Psychiatric Symptoms of Veterans Surveyed Through Facebook Ads

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# Read data

**Most of this code was developed in Phase 1.** Results will be suppressed for brevity.

**Use only the REDCap survey data**

Notes on the REDCap identifier variables:

* If [consent] == 1, they started the eligibility survey;
* if == 0 or == NA, they didn't.
* If [consent\_and\_eligibility\_complete] == 2, they finished the screener (whether eligible or ineligible);
* if == 0, they dropped out or never started.
* If [eligible] == 1, they completed the screener and were eligible;
* if == 0, they completed and were ineligible;
* if == NA , they dropped out or never started.
* If [veterans\_and\_social\_media\_use\_co] == 2, they finished the survey;
* if == 0, they dropped out or never started (this includes people who were ineligible or didn't consent).
* If [analytic\_sample] == 0, they completed the survey but were disqualified for data quality reasons;
* if == 1, they completed survey and was not disqualified for data quality reasons;
* if == NA, they didn't complete the survey.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| consent | consent\_and\_eligibility\_complete | eligible | veterans\_and\_social\_media\_use\_co | analytic\_sample | n |
| 0 | 0 | NA | 0 | NA | 8 |
| 0 | 2 | 0 | 0 | NA | 7 |
| 1 | 0 | NA | 0 | NA | 84 |
| 1 | 2 | 0 | 0 | NA | 534 |
| 1 | 2 | 1 | 0 | NA | 106 |
| 1 | 2 | 1 | 2 | 0 | 18 |
| 1 | 2 | 1 | 2 | 1 | 587 |
| NA | 0 | NA | 0 | NA | 96 |

Inclusion criteria

* Completed survey and was not disqualified for data quality reasons; [analytic\_sample] == 1

**Number included: n = 587**

Cleaning

* Parse out fba into 2 separate variables for image and text
* Assign indicator for survey participation, indSurveyParticipation
* analytic\_sample == 1: Participant completed survey and was not disqualified for data quality reasons
* Assign indicator for eligibility screener participation, indScreenerParticipation
* eligible == 1: Participant completed eligibility screener and was eligible to participate in full survey

## Use of VA health services

Recoding logic

* Primary analysis will code 9 (not sure) as 0 (No)
* Sensitivity analysis will exclude the 9 values from the analysis
* If va\_ever\_enrolled == FALSE & is.na(va\_use\_12mo), then recode va\_use\_12mo to FALSE
* If va\_use\_12mo == TRUE & va\_ever\_enrolled == FALSE, then recode va\_ever\_enrolled to TRUE
* Code indicators indVANeverEnrolled and indVANotUse12mo as the logical opposites of va\_ever\_enrolled and va\_use\_12mo

## Independent variables

* Score the Modified Facebook Measure of Social Support (FMSS)
* Reverse-scored items are fmss\_r7 through fmss\_r10
* Standardize FMSS
* Prep FMSS items
* Combine categories due to small cell sizes

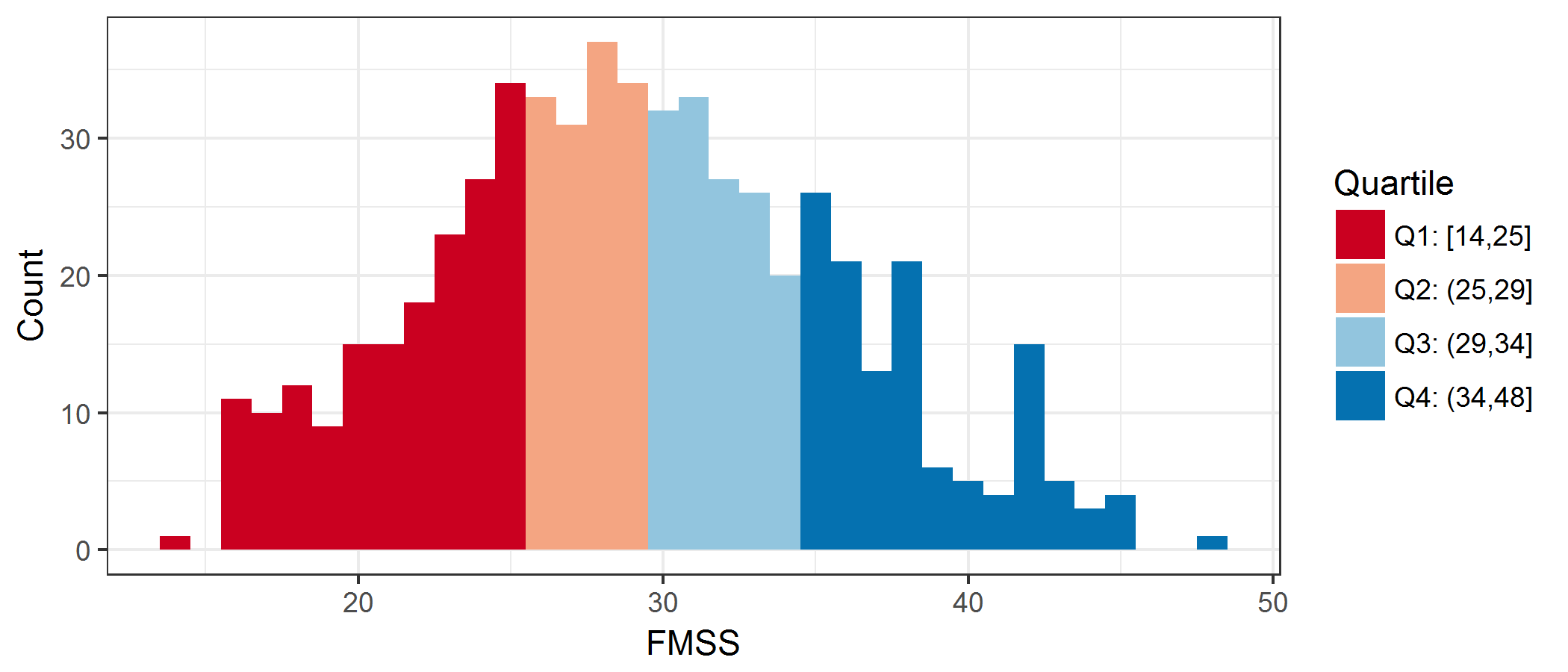
## fmss fmssZ   
## Min. :14.00 Min. :-2.29729   
## 1st Qu.:25.00 1st Qu.:-0.62179   
## Median :29.00 Median :-0.01252   
## Mean :29.08 Mean : 0.00000   
## 3rd Qu.:34.00 3rd Qu.: 0.74908   
## Max. :48.00 Max. : 2.88153   
## NA's :15 NA's :15

## fmss fmssZ  
## fmss 1 1  
## fmssZ 1 1

## fmss fmssZ  
## fmss 6.565197 2.562264  
## fmssZ 2.562264 1.000000

|  |  |  |  |
| --- | --- | --- | --- |
| fmssQuartile | n | min | max |
| Q1: [14,25] | 175 | 14 | 25 |
| Q2: (25,29] | 135 | 26 | 29 |
| Q3: (29,34] | 138 | 30 | 34 |
| Q4: (34,48] | 124 | 35 | 48 |
| NA | 15 | NA | NA |

Check.



plot of chunk histogramFMSS

## Dependent variables

### Psychiatric symptoms (RQ1)

Code indicators for psychiatric disorder screening scales

* PTSD
* Name of scale: PC-PTSD
* Positive screen: ptsd\_intrusive + ptsd\_avoidant + ptsd\_guarded + ptsd\_numb + ptsd\_guilty 3
* Major depression
* Name of scale: PHQ-2
* Positive screen: phq\_interest + phq\_mood 3
* Alcohol misuse
* Name of scale: AUDIT-C
* Positive screen: auditc\_freq + auditc\_amount + auditc\_binge 4 for men, 3 for women

Presence of suicidality is defined as DSI-SS score 2. This cut-off score was chosen based on recommendations for population-based samples noted in [von Glischinski M Clin Psychol Psychotherapy 2015](http://onlinelibrary.wiley.com/doi/10.1002/cpp.2007/full)

* Score the DSI-SS inventory
* See [Joiner 2002](http://www.sciencedirect.com/science/article/pii/S0005796701000171)
* *Scores on each item range from 0 to 3 and, for the inventory, from 0 to 12, with higher scores reflecting greater severity of suicidal ideation.*

Check.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| yvariable | indPTSD | mean | sd | min | max | n | freq |
| ptsd | FALSE | 0.9 | 0.9 | 0 | 2 | 236 | 47.0% |
| ptsd | TRUE | 4.2 | 0.8 | 3 | 5 | 266 | 53.0% |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| yvariable | indPHQ | mean | sd | min | max | n | freq |
| phq | FALSE | 1.0 | 0.9 | 0 | 2 | 422 | 72.0% |
| phq | TRUE | 4.5 | 1.2 | 3 | 6 | 164 | 28.0% |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| yvariable | indAuditC | mean | sd | min | max | n | freq |
| auditc | FALSE | 1.8 | 0.8 | 1 | 3 | 234 | 49.1% |
| auditc | TRUE | 5.9 | 2.1 | 3 | 12 | 243 | 50.9% |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| yvariable | indDSISS | mean | sd | min | max | n | freq |
| dsiss | FALSE | 0.1 | 0.3 | 0 | 1 | 453 | 77.4% |
| dsiss | TRUE | 3.9 | 1.6 | 2 | 9 | 132 | 22.6% |

Also create logical opposite for use in RQ3 modeling

### Social media use (RQ2)

* Spending more time on Facebook?
* Frequency of Facebook use: fb\_freq
* Active use of Facebook: comm\_facebook
* Sharing more personal or health-related information on social media?
* sm\_emot\_support
* sm\_med\_info
* sm\_med\_advice
* sm\_med\_questions
* sm\_share\_sympt
* sm\_share\_health
* sm\_share\_suicide

Mutate variables to factors.

## Covariates

* Social media platforms used: sm\_used\_\_\_1, ..., sm\_used\_\_\_7, sm\_used\_\_\_99, sm\_used\_other
* Recode the following sm\_used\_other values such that sm\_used\_\_\_99 = 0
  + I use Wikipedia to read about illnesses I don't have; it's a curiosity/hobby thing.
  + just in person
  + Just plain internet search
  + TV/phone conversations, veterans group meetings
  + google; bing
  + aol
  + e-mail
  + Web MD
  + webmd
* Offline social contact: comm\_inperson
* History of suicidal ideation and suicide attempts
* suicide\_considered\_ever
* suicide\_considered\_12mo
* suicide\_attempts

Check.

|  |  |  |
| --- | --- | --- |
| smOther | sm\_used\_other | n |
| FALSE |  | 552 |
| FALSE | aol | 1 |
| FALSE | e-mail | 1 |
| FALSE | google; bing | 1 |
| FALSE | I use Wikipedia to read about illnesses I don't have; it's a curiosity/hobby thing. | 1 |
| FALSE | just in person | 1 |
| FALSE | TV/phone conversations, veterans group meetings | 1 |
| FALSE | Web MD, | 1 |
| FALSE | webmd | 1 |
| TRUE | 4chan | 2 |
| TRUE | Gmail Hangouts; Reddit.com | 1 |
| TRUE | Google+ | 2 |
| TRUE | I used LiveJournal for the majority of my service as well as my deployment to Iraq | 1 |
| TRUE | Linked In | 1 |
| TRUE | LinkedIn, Snapchat | 1 |
| TRUE | LiveJournal | 1 |
| TRUE | MIL.MIL | 1 |
| TRUE | Ravelry Forums | 1 |
| TRUE | reddit | 3 |
| TRUE | Reddit | 5 |
| TRUE | Snao Chat | 1 |
| TRUE | snapchat | 3 |
| TRUE | Snapchat | 1 |
| TRUE | SnapChat | 1 |
| TRUE | webmd, mayoclinic,wikipedia, va | 1 |
| TRUE | www.coping-with-epilepsy.com | 1 |

Number of social media platforms used (excluding Facebook):

|  |  |
| --- | --- |
| countSocialMediaExclFB | n |
| 0 | 347 |
| 1 | 138 |
| 2 | 68 |
| 3 | 21 |
| 4 | 11 |
| 5 | 2 |

|  |  |
| --- | --- |
| comm\_inperson | n |
| Several times a day | 175 |
| Once a day | 58 |
| A few times a week | 114 |
| Once a week | 70 |
| Every few weeks or less often | 169 |
| NA | 1 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| indSuicideConsideredEver | indSuicideConsidered12mo | indSuicideAttempt | countSuicideAttempts | n |
| FALSE | FALSE | FALSE | 0 | 330 |
| TRUE | FALSE | FALSE | 0 | 140 |
| TRUE | FALSE | TRUE | 1 | 31 |
| TRUE | TRUE | FALSE | 0 | 29 |
| TRUE | FALSE | TRUE | 2 | 16 |
| TRUE | TRUE | TRUE | 1 | 11 |
| TRUE | FALSE | TRUE | 3 | 9 |
| TRUE | TRUE | TRUE | 3 | 8 |
| TRUE | TRUE | TRUE | 2 | 7 |
| TRUE | FALSE | TRUE | 4 | 2 |
| TRUE | FALSE | TRUE | 5 | 2 |
| TRUE | TRUE | TRUE | 5 | 1 |
| NA | NA | NA | NaN | 1 |

# Research Question 1

**Is perceived social support received from Facebook (FMSS) associated with lower rates of**

* Positive screens for psychiatric disorders
* PC-PTSD
* PHQ-2
* AUDIT-C
* Positive screen for suicidality?
* DSI-SS

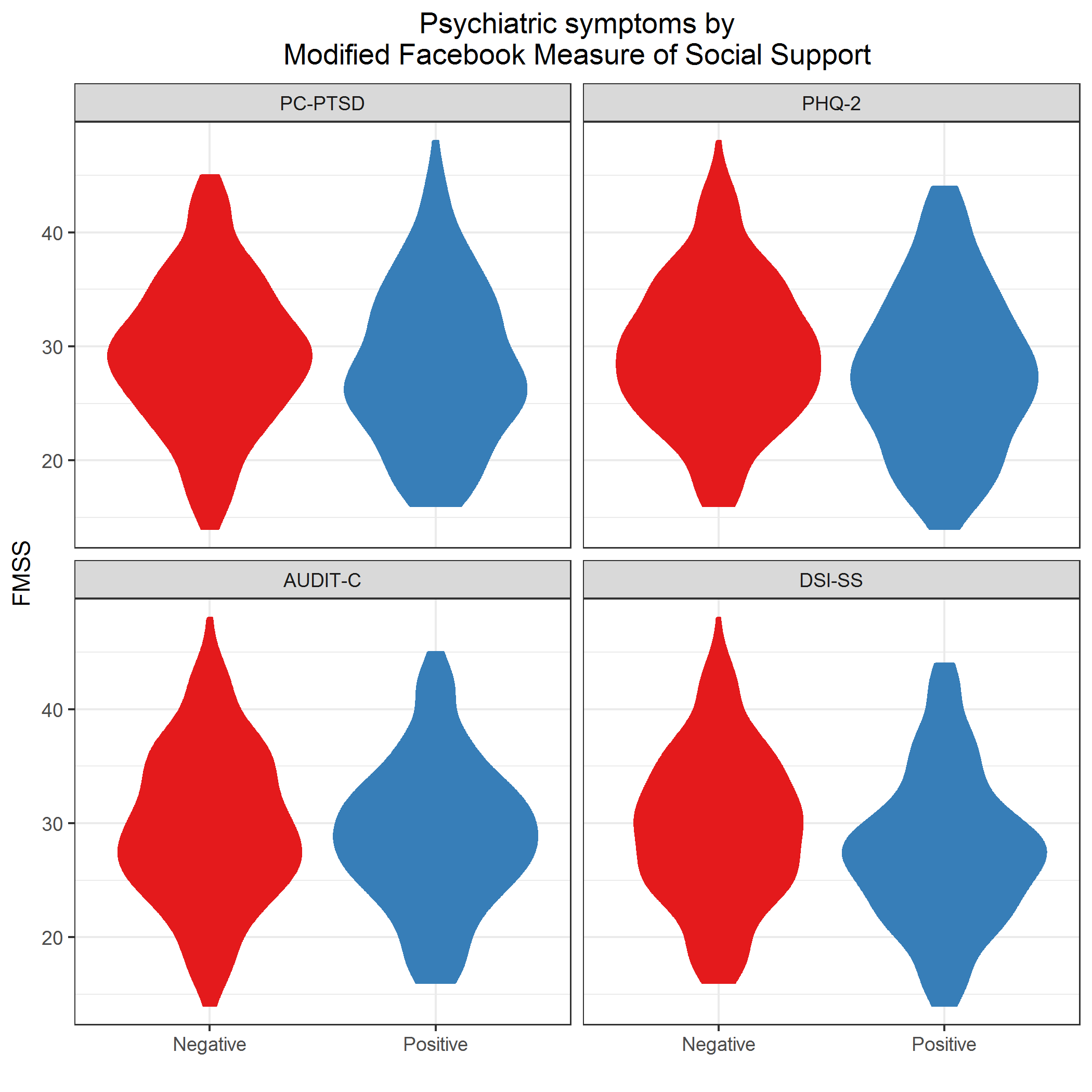
## Unadjusted comparisons

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| yvariable | indPTSD | mean | sd | min | max | n | freq |
| fmss | FALSE | 29.3 | 6.4 | 14 | 45 | 228 | 46.6% |
| fmss | TRUE | 28.3 | 6.8 | 16 | 48 | 261 | 53.4% |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| yvariable | indPHQ | mean | sd | min | max | n | freq |
| fmss | FALSE | 29.5 | 6.4 | 16 | 48 | 412 | 72.2% |
| fmss | TRUE | 27.9 | 6.9 | 14 | 44 | 159 | 27.8% |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| yvariable | indAuditC | mean | sd | min | max | n | freq |
| fmss | FALSE | 29.7 | 6.6 | 14 | 48 | 230 | 49.6% |
| fmss | TRUE | 29.0 | 6.3 | 16 | 45 | 234 | 50.4% |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| yvariable | indDSISS | mean | sd | min | max | n | freq |
| fmss | FALSE | 29.5 | 6.6 | 16 | 48 | 442 | 77.5% |
| fmss | TRUE | 27.6 | 6.4 | 14 | 44 | 128 | 22.5% |



plot of chunk plot2GroupsRQ1

## Adjusted comparisons

## fmss fmssZ  
## fmss 6.565197 0  
## fmssZ 0.000000 1

Filter subjects with missing covariates.

### PC-PTSD

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| model | term | oddsratio | std.error | statistic | p.value |
| Unadjusted | (Intercept) | 1.129 | 0.091 | 1.336 | 0.182 |
| Unadjusted | fmssZ | 0.866 | 0.090 | -1.600 | 0.110 |
| Adjusted | (Intercept) | 0.428 | 0.210 | -4.037 | 0.000 |
| Adjusted | fmssZ | 0.890 | 0.099 | -1.181 | 0.238 |
| Adjusted | countSocialMediaExclFB | 1.022 | 0.099 | 0.216 | 0.829 |
| Adjusted | comm\_inpersonOnce a day | 1.629 | 0.358 | 1.363 | 0.173 |
| Adjusted | comm\_inpersonA few times a week | 1.326 | 0.279 | 1.013 | 0.311 |
| Adjusted | comm\_inpersonOnce a week | 1.907 | 0.335 | 1.925 | 0.054 |
| Adjusted | comm\_inpersonEvery few weeks or less often | 2.919 | 0.258 | 4.149 | 0.000 |
| Adjusted | indSuicideConsideredEverTRUE | 2.109 | 0.215 | 3.471 | 0.001 |
| Adjusted | countSuicideAttempts | 1.680 | 0.179 | 2.895 | 0.004 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| model | null.deviance | df.null | logLik | AIC | BIC | deviance | df.residual |
| Unadjusted | 673.151 | 486 | -335.287 | 674.573 | 682.950 | 670.573 | 485 |
| Adjusted | 673.151 | 486 | -304.159 | 626.319 | 664.013 | 608.319 | 478 |

### PHQ-2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| model | term | oddsratio | std.error | statistic | p.value |
| Unadjusted | (Intercept) | 0.379 | 0.095 | -10.232 | 0.000 |
| Unadjusted | fmssZ | 0.770 | 0.096 | -2.713 | 0.007 |
| Adjusted | (Intercept) | 0.141 | 0.240 | -8.173 | 0.000 |
| Adjusted | fmssZ | 0.814 | 0.102 | -2.008 | 0.045 |
| Adjusted | countSocialMediaExclFB | 0.958 | 0.105 | -0.405 | 0.686 |
| Adjusted | comm\_inpersonOnce a day | 1.052 | 0.415 | 0.121 | 0.904 |
| Adjusted | comm\_inpersonA few times a week | 0.907 | 0.320 | -0.305 | 0.760 |
| Adjusted | comm\_inpersonOnce a week | 1.849 | 0.333 | 1.844 | 0.065 |
| Adjusted | comm\_inpersonEvery few weeks or less often | 2.506 | 0.264 | 3.481 | 0.000 |
| Adjusted | indSuicideConsideredEverTRUE | 3.098 | 0.222 | 5.087 | 0.000 |
| Adjusted | countSuicideAttempts | 1.245 | 0.124 | 1.764 | 0.078 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| model | null.deviance | df.null | logLik | AIC | BIC | deviance | df.residual |
| Unadjusted | 672.272 | 568 | -332.363 | 668.726 | 677.413 | 664.726 | 567 |
| Adjusted | 672.272 | 568 | -297.957 | 613.914 | 653.009 | 595.914 | 560 |

### AUDIT-C

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| model | term | oddsratio | std.error | statistic | p.value |
| Unadjusted | (Intercept) | 1.031 | 0.093 | 0.323 | 0.746 |
| Unadjusted | fmssZ | 0.891 | 0.095 | -1.220 | 0.222 |
| Adjusted | (Intercept) | 0.679 | 0.202 | -1.915 | 0.056 |
| Adjusted | fmssZ | 0.912 | 0.098 | -0.939 | 0.348 |
| Adjusted | countSocialMediaExclFB | 1.045 | 0.097 | 0.450 | 0.652 |
| Adjusted | comm\_inpersonOnce a day | 1.253 | 0.355 | 0.635 | 0.525 |
| Adjusted | comm\_inpersonA few times a week | 1.128 | 0.267 | 0.452 | 0.652 |
| Adjusted | comm\_inpersonOnce a week | 1.928 | 0.332 | 1.976 | 0.048 |
| Adjusted | comm\_inpersonEvery few weeks or less often | 1.627 | 0.253 | 1.926 | 0.054 |
| Adjusted | indSuicideConsideredEverTRUE | 1.463 | 0.214 | 1.781 | 0.075 |
| Adjusted | countSuicideAttempts | 0.864 | 0.132 | -1.108 | 0.268 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| model | null.deviance | df.null | logLik | AIC | BIC | deviance | df.residual |
| Unadjusted | 640.39 | 461 | -319.447 | 642.894 | 651.165 | 638.894 | 460 |
| Adjusted | 640.39 | 461 | -314.297 | 646.593 | 683.813 | 628.593 | 453 |

### DSI-SS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| model | term | oddsratio | std.error | statistic | p.value |
| Unadjusted | (Intercept) | 0.280 | 0.103 | -12.364 | 0.000 |
| Unadjusted | fmssZ | 0.732 | 0.105 | -2.981 | 0.003 |
| Adjusted | (Intercept) | 0.074 | 0.284 | -9.173 | 0.000 |
| Adjusted | fmssZ | 0.751 | 0.114 | -2.514 | 0.012 |
| Adjusted | countSocialMediaExclFB | 1.047 | 0.110 | 0.414 | 0.679 |
| Adjusted | comm\_inpersonOnce a day | 1.013 | 0.467 | 0.028 | 0.978 |
| Adjusted | comm\_inpersonA few times a week | 1.122 | 0.337 | 0.341 | 0.733 |
| Adjusted | comm\_inpersonOnce a week | 1.428 | 0.361 | 0.986 | 0.324 |
| Adjusted | comm\_inpersonEvery few weeks or less often | 1.680 | 0.295 | 1.757 | 0.079 |
| Adjusted | indSuicideConsideredEverTRUE | 5.491 | 0.256 | 6.664 | 0.000 |
| Adjusted | countSuicideAttempts | 1.295 | 0.123 | 2.102 | 0.036 |

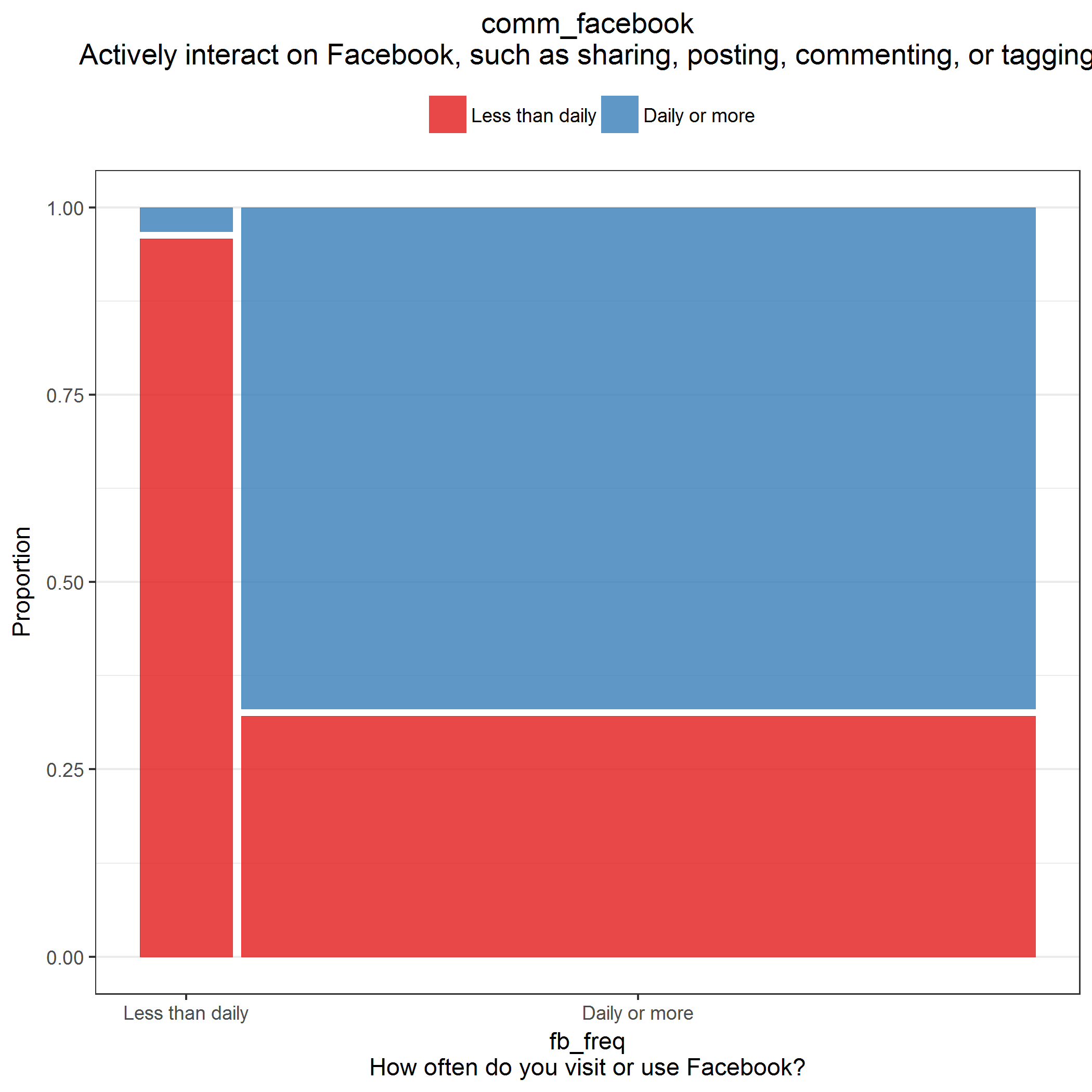
|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| model | null.deviance | df.null | logLik | AIC | BIC | deviance | df.residual |
| Unadjusted | 604.194 | 568 | -297.503 | 599.006 | 607.694 | 595.006 | 567 |
| Adjusted | 604.194 | 568 | -254.388 | 526.776 | 565.871 | 508.776 | 560 |

## Additional questions

Some issues that additional analysis could clarify is whether people have a tendency to substitute social contact on social media for in-person social contact, and whether that substitution is bad for your emotional well-being. It would be interesting to look at:

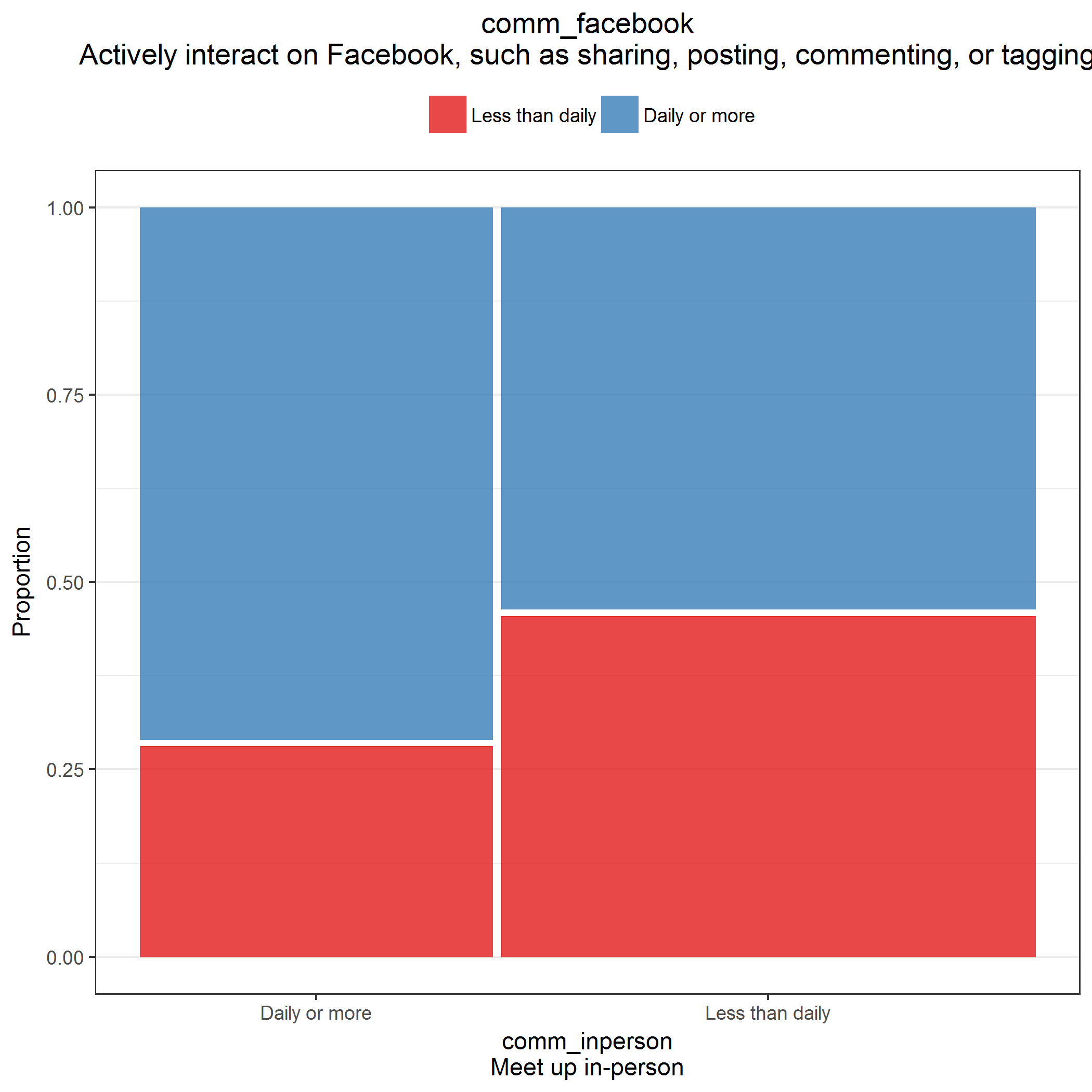
* Do people who spend a lot of time (or frequently use) Facebook spend less time meeting up in-person (i.e., possibly substitute one form of social contact for another)? Variables: comm\_facebook, fb\_freq, comm\_inperson
* Do people who spend a lot of time (or frequently use) Facebook and spend less time in-person have higher risk for psychiatric disorders?

## $rowvar  
## [1] "comm\_facebook: Actively interact on Facebook, such as sharing, posting, commenting, or tagging"  
##   
## $colvar  
## [1] "fb\_freq: How often do you visit or use Facebook?"  
##   
## $table  
## fb\_freq  
## comm\_facebook Less than daily Daily or more Sum  
## Less than daily 59 170 229  
## Daily or more 2 354 356  
## Sum 61 524 585  
##   
## $expected  
## fb\_freq  
## comm\_facebook Less than daily Daily or more  
## Less than daily 23.87863 205.1214  
## Daily or more 37.12137 318.8786  
##   
## $residual  
## fb\_freq  
## comm\_facebook Less than daily Daily or more  
## Less than daily 7.187315 -2.452257  
## Daily or more -5.764471 1.966793  
##   
## $propRow  
## fb\_freq  
## comm\_facebook Less than daily Daily or more Sum  
## Less than daily 0.258 0.742 1.000  
## Daily or more 0.006 0.994 1.000  
##   
## $propCol  
## fb\_freq  
## comm\_facebook Less than daily Daily or more  
## Less than daily 0.967 0.324  
## Daily or more 0.033 0.676  
## Sum 1.000 1.000  
##   
## $chisq.test  
##   
## Pearson's Chi-squared test with Yates' continuity correction  
##   
## data: T  
## X-squared = 92.089, df = 1, p-value < 2.2e-16  
##   
##   
## $plot



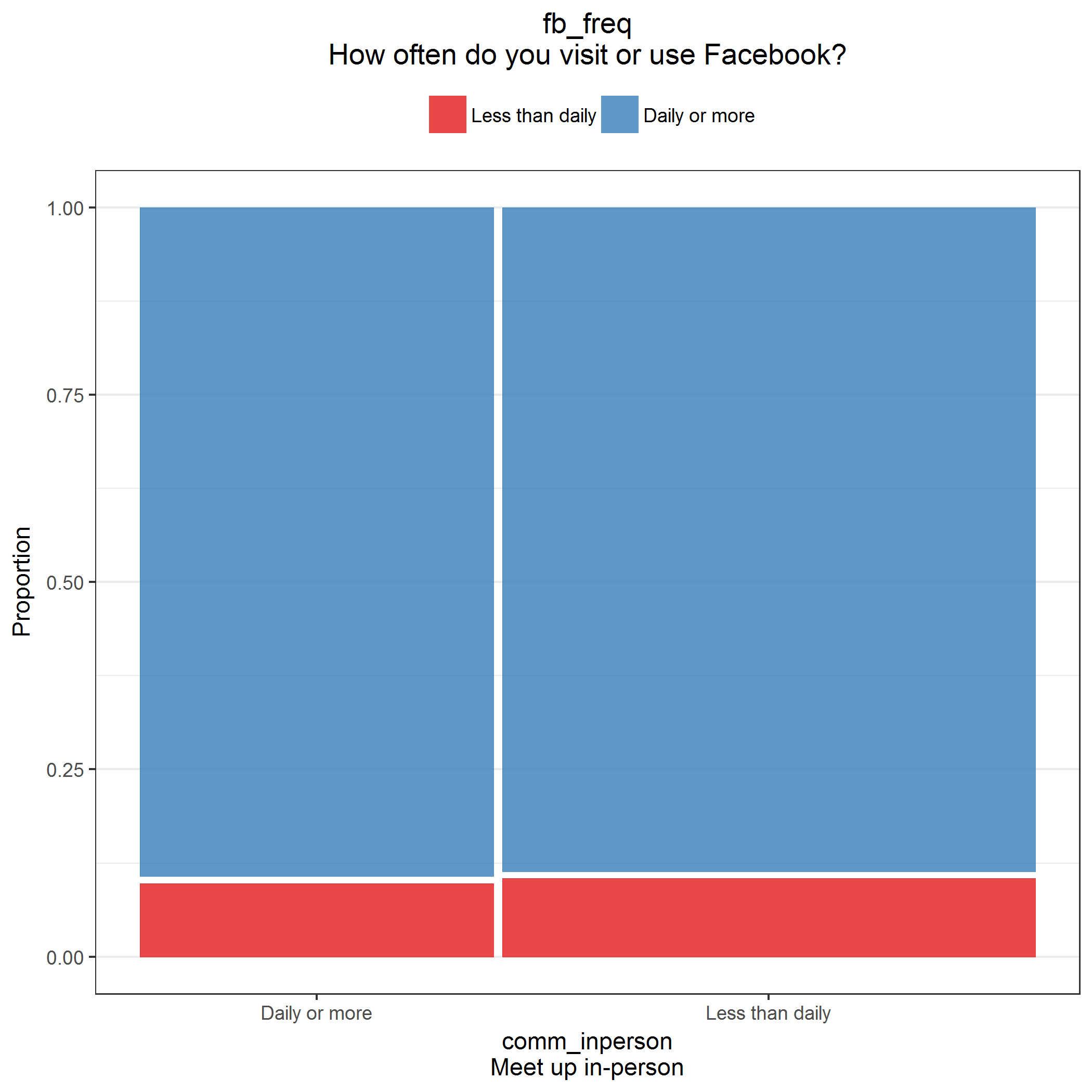
plot of chunk unnamed-chunk-33

## $rowvar  
## [1] "comm\_facebook: Actively interact on Facebook, such as sharing, posting, commenting, or tagging"  
##   
## $colvar  
## [1] "comm\_inperson: Meet up in-person"  
##   
## $table  
## comm\_inperson  
## comm\_facebook Daily or more Less than daily Sum  
## Less than daily 66 162 228  
## Daily or more 167 191 358  
## Sum 233 353 586  
##   
## $expected  
## comm\_inperson  
## comm\_facebook Daily or more Less than daily  
## Less than daily 90.65529 137.3447  
## Daily or more 142.34471 215.6553  
##   
## $residual  
## comm\_inperson  
## comm\_facebook Daily or more Less than daily  
## Less than daily -2.589486 2.103799  
## Daily or more 2.066519 -1.678920  
##   
## $propRow  
## comm\_inperson  
## comm\_facebook Daily or more Less than daily Sum  
## Less than daily 0.289 0.711 1.000  
## Daily or more 0.466 0.534 1.000  
##   
## $propCol  
## comm\_inperson  
## comm\_facebook Daily or more Less than daily  
## Less than daily 0.283 0.459  
## Daily or more 0.717 0.541  
## Sum 1.000 1.000  
##   
## $chisq.test  
##   
## Pearson's Chi-squared test with Yates' continuity correction  
##   
## data: T  
## X-squared = 17.489, df = 1, p-value = 2.89e-05  
##   
##   
## $plot



plot of chunk unnamed-chunk-33

## $rowvar  
## [1] "fb\_freq: How often do you visit or use Facebook?"  
##   
## $colvar  
## [1] "comm\_inperson: Meet up in-person"  
##   
## $table  
## comm\_inperson  
## fb\_freq Daily or more Less than daily Sum  
## Less than daily 23 37 60  
## Daily or more 210 314 524  
## Sum 233 351 584  
##   
## $expected  
## comm\_inperson  
## fb\_freq Daily or more Less than daily  
## Less than daily 23.93836 36.06164  
## Daily or more 209.06164 314.93836  
##   
## $residual  
## comm\_inperson  
## fb\_freq Daily or more Less than daily  
## Less than daily -0.19178761 0.15625897  
## Daily or more 0.06489788 -0.05287555  
##   
## $propRow  
## comm\_inperson  
## fb\_freq Daily or more Less than daily Sum  
## Less than daily 0.383 0.617 1.000  
## Daily or more 0.401 0.599 1.000  
##   
## $propCol  
## comm\_inperson  
## fb\_freq Daily or more Less than daily  
## Less than daily 0.099 0.105  
## Daily or more 0.901 0.895  
## Sum 1.000 1.000  
##   
## $chisq.test  
##   
## Pearson's Chi-squared test with Yates' continuity correction  
##   
## data: T  
## X-squared = 0.014885, df = 1, p-value = 0.9029  
##   
##   
## $plot



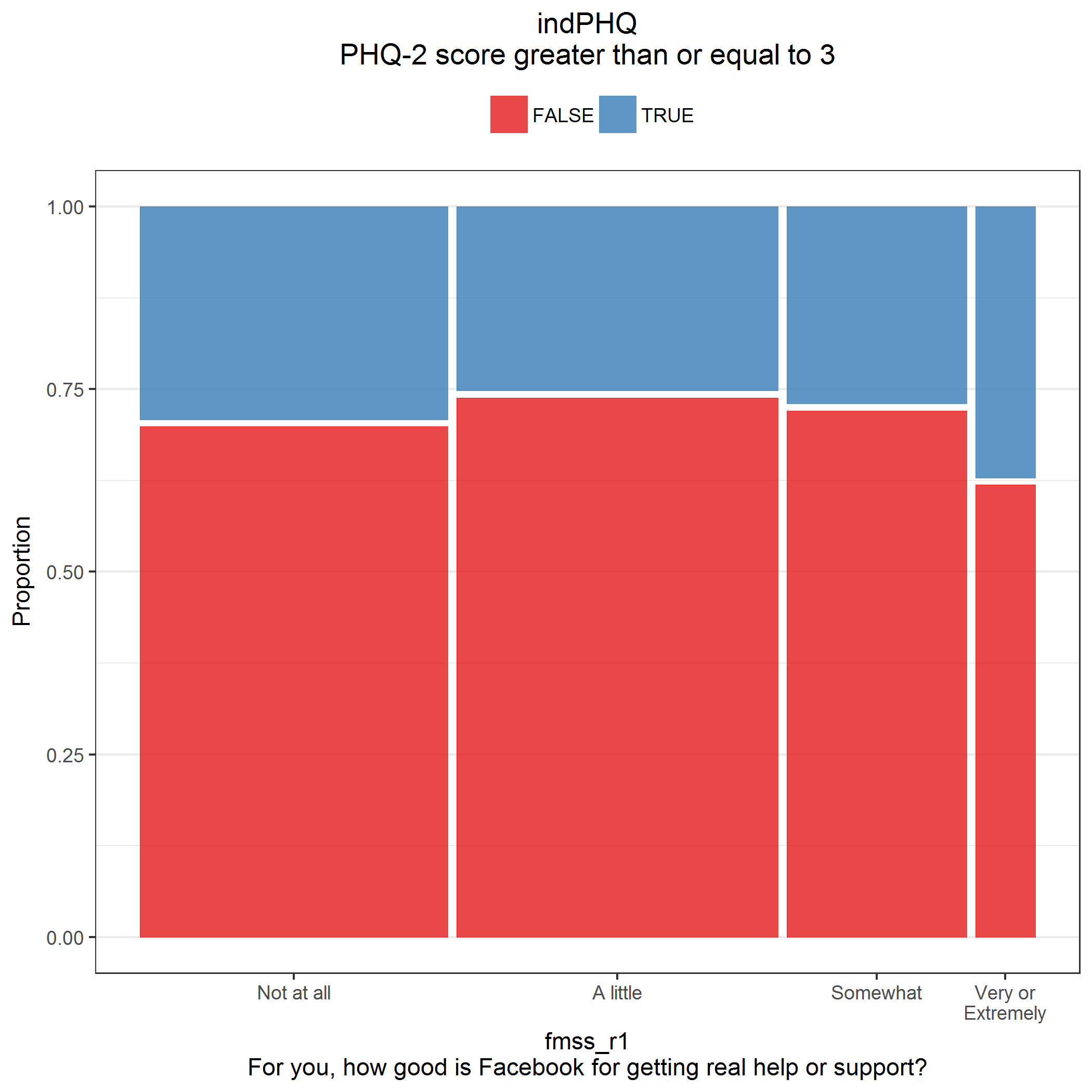
plot of chunk unnamed-chunk-33

## FMSS items

Closely exam FMSS items 1, 3, and 11

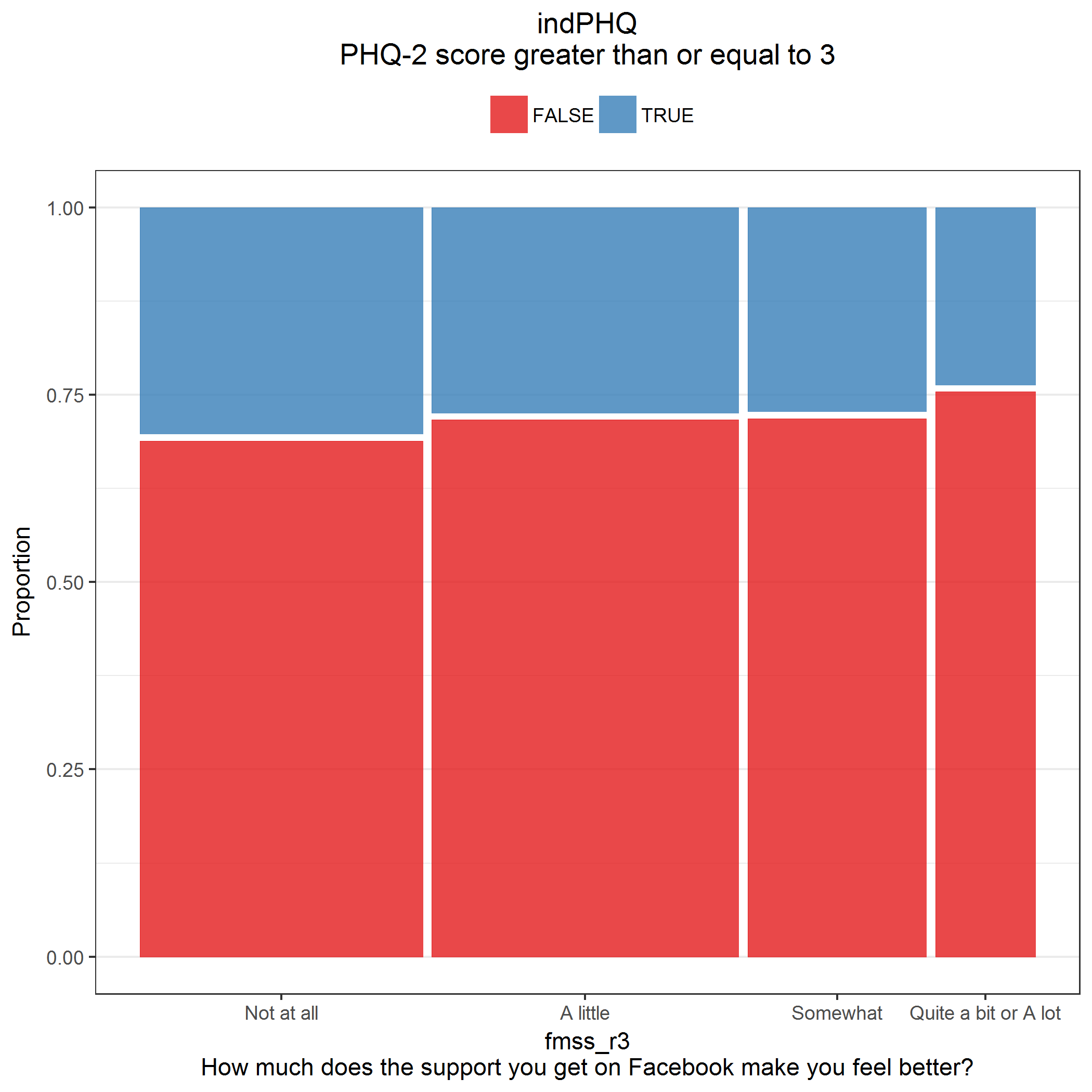
* fmss\_r1 For you, how good is Facebook for getting real help or support?
* fmss\_r3 How much does the support you get on Facebook make you feel better?
* fmss\_r11 How close to people does Facebook make you feel?

## $rowvar  
## [1] "indPHQ: PHQ-2 score greater than or equal to 3"  
##   
## $colvar  
## [1] "fmss\_r1: For you, how good is Facebook for getting real help or support?"  
##   
## $table  
## fmss\_r1  
## indPHQ Not at all A little Somewhat Very or Extremely Sum  
## FALSE 146 161 88 25 420  
## TRUE 61 55 33 15 164  
## Sum 207 216 121 40 584  
##   
## $expected  
## fmss\_r1  
## indPHQ Not at all A little Somewhat Very or Extremely  
## FALSE 148.86986 155.34247 87.02055 28.76712  
## TRUE 58.13014 60.65753 33.97945 11.23288  
##   
## $residual  
## fmss\_r1  
## indPHQ Not at all A little Somewhat Very or Extremely  
## FALSE -0.2352111 0.4539229 0.1049959 -0.7023630  
## TRUE 0.3764094 -0.7264150 -0.1680254 1.1239949  
##   
## $propRow  
## fmss\_r1  
## indPHQ Not at all A little Somewhat Very or Extremely Sum  
## FALSE 0.348 0.383 0.210 0.060 1.000  
## TRUE 0.372 0.335 0.201 0.091 1.000  
##   
## $propCol  
## fmss\_r1  
## indPHQ Not at all A little Somewhat Very or Extremely  
## FALSE 0.705 0.745 0.727 0.625  
## TRUE 0.295 0.255 0.273 0.375  
## Sum 1.000 1.000 1.000 1.000  
##   
## $chisq.test  
##   
## Pearson's Chi-squared test  
##   
## data: T  
## X-squared = 2.7267, df = 3, p-value = 0.4357  
##   
##   
## $plot



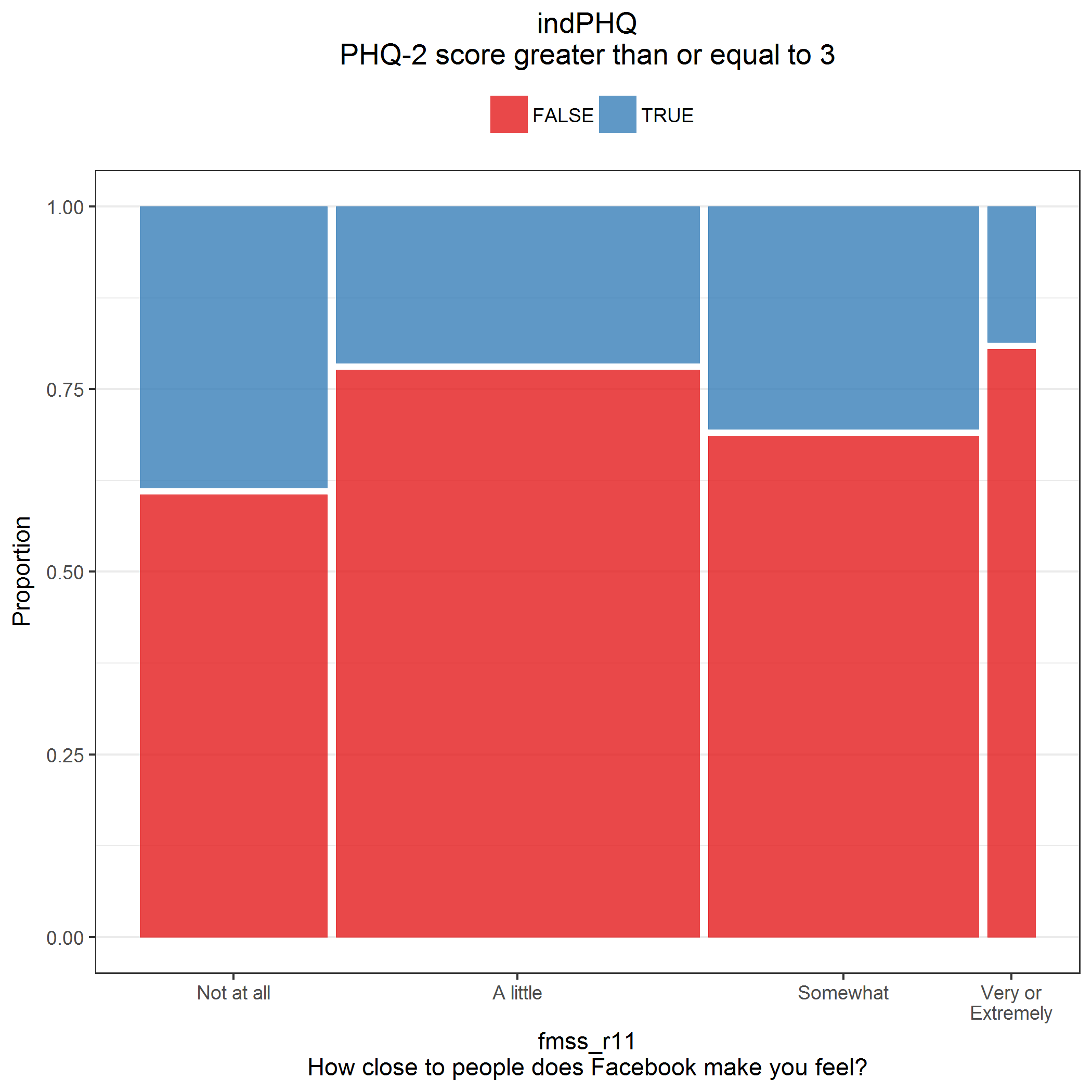
plot of chunk unnamed-chunk-34

## $rowvar  
## [1] "indPHQ: PHQ-2 score greater than or equal to 3"  
##   
## $colvar  
## [1] "fmss\_r3: How much does the support you get on Facebook make you feel better?"  
##   
## $table  
## fmss\_r3  
## indPHQ Not at all A little Somewhat Quite a bit or A lot Sum  
## FALSE 132 149 87 51 419  
## TRUE 58 57 33 16 164  
## Sum 190 206 120 67 583  
##   
## $expected  
## fmss\_r3  
## indPHQ Not at all A little Somewhat Quite a bit or A lot  
## FALSE 136.55232 148.05146 86.24357 48.15266  
## TRUE 53.44768 57.94854 33.75643 18.84734  
##   
## $residual  
## fmss\_r3  
## indPHQ Not at all A little Somewhat Quite a bit or A lot  
## FALSE -0.38956760 0.07795612 0.08145292 0.41032634  
## TRUE 0.62268430 -0.12460496 -0.13019424 -0.65586504  
##   
## $propRow  
## fmss\_r3  
## indPHQ Not at all A little Somewhat Quite a bit or A lot Sum  
## FALSE 0.315 0.356 0.208 0.122 1.000  
## TRUE 0.354 0.348 0.201 0.098 1.000  
##   
## $propCol  
## fmss\_r3  
## indPHQ Not at all A little Somewhat Quite a bit or A lot  
## FALSE 0.695 0.723 0.725 0.761  
## TRUE 0.305 0.277 0.275 0.239  
## Sum 1.000 1.000 1.000 1.000  
##   
## $chisq.test  
##   
## Pearson's Chi-squared test  
##   
## data: T  
## X-squared = 1.1832, df = 3, p-value = 0.757  
##   
##   
## $plot



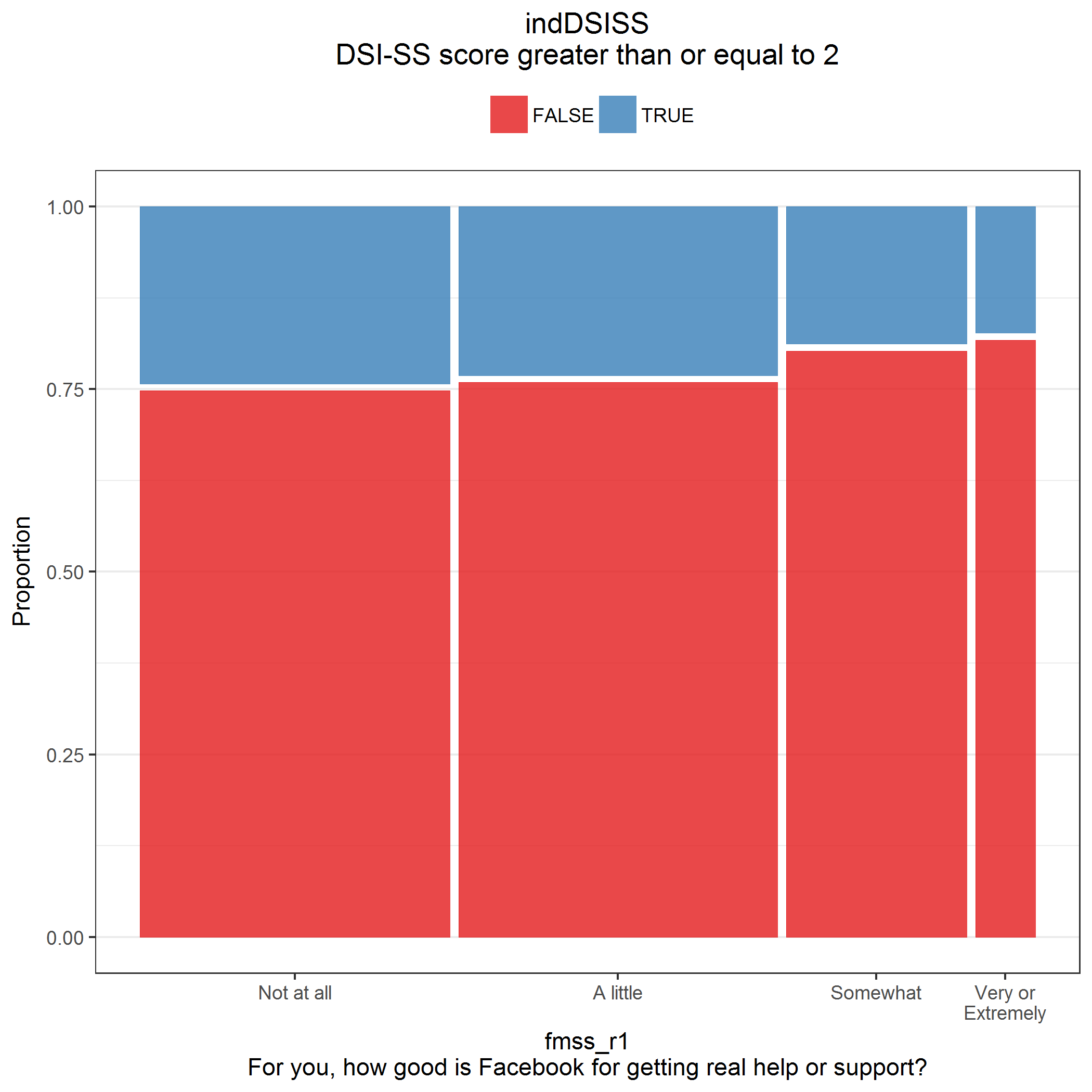
plot of chunk unnamed-chunk-34

## $rowvar  
## [1] "indPHQ: PHQ-2 score greater than or equal to 3"  
##   
## $colvar  
## [1] "fmss\_r11: How close to people does Facebook make you feel?"  
##   
## $table  
## fmss\_r11  
## indPHQ Not at all A little Somewhat Very or Extremely Sum  
## FALSE 77 192 126 26 421  
## TRUE 49 53 56 6 164  
## Sum 126 245 182 32 585  
##   
## $expected  
## fmss\_r11  
## indPHQ Not at all A little Somewhat Very or Extremely  
## FALSE 90.67692 176.31624 130.97778 23.02906  
## TRUE 35.32308 68.68376 51.02222 8.97094  
##   
## $residual  
## fmss\_r11  
## indPHQ Not at all A little Somewhat Very or Extremely  
## FALSE -1.4362830 1.1811473 -0.4349474 0.6190929  
## TRUE 2.3012253 -1.8924446 0.6968765 -0.9919161  
##   
## $propRow  
## fmss\_r11  
## indPHQ Not at all A little Somewhat Very or Extremely Sum  
## FALSE 0.183 0.456 0.299 0.062 1.000  
## TRUE 0.299 0.323 0.341 0.037 1.000  
##   
## $propCol  
## fmss\_r11  
## indPHQ Not at all A little Somewhat Very or Extremely  
## FALSE 0.611 0.784 0.692 0.812  
## TRUE 0.389 0.216 0.308 0.188  
## Sum 1.000 1.000 1.000 1.000  
##   
## $chisq.test  
##   
## Pearson's Chi-squared test  
##   
## data: T  
## X-squared = 14.377, df = 3, p-value = 0.002434  
##   
##   
## $plot



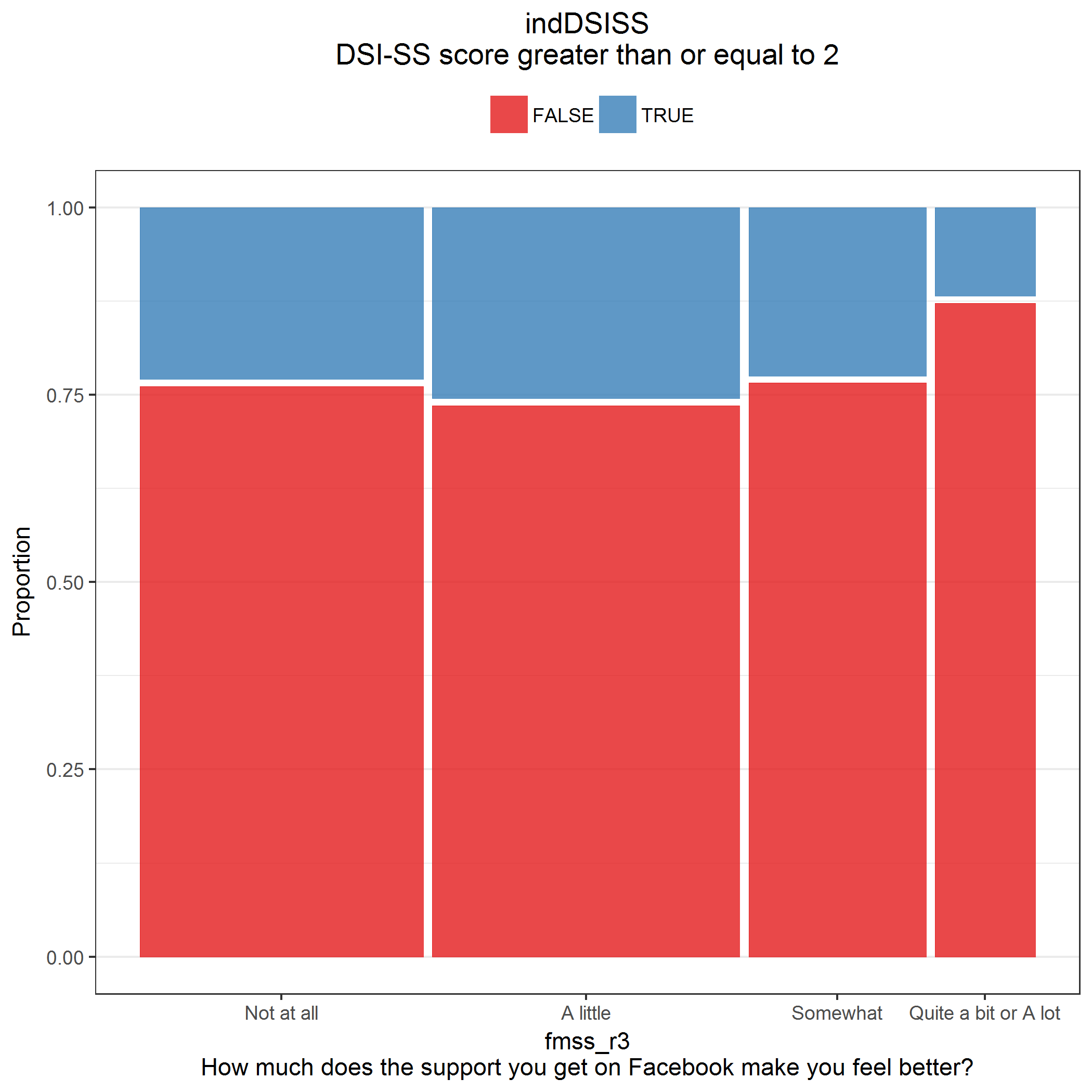
plot of chunk unnamed-chunk-34

## $rowvar  
## [1] "indDSISS: DSI-SS score greater than or equal to 2"  
##   
## $colvar  
## [1] "fmss\_r1: For you, how good is Facebook for getting real help or support?"  
##   
## $table  
## fmss\_r1  
## indDSISS Not at all A little Somewhat Very or Extremely Sum  
## FALSE 157 164 98 33 452  
## TRUE 51 50 23 7 131  
## Sum 208 214 121 40 583  
##   
## $expected  
## fmss\_r1  
## indDSISS Not at all A little Somewhat Very or Extremely  
## FALSE 161.26244 165.91424 93.81132 31.012007  
## TRUE 46.73756 48.08576 27.18868 8.987993  
##   
## $residual  
## fmss\_r1  
## indDSISS Not at all A little Somewhat Very or Extremely  
## FALSE -0.3356535 -0.1486120 0.4324635 0.3569850  
## TRUE 0.6234833 0.2760498 -0.8033098 -0.6631069  
##   
## $propRow  
## fmss\_r1  
## indDSISS Not at all A little Somewhat Very or Extremely Sum  
## FALSE 0.347 0.363 0.217 0.073 1.000  
## TRUE 0.389 0.382 0.176 0.053 1.000  
##   
## $propCol  
## fmss\_r1  
## indDSISS Not at all A little Somewhat Very or Extremely  
## FALSE 0.755 0.766 0.810 0.825  
## TRUE 0.245 0.234 0.190 0.175  
## Sum 1.000 1.000 1.000 1.000  
##   
## $chisq.test  
##   
## Pearson's Chi-squared test  
##   
## data: T  
## X-squared = 1.9992, df = 3, p-value = 0.5726  
##   
##   
## $plot



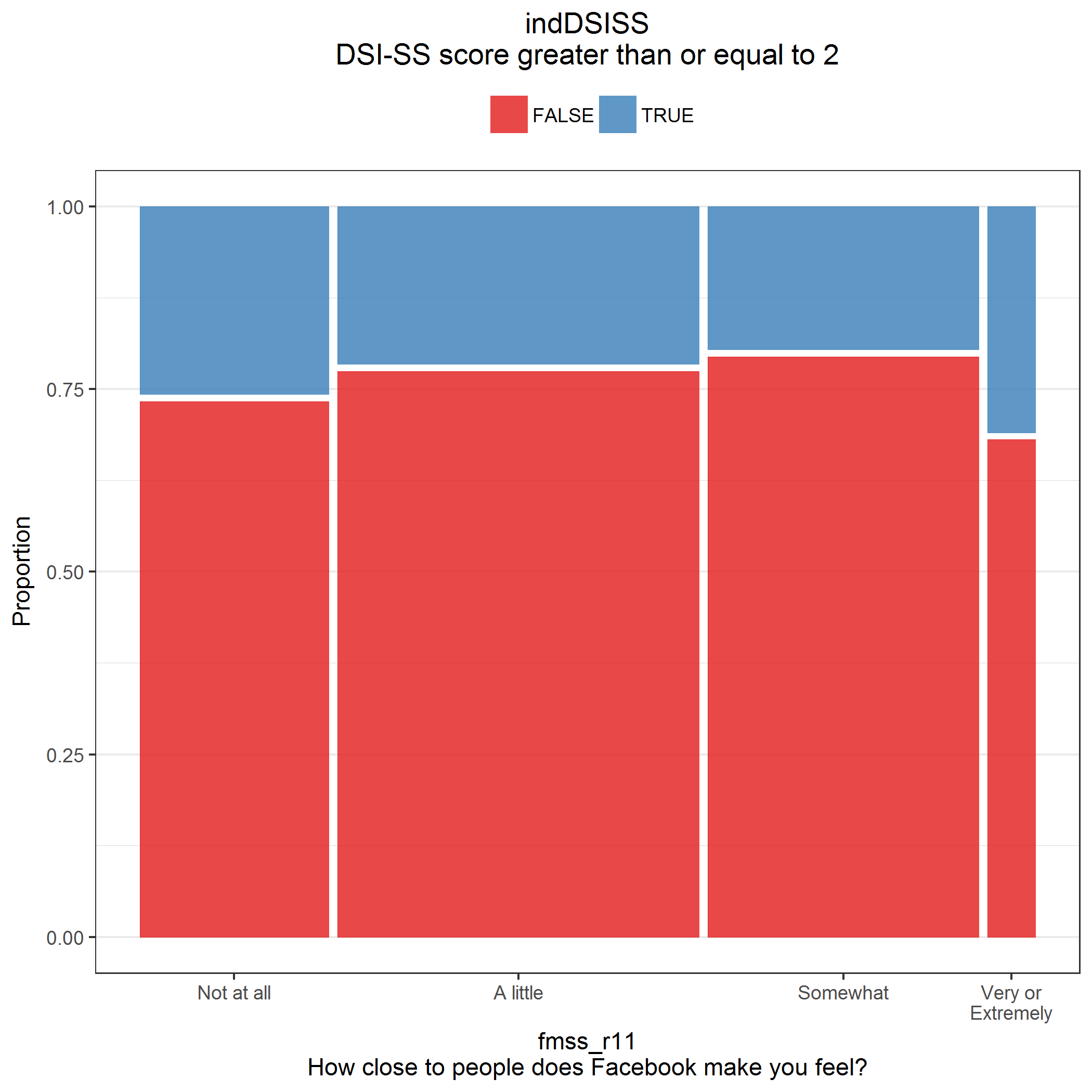
plot of chunk unnamed-chunk-34

## $rowvar  
## [1] "indDSISS: DSI-SS score greater than or equal to 2"  
##   
## $colvar  
## [1] "fmss\_r3: How much does the support you get on Facebook make you feel better?"  
##   
## $table  
## fmss\_r3  
## indDSISS Not at all A little Somewhat Quite a bit or A lot Sum  
## FALSE 146 153 92 59 450  
## TRUE 44 53 27 8 132  
## Sum 190 206 119 67 582  
##   
## $expected  
## fmss\_r3  
## indDSISS Not at all A little Somewhat Quite a bit or A lot  
## FALSE 146.90722 159.27835 92.01031 51.80412  
## TRUE 43.09278 46.72165 26.98969 15.19588  
##   
## $residual  
## fmss\_r3  
## indDSISS Not at all A little Somewhat Quite a bit or A lot  
## FALSE -0.074849581 -0.497470330 -0.001074756 0.999773273  
## TRUE 0.138200198 0.918515469 0.001984400 -1.845953742  
##   
## $propRow  
## fmss\_r3  
## indDSISS Not at all A little Somewhat Quite a bit or A lot Sum  
## FALSE 0.324 0.340 0.204 0.131 1.000  
## TRUE 0.333 0.402 0.205 0.061 1.000  
##   
## $propCol  
## fmss\_r3  
## indDSISS Not at all A little Somewhat Quite a bit or A lot  
## FALSE 0.768 0.743 0.773 0.881  
## TRUE 0.232 0.257 0.227 0.119  
## Sum 1.000 1.000 1.000 1.000  
##   
## $chisq.test  
##   
## Pearson's Chi-squared test  
##   
## data: T  
## X-squared = 5.5229, df = 3, p-value = 0.1373  
##   
##   
## $plot



plot of chunk unnamed-chunk-34

## $rowvar  
## [1] "indDSISS: DSI-SS score greater than or equal to 2"  
##   
## $colvar  
## [1] "fmss\_r11: How close to people does Facebook make you feel?"  
##   
## $table  
## fmss\_r11  
## indDSISS Not at all A little Somewhat Very or Extremely Sum  
## FALSE 94 190 146 22 452  
## TRUE 33 53 36 10 132  
## Sum 127 243 182 32 584  
##   
## $expected  
## fmss\_r11  
## indDSISS Not at all A little Somewhat Very or Extremely  
## FALSE 98.29452 188.07534 140.86301 24.767123  
## TRUE 28.70548 54.92466 41.13699 7.232877  
##   
## $residual  
## fmss\_r11  
## indDSISS Not at all A little Somewhat Very or Extremely  
## FALSE -0.4331617 0.1403420 0.4328226 -0.5560204  
## TRUE 0.8015531 -0.2596987 -0.8009256 1.0288996  
##   
## $propRow  
## fmss\_r11  
## indDSISS Not at all A little Somewhat Very or Extremely Sum  
## FALSE 0.208 0.420 0.323 0.049 1.000  
## TRUE 0.250 0.402 0.273 0.076 1.000  
##   
## $propCol  
## fmss\_r11  
## indDSISS Not at all A little Somewhat Very or Extremely  
## FALSE 0.740 0.782 0.802 0.688  
## TRUE 0.260 0.218 0.198 0.312  
## Sum 1.000 1.000 1.000 1.000  
##   
## $chisq.test  
##   
## Pearson's Chi-squared test  
##   
## data: T  
## X-squared = 3.1139, df = 3, p-value = 0.3744  
##   
##   
## $plot



plot of chunk unnamed-chunk-34

### PHQ-2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| model | term | oddsratio | std.error | statistic | p.value |
| Unadjusted | (Intercept) | 0.638 | 0.201 | -2.236 | 0.025 |
| Unadjusted | fmss\_r1A little | 1.129 | 0.303 | 0.401 | 0.688 |
| Unadjusted | fmss\_r1Somewhat | 1.515 | 0.368 | 1.129 | 0.259 |
| Unadjusted | fmss\_r1Very or Extremely | 2.909 | 0.510 | 2.094 | 0.036 |
| Unadjusted | fmss\_r3A little | 0.878 | 0.315 | -0.413 | 0.680 |
| Unadjusted | fmss\_r3Somewhat | 0.731 | 0.375 | -0.835 | 0.404 |
| Unadjusted | fmss\_r3Quite a bit or A lot | 0.481 | 0.488 | -1.501 | 0.133 |
| Unadjusted | fmss\_r11A little | 0.438 | 0.253 | -3.265 | 0.001 |
| Unadjusted | fmss\_r11Somewhat | 0.659 | 0.279 | -1.496 | 0.135 |
| Unadjusted | fmss\_r11Very or Extremely | 0.332 | 0.531 | -2.079 | 0.038 |
| Adjusted | (Intercept) | 0.237 | 0.301 | -4.782 | 0.000 |
| Adjusted | fmss\_r1A little | 0.919 | 0.334 | -0.253 | 0.800 |
| Adjusted | fmss\_r1Somewhat | 1.462 | 0.401 | 0.946 | 0.344 |
| Adjusted | fmss\_r1Very or Extremely | 2.985 | 0.557 | 1.964 | 0.049 |
| Adjusted | fmss\_r3A little | 0.948 | 0.347 | -0.154 | 0.877 |
| Adjusted | fmss\_r3Somewhat | 0.682 | 0.411 | -0.930 | 0.352 |
| Adjusted | fmss\_r3Quite a bit or A lot | 0.417 | 0.539 | -1.622 | 0.105 |
| Adjusted | fmss\_r11A little | 0.493 | 0.272 | -2.596 | 0.009 |
| Adjusted | fmss\_r11Somewhat | 0.688 | 0.304 | -1.230 | 0.219 |
| Adjusted | fmss\_r11Very or Extremely | 0.302 | 0.586 | -2.044 | 0.041 |
| Adjusted | countSocialMediaExclFB | 0.926 | 0.104 | -0.739 | 0.460 |
| Adjusted | comm\_inpersonOnce a day | 1.162 | 0.409 | 0.368 | 0.713 |
| Adjusted | comm\_inpersonA few times a week | 0.910 | 0.325 | -0.291 | 0.771 |
| Adjusted | comm\_inpersonOnce a week | 2.145 | 0.336 | 2.269 | 0.023 |
| Adjusted | comm\_inpersonEvery few weeks or less often | 2.511 | 0.267 | 3.454 | 0.001 |
| Adjusted | indSuicideConsideredEverTRUE | 3.148 | 0.224 | 5.128 | 0.000 |
| Adjusted | countSuicideAttempts | 1.309 | 0.131 | 2.049 | 0.040 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| model | null.deviance | df.null | logLik | AIC | BIC | deviance | df.residual |
| Unadjusted | 688.956 | 579 | -334.892 | 689.784 | 733.414 | 669.784 | 570 |
| Adjusted | 688.956 | 579 | -297.869 | 629.738 | 703.910 | 595.738 | 563 |

### DSI-SS

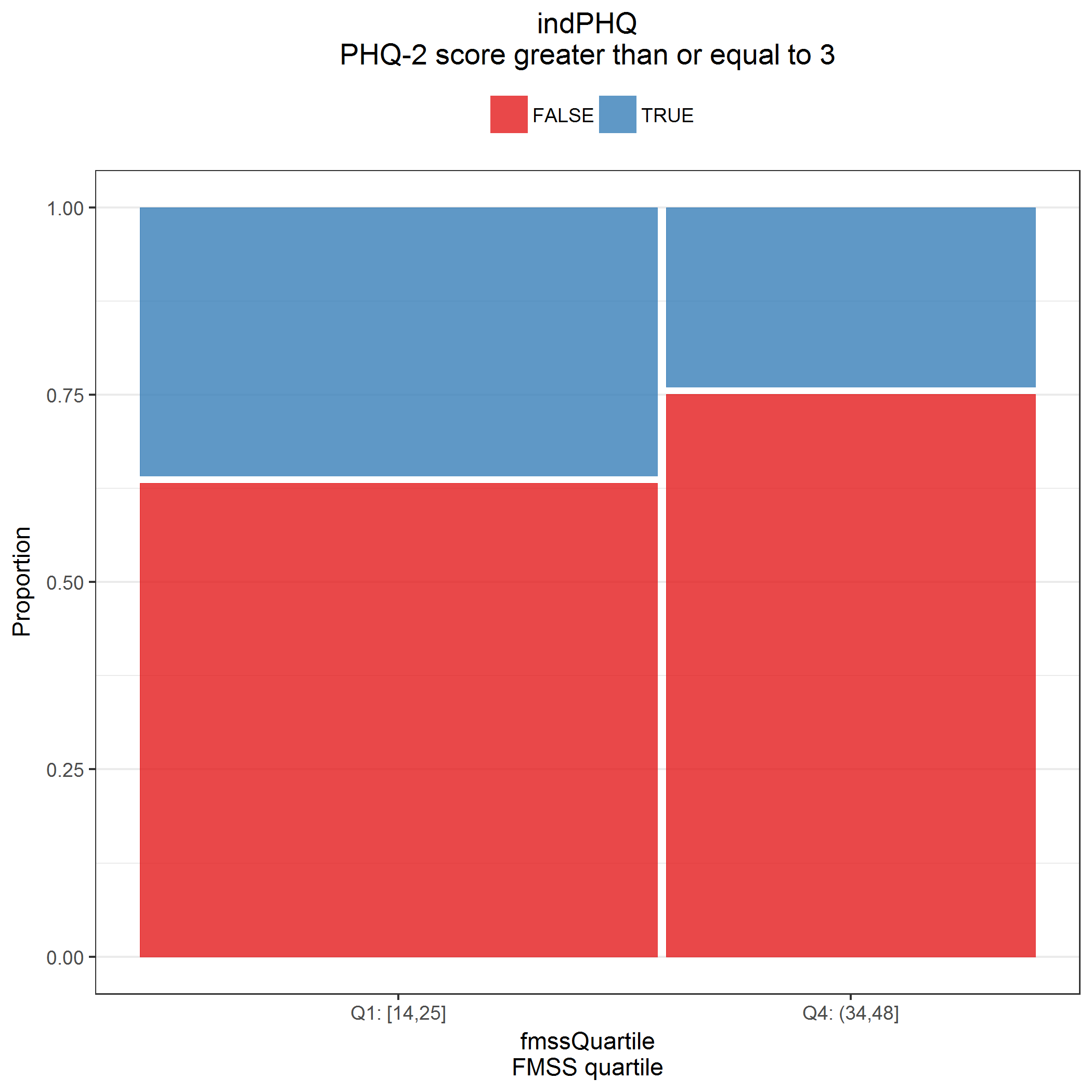
|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| model | term | oddsratio | std.error | statistic | p.value |
| Unadjusted | (Intercept) | 0.349 | 0.221 | -4.767 | 0.000 |
| Unadjusted | fmss\_r1A little | 0.859 | 0.309 | -0.490 | 0.624 |
| Unadjusted | fmss\_r1Somewhat | 0.774 | 0.386 | -0.664 | 0.507 |
| Unadjusted | fmss\_r1Very or Extremely | 0.799 | 0.582 | -0.385 | 0.700 |
| Unadjusted | fmss\_r3A little | 1.345 | 0.325 | 0.913 | 0.361 |
| Unadjusted | fmss\_r3Somewhat | 1.188 | 0.389 | 0.444 | 0.657 |
| Unadjusted | fmss\_r3Quite a bit or A lot | 0.484 | 0.556 | -1.304 | 0.192 |
| Unadjusted | fmss\_r11A little | 0.777 | 0.269 | -0.937 | 0.349 |
| Unadjusted | fmss\_r11Somewhat | 0.755 | 0.308 | -0.911 | 0.362 |
| Unadjusted | fmss\_r11Very or Extremely | 1.952 | 0.490 | 1.365 | 0.172 |
| Adjusted | (Intercept) | 0.089 | 0.357 | -6.773 | 0.000 |
| Adjusted | fmss\_r1A little | 0.658 | 0.353 | -1.185 | 0.236 |
| Adjusted | fmss\_r1Somewhat | 0.629 | 0.440 | -1.054 | 0.292 |
| Adjusted | fmss\_r1Very or Extremely | 0.665 | 0.646 | -0.631 | 0.528 |
| Adjusted | fmss\_r3A little | 1.382 | 0.370 | 0.874 | 0.382 |
| Adjusted | fmss\_r3Somewhat | 1.117 | 0.439 | 0.252 | 0.801 |
| Adjusted | fmss\_r3Quite a bit or A lot | 0.342 | 0.635 | -1.690 | 0.091 |
| Adjusted | fmss\_r11A little | 0.957 | 0.299 | -0.149 | 0.882 |
| Adjusted | fmss\_r11Somewhat | 0.853 | 0.340 | -0.467 | 0.640 |
| Adjusted | fmss\_r11Very or Extremely | 2.815 | 0.563 | 1.840 | 0.066 |
| Adjusted | countSocialMediaExclFB | 1.031 | 0.111 | 0.272 | 0.786 |
| Adjusted | comm\_inpersonOnce a day | 0.995 | 0.467 | -0.011 | 0.991 |
| Adjusted | comm\_inpersonA few times a week | 1.134 | 0.340 | 0.370 | 0.711 |
| Adjusted | comm\_inpersonOnce a week | 1.361 | 0.364 | 0.845 | 0.398 |
| Adjusted | comm\_inpersonEvery few weeks or less often | 1.897 | 0.299 | 2.141 | 0.032 |
| Adjusted | indSuicideConsideredEverTRUE | 5.921 | 0.257 | 6.928 | 0.000 |
| Adjusted | countSuicideAttempts | 1.331 | 0.129 | 2.213 | 0.027 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| model | null.deviance | df.null | logLik | AIC | BIC | deviance | df.residual |
| Unadjusted | 617.231 | 579 | -303.033 | 626.066 | 669.696 | 606.066 | 570 |
| Adjusted | 617.231 | 579 | -255.704 | 545.408 | 619.579 | 511.408 | 563 |

## FMSS quartiles

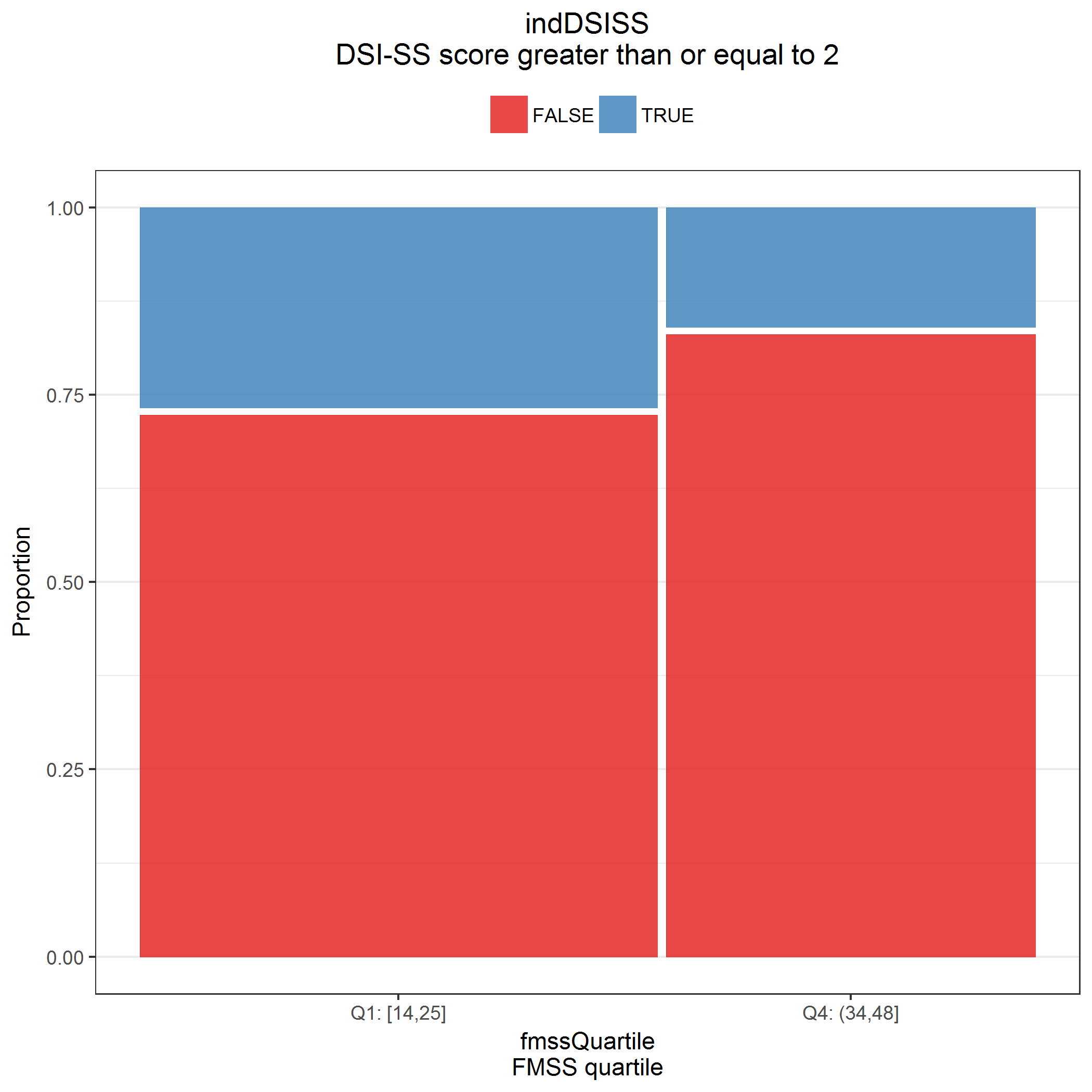
Stratify by FMSS quartile and compare Q1 vs Q4.

## $rowvar  
## [1] "indPHQ: PHQ-2 score greater than or equal to 3"  
##   
## $colvar  
## [1] "fmssQuartile: FMSS quartile"  
##   
## $table  
## fmssQuartile  
## indPHQ Q1: [14,25] Q4: (34,48] Sum  
## FALSE 111 94 205  
## TRUE 63 30 93  
## Sum 174 124 298  
##   
## $expected  
## fmssQuartile  
## indPHQ Q1: [14,25] Q4: (34,48]  
## FALSE 119.69799 85.30201  
## TRUE 54.30201 38.69799  
##   
## $residual  
## fmssQuartile  
## indPHQ Q1: [14,25] Q4: (34,48]  
## FALSE -0.7950150 0.9417575  
## TRUE 1.1803499 -1.3982169  
##   
## $propRow  
## fmssQuartile  
## indPHQ Q1: [14,25] Q4: (34,48] Sum  
## FALSE 0.541 0.459 1.000  
## TRUE 0.677 0.323 1.000  
##   
## $propCol  
## fmssQuartile  
## indPHQ Q1: [14,25] Q4: (34,48]  
## FALSE 0.638 0.758  
## TRUE 0.362 0.242  
## Sum 1.000 1.000  
##   
## $chisq.test  
##   
## Pearson's Chi-squared test with Yates' continuity correction  
##   
## data: T  
## X-squared = 4.3237, df = 1, p-value = 0.03759  
##   
##   
## $plot



plot of chunk unnamed-chunk-40

## $rowvar  
## [1] "indDSISS: DSI-SS score greater than or equal to 2"  
##   
## $colvar  
## [1] "fmssQuartile: FMSS quartile"  
##   
## $table  
## fmssQuartile  
## indDSISS Q1: [14,25] Q4: (34,48] Sum  
## FALSE 127 104 231  
## TRUE 47 20 67  
## Sum 174 124 298  
##   
## $expected  
## fmssQuartile  
## indDSISS Q1: [14,25] Q4: (34,48]  
## FALSE 134.87919 96.12081  
## TRUE 39.12081 27.87919  
##   
## $residual  
## fmssQuartile  
## indDSISS Q1: [14,25] Q4: (34,48]  
## FALSE -0.6784367 0.8036614  
## TRUE 1.2597313 -1.4922504  
##   
## $propRow  
## fmssQuartile  
## indDSISS Q1: [14,25] Q4: (34,48] Sum  
## FALSE 0.550 0.450 1.000  
## TRUE 0.701 0.299 1.000  
##   
## $propCol  
## fmssQuartile  
## indDSISS Q1: [14,25] Q4: (34,48]  
## FALSE 0.730 0.839  
## TRUE 0.270 0.161  
## Sum 1.000 1.000  
##   
## $chisq.test  
##   
## Pearson's Chi-squared test with Yates' continuity correction  
##   
## data: T  
## X-squared = 4.3153, df = 1, p-value = 0.03777  
##   
##   
## $plot



plot of chunk unnamed-chunk-40

### PHQ-2

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| model | term | oddsratio | std.error | statistic | p.value |
| Unadjusted | (Intercept) | 0.568 | 0.158 | -3.591 | 0.000 |
| Unadjusted | fmssQuartileQ4: (34,48] | 0.562 | 0.262 | -2.194 | 0.028 |
| Adjusted | (Intercept) | 0.253 | 0.328 | -4.200 | 0.000 |
| Adjusted | fmssQuartileQ4: (34,48] | 0.591 | 0.287 | -1.836 | 0.066 |
| Adjusted | countSocialMediaExclFB | 0.946 | 0.139 | -0.403 | 0.687 |
| Adjusted | comm\_inpersonOnce a day | 0.954 | 0.553 | -0.085 | 0.932 |
| Adjusted | comm\_inpersonA few times a week | 0.557 | 0.441 | -1.328 | 0.184 |
| Adjusted | comm\_inpersonOnce a week | 2.104 | 0.442 | 1.682 | 0.093 |
| Adjusted | comm\_inpersonEvery few weeks or less often | 1.658 | 0.350 | 1.446 | 0.148 |
| Adjusted | indSuicideConsideredEverTRUE | 3.084 | 0.301 | 3.747 | 0.000 |
| Adjusted | countSuicideAttempts | 1.170 | 0.157 | 1.001 | 0.317 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| model | null.deviance | df.null | logLik | AIC | BIC | deviance | df.residual |
| Unadjusted | 369.970 | 297 | -182.51 | 369.019 | 376.413 | 365.019 | 296 |
| Adjusted | 366.891 | 295 | -162.91 | 343.820 | 377.033 | 325.820 | 287 |

### DSI-SS

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| model | term | oddsratio | std.error | statistic | p.value |
| Unadjusted | (Intercept) | 0.370 | 0.171 | -5.822 | 0.000 |
| Unadjusted | fmssQuartileQ4: (34,48] | 0.520 | 0.298 | -2.197 | 0.028 |
| Adjusted | (Intercept) | 0.061 | 0.455 | -6.157 | 0.000 |
| Adjusted | fmssQuartileQ4: (34,48] | 0.524 | 0.337 | -1.918 | 0.055 |
| Adjusted | countSocialMediaExclFB | 0.976 | 0.157 | -0.155 | 0.877 |
| Adjusted | comm\_inpersonOnce a day | 1.910 | 0.650 | 0.995 | 0.320 |
| Adjusted | comm\_inpersonA few times a week | 1.356 | 0.494 | 0.617 | 0.537 |
| Adjusted | comm\_inpersonOnce a week | 1.858 | 0.517 | 1.200 | 0.230 |
| Adjusted | comm\_inpersonEvery few weeks or less often | 2.594 | 0.435 | 2.191 | 0.028 |
| Adjusted | indSuicideConsideredEverTRUE | 7.312 | 0.378 | 5.265 | 0.000 |
| Adjusted | countSuicideAttempts | 1.134 | 0.156 | 0.801 | 0.423 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| model | null.deviance | df.null | logLik | AIC | BIC | deviance | df.residual |
| Unadjusted | 317.642 | 297 | -156.291 | 316.581 | 323.975 | 312.581 | 296 |
| Adjusted | 314.645 | 296 | -129.592 | 277.183 | 310.427 | 259.183 | 288 |