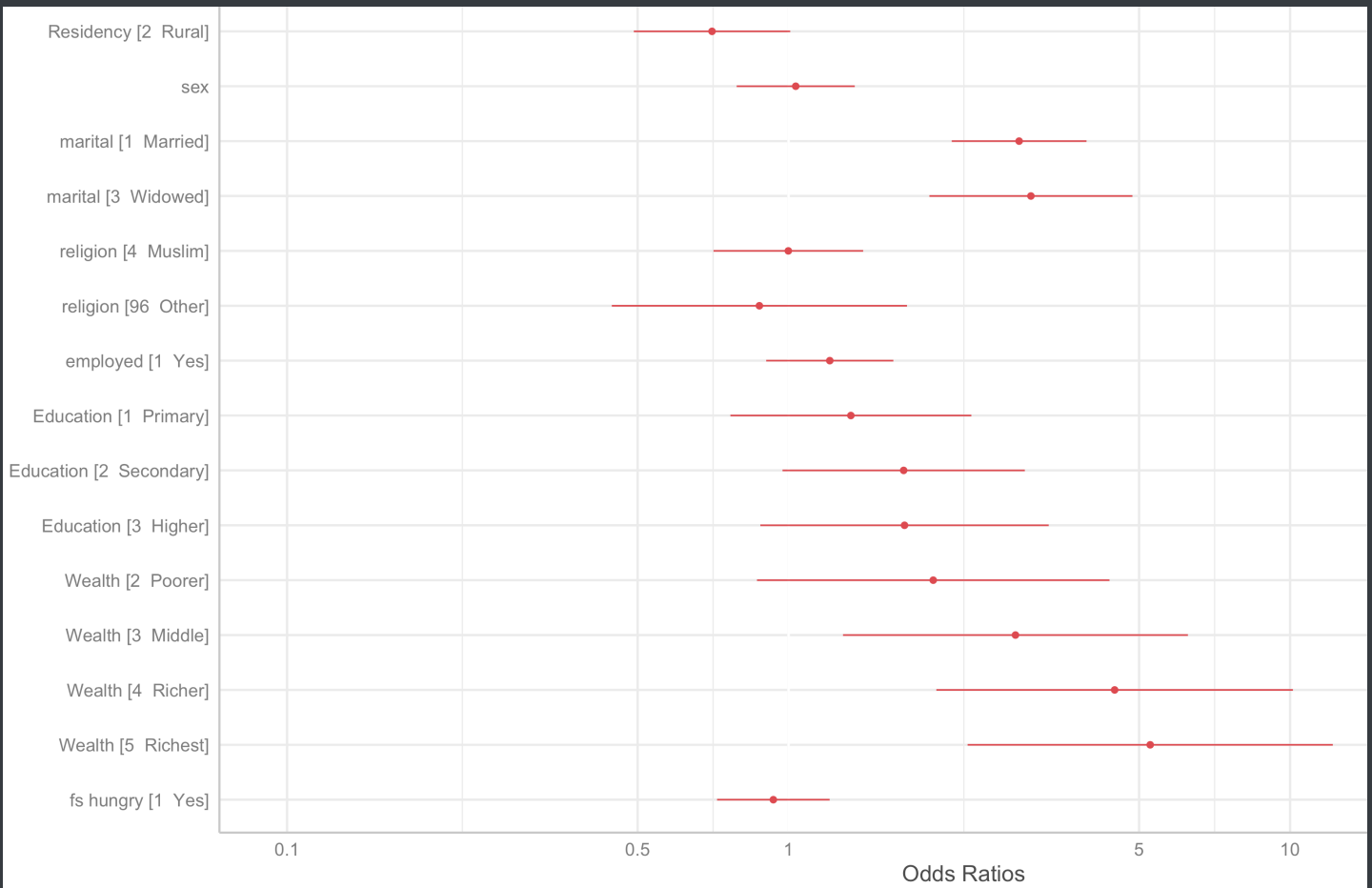
Example 1: using the sjplot package:

Outcome: Diabetes (Diabetic vs non-diabetic)

Exposure: Residency, Sex, Marital status, Religion, Employment status, Education, Wealth quintile, Food insecurity.

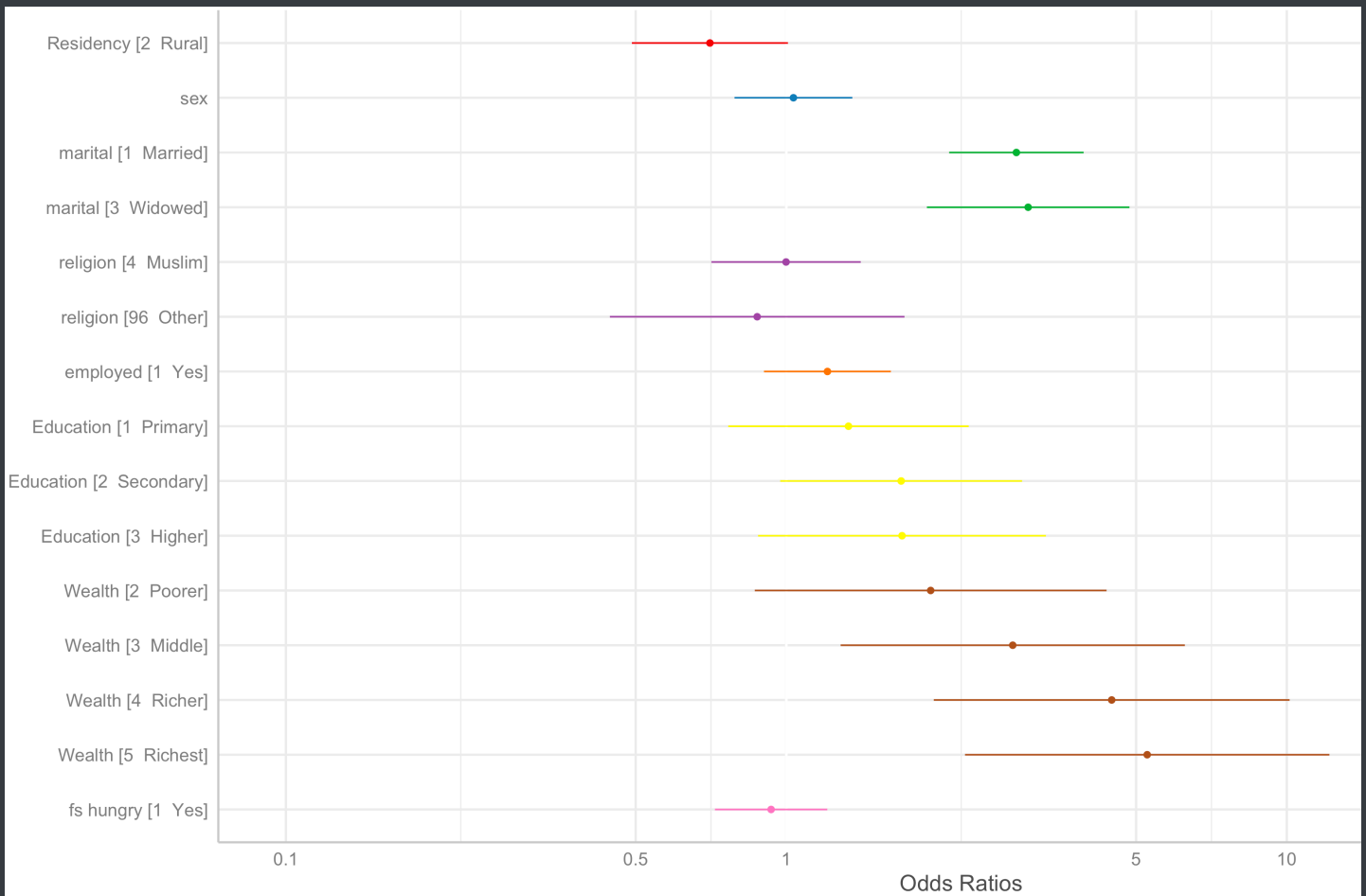
The model:

```
fit <- glm(diab ~Residency + sex + marital + religion + employed +  
Education + Wealth + fs_hungry, data = fs, family = binomial(link =  
"logit"))
```



Colour coding the variables for faster reading:

```
plot_model(fit, group.terms = c(1, 2, 3, 3, 4, 4, 5, 6,6,6,
7,7,7,7,8))+theme_sjplot(base_size = 20)
```



Example 2: using the oddsploty package:

```
library(OddsPlotly)
library(caret)
glm_model <- caret::train(ipv~ fs_hungry+ Residency+employed+Education+
Region, data = fs, method = "glm", family = "binomial")
```

Model output:

```
> summary(glm_model)
Deviance Residuals:
   Min       1Q   Median       3Q      Max
-1.729  -1.056  -0.715   1.102   1.865
```



```

`Region9. West`                1.41624    0.32853    4.311
0.00001627 ***
`Region10. South`              0.88278    0.35593    2.480
0.013130 *
`Region11. South-West`        0.36126    0.53920    0.670
0.502869
`Region12. Yaounde`           0.82127    0.35896    2.288
0.022143 *
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

```

(Dispersion parameter for binomial family taken to be 1)

```

Null deviance: 1998.0 on 1442 degrees of freedom
Residual deviance: 1881.1 on 1425 degrees of freedom
AIC: 1917.1

```

Plotting the output:

```

library(ggthemes)
plotty <- OddsPlotty::odds_plot(glm_model$finalModel,
                                point_col = "#00f2ff",
                                error_bar_colour = "black",
                                point_size = .5,
                                error_bar_width = .8,
                                h_line_color = "red")
plotty$odds_plot + ggthemes::theme_tufte()

```

