

Online Supplement A

Detailed Results for Analyses in Paper

For paper “Sexual Orientation Differences in Treatment Expectation, Alliance, and Outcome.

Findings from Patients at Risk for Suicide in a Public Psychiatric Hospital”

Content

| | | |
|-------|--|----|
| 1 | Comments to Statistical Analysis..... | 3 |
| 2 | Treatment Outcome – Difference Intake-Discharge Assessments..... | 4 |
| 2.1 | Change of Suicide Ideation..... | 4 |
| 2.1.1 | Interaction with Confounders..... | 5 |
| 2.1.2 | Adjusting for Confounders..... | 6 |
| 2.2 | Change of Hopelessness..... | 10 |
| 2.2.1 | Interaction with Confounders..... | 11 |
| 2.2.2 | Adjusting for Confounders..... | 12 |
| 2.3 | Change of Depression..... | 16 |
| 2.3.1 | Interaction with Confounders..... | 17 |
| 2.3.2 | Adjusting for Confounders..... | 18 |
| 3 | Responder Analysis..... | 22 |
| 3.1 | Suicide Ideation..... | 22 |
| 3.1.1 | Interactions with Confounders..... | 23 |
| 3.1.2 | Adjusting for Confounders..... | 25 |
| 3.2 | Hopelessness..... | 28 |
| 3.2.1 | Interactions with Confounders..... | 28 |
| 3.2.2 | Adjusting for Confounders..... | 29 |
| 3.3 | Depression..... | 32 |
| 3.3.1 | Interactions with Confounders..... | 32 |
| 3.3.2 | Adjusting for Confounders..... | 33 |
| 4 | Treatment Expectancy..... | 37 |
| 3.4 | Interaction with Confounders..... | 38 |
| 3.4.1 | Nationality..... | 38 |
| 3.5 | Adjusting for Confounders..... | 39 |
| 5 | Working Alliance..... | 43 |
| 3.6 | Interaction with Confounders..... | 44 |
| 3.7 | Adjusting for Confounders..... | 46 |

1 Comments to Statistical Analysis

These supplemental statistical results are carried out with R 3.1.3 using additional packages such as “psych” and “rms” (for some descriptive tabulation), ggplot2 (for interaction plots), BayesFactor (for Bayesian analysis), and foreign (for importing SPSS files).

For Bayesian analysis, Bayes factors (BF) were calculated for the ANOVAs with R’s BayesFactor package (Morey and Rouder 2015).

BF < 1 means that the data are more likely under H_0 (grand mean only) than H_1 (sexual orientation effect). We used the qualitative interpretation of the BF according to Jeffreys (from Jarosz and Wiley 2014).

| <i>Support for H_0 over H_1</i> | <i>Support for H_1 over H_0</i> | <i>Interpretation of Evidence</i> |
|---|---|-----------------------------------|
| 1 – 0.33 | 1 – 3 | Anecdotal |
| .33 – .10 | 3 – 10 | Substantial |
| .10 – .03 | 10 – 30 | Strong |
| .03 – .01 | 30 – 100 | Very strong |
| <.01 | >100 | Decisive |

For the Bayesian One-Way ANOVAS, parameters of posterior distributions are calculated with sexual orientation as predictor variable. “mu” is the grand mean, and posteriors of the deviations from the grand mean for each categorical predictor level are given (mean, SD, quantiles) in the tables.

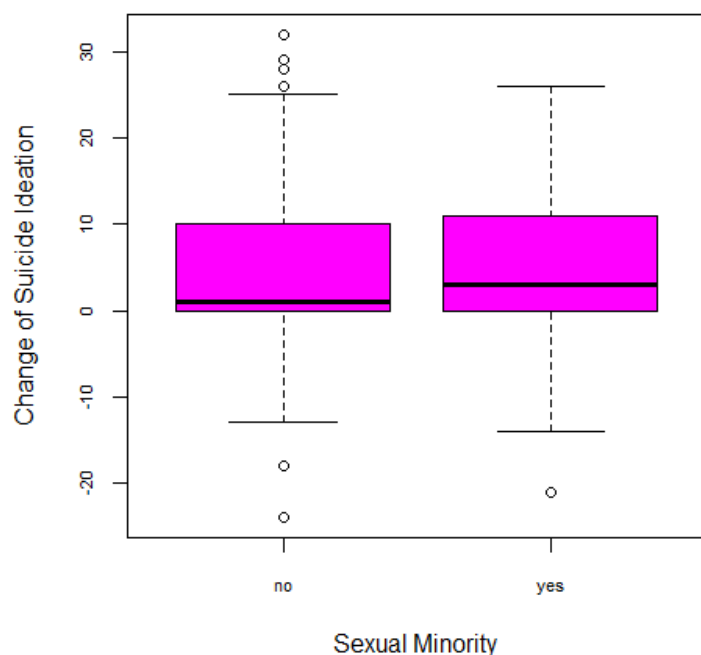
All statistically significant ($p < .05$) or, for Bayesian ANOVA analysis, posterior credible intervals of differences from the grand mean not covering zero are highlighted in yellow.

Jarosz, A. F. and J. Wiley. 2014. “What are the odds? A practical guide to computing and reporting Bayes factors.” *The Journal of Problem Solving* 7(1): 2.

Morey, R. D. and J. N. Rouder. 2015. *BayesFactor: Computation of Bayes Factors for Common Designs*. R package version 0.9.12-2 (release).

2 Treatment Outcome – Difference Intake-Discharge Assessments

2.1 Change of Suicide Ideation



Linear Regression, with heterosexuals as baseline

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -28.797 | -4.797 | -3.305 | 5.203 | 27.203 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|------------|
| (Intercept) | 4.7968 | 0.3475 | 13.804 | <2e-16 *** |
| smyes | 0.5085 | 0.7639 | 0.666 | 0.506 |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.786 on 631 degrees of freedom

Multiple R-squared: 0.0007019, Adjusted R-squared: -0.0008818

F-statistic: 0.4432 on 1 and 631 DF, p-value: 0.5058

Bayesian One-Way-ANOVAs

BF = 0.13 ±0.02% (Substant. evidence for H_0 over H_1)

1. Empirical mean and standard deviation for each variable, plus standard error of the mean:

| | Mean | SD | Naive SE | Time-series SE |
|--------|---------|---------|----------|----------------|
| mu | 5.0492 | 0.3801 | 0.003801 | 0.003801 |
| sm-no | -0.2439 | 0.3758 | 0.003758 | 0.003758 |
| sm-yes | 0.2439 | 0.3758 | 0.003758 | 0.003758 |
| sig2 | 60.7228 | 3.4436 | 0.034436 | 0.034436 |
| g_sm | 1.1515 | 13.3176 | 0.133176 | 0.133176 |

2. Quantiles for each variable:

| | 2.5% | 25% | 50% | 75% | 97.5% |
|--------|----------|-----------|---------|-----------|---------|
| mu | 4.29748 | 4.793581 | 5.0474 | 5.305148 | 5.7946 |
| sm-no | -0.97895 | -0.497677 | -0.2442 | 0.009486 | 0.4832 |
| sm-yes | -0.48318 | -0.009486 | 0.2442 | 0.497677 | 0.9789 |
| sig2 | 54.29505 | 58.349486 | 60.5817 | 62.990751 | 67.9201 |
| g_sm | 0.03542 | 0.092409 | 0.1855 | 0.448949 | 4.6342 |

2.1.1 Interaction with Confounders

F7 Diagnosis

```
lm(formula = d_BSI ~ sm * F7)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|--------|-------|--------|------|-------|
| -28.83 | -4.83 | -3.00 | 5.17 | 27.17 |

Coefficients:

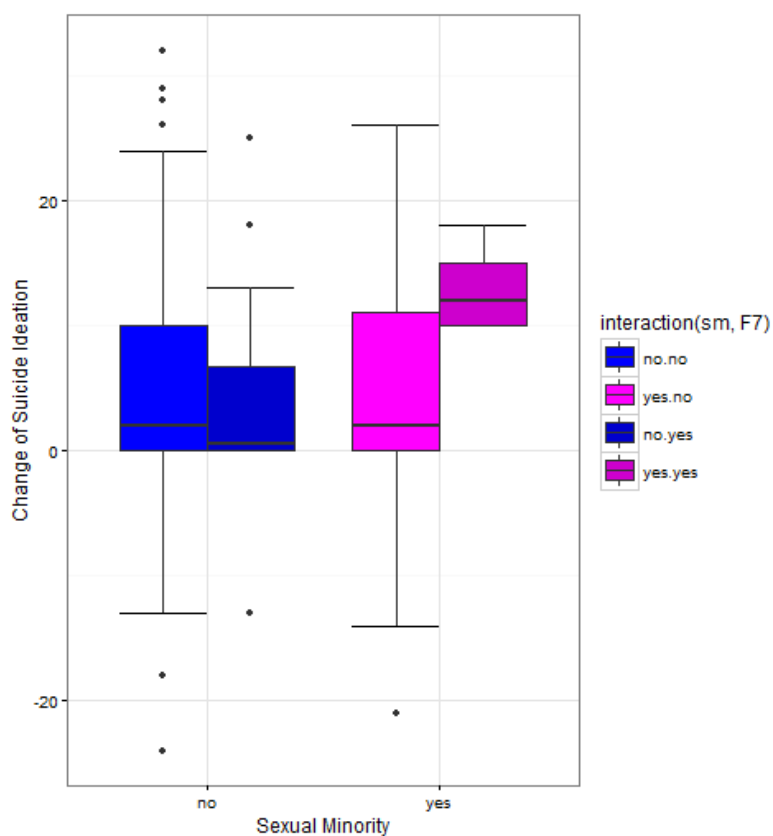
| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|------------|
| (Intercept) | 4.8298 | 0.3559 | 13.569 | <2e-16 *** |
| smyes | 0.1702 | 0.7780 | 0.219 | 0.827 |
| F7yes | -0.6375 | 1.5640 | -0.408 | 0.684 |
| smyes:F7yes | 8.6375 | 3.8711 | 2.231 | 0.026 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.766 on 629 degrees of freedom

Multiple R-squared: 0.009005, Adjusted R-squared: 0.004278

F-statistic: 1.905 on 3 and 629 DF, p-value: 0.1275



2.1.2 Adjusting for Confounders

Stepwise regression results for sociodemographics

Call:

```
lm(formula = d_BSI ~ nationality)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -27.227 | -5.127 | -3.127 | 4.873 | 28.773 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|--------------|
| (Intercept) | 7.0278 | 1.1117 | 6.322 | 4.89e-10 *** |
| nationality | -1.9006 | 0.9549 | -1.990 | 0.047 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.764 on 631 degrees of freedom

Multiple R-squared: 0.006239, Adjusted R-squared: 0.004664

F-statistic: 3.962 on 1 and 631 DF, p-value: 0.04698

Stepwise regression results for diagnosis

Call:

```
lm(formula = d_BSI ~ F3 + F6)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -28.349 | -5.169 | -2.609 | 4.831 | 29.391 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|--------------|
| (Intercept) | 2.6094 | 0.6660 | 3.918 | 9.89e-05 *** |
| F3yes | 2.5595 | 0.7228 | 3.541 | 0.000427 *** |
| F6yes | 1.7396 | 0.7704 | 2.258 | 0.024277 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.7 on 630 degrees of freedom

Multiple R-squared: 0.02419, Adjusted R-squared: 0.0211

F-statistic: 7.81 on 2 and 630 DF, p-value: 0.000446

Full Multivariate Model

Call:

```
lm(formula = d_BSI ~ nationality + F3 + F7*sm + log(length_stay) * sm)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -26.363 | -5.141 | -2.676 | 4.662 | 30.568 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|------------------------|----------|------------|---------|------------|
| (Intercept) | 3.2972 | 2.1011 | 1.569 | 0.11710 |
| nationality | -1.6587 | 0.9499 | -1.746 | 0.08127 . |
| F3yes | 2.1572 | 0.7224 | 2.986 | 0.00293 ** |
| F7yes | -0.5045 | 1.5524 | -0.325 | 0.74528 |
| smyes | 2.2559 | 3.6490 | 0.618 | 0.53666 |
| log(length_stay) | 0.5845 | 0.5730 | 1.020 | 0.30806 |
| F7yes:smyes | 8.1731 | 3.8412 | 2.128 | 0.03375 * |
| smyes:log(length_stay) | -0.6770 | 1.1548 | -0.586 | 0.55790 |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.701 on 625 degrees of freedom

Multiple R-squared: 0.0317, Adjusted R-squared: 0.02086

F-statistic: 2.923 on 7 and 625 DF, p-value: 0.00512

Multivariate Bayesian Analysis

Bayes Factor:

1. Only Confounders: BF = 0.33
2. Full Model (Confounders + SM): BF = 0.01
3. Model 1 compared to model 2: BF = 29.07 (very strong evidence for Model 1 over model 2)

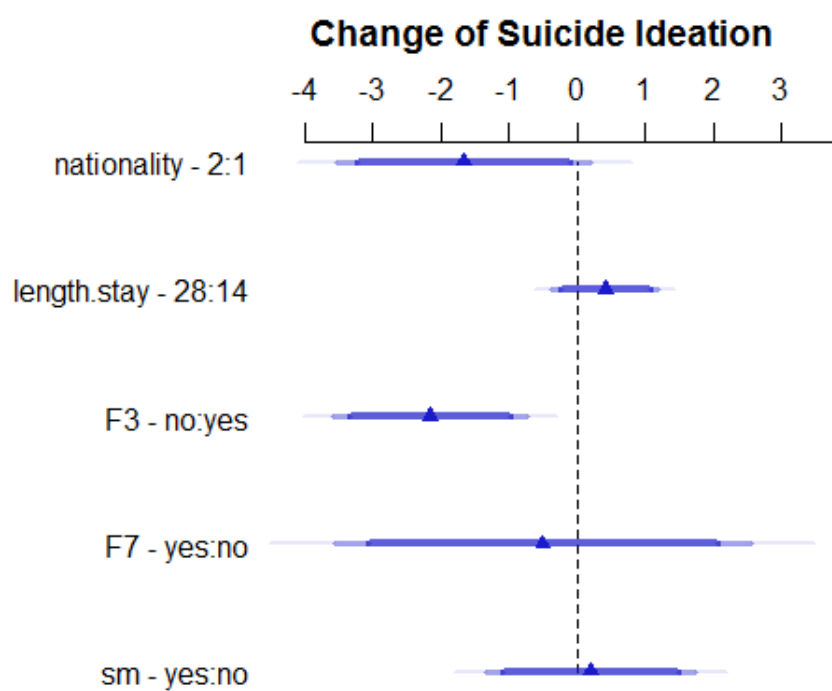
Full Bayesian Model:

1. Empirical mean and standard deviation for each variable, plus standard error of the mean:

| | Mean | SD | Naive SE | Time-series SE |
|--------------------------------|----------|-----------|-----------|----------------|
| mu | 5.61094 | 0.8936 | 0.008936 | 0.009509 |
| nationality-nationality | -1.60805 | 0.9310 | 0.009310 | 0.009409 |
| F3-no | -1.05528 | 0.3561 | 0.003561 | 0.003561 |
| F3-yes | 1.05528 | 0.3561 | 0.003561 | 0.003561 |
| F7-no | -1.18771 | 0.8639 | 0.008639 | 0.009291 |
| F7-yes | 1.18771 | 0.8639 | 0.008639 | 0.009291 |
| sm-no | -1.44388 | 0.8360 | 0.008360 | 0.009549 |
| sm-yes | 1.44388 | 0.8360 | 0.008360 | 0.009549 |
| log.length-log.length | 0.25280 | 0.5626 | 0.005626 | 0.005626 |
| F7:sm-no.&.no | 1.30782 | 0.8284 | 0.008284 | 0.009598 |
| F7:sm-no.&.yes | -1.30782 | 0.8284 | 0.008284 | 0.009598 |
| F7:sm-yes.&.no | -1.30782 | 0.8284 | 0.008284 | 0.009598 |
| F7:sm-yes.&.yes | 1.30782 | 0.8284 | 0.008284 | 0.009598 |
| sm:log.length-no.&.log.length | 0.31930 | 0.5639 | 0.005639 | 0.005274 |
| sm:log.length-yes.&.log.length | -0.31930 | 0.5639 | 0.005639 | 0.005274 |
| sig2 | 59.06413 | 3.2864 | 0.032864 | 0.033675 |
| g_F3 | 13.65221 | 1214.8342 | 12.148342 | 12.148342 |
| g_F7 | 1.30572 | 14.0960 | 0.140960 | 0.140960 |
| g_sm | 1.75812 | 40.3853 | 0.403853 | 0.403853 |
| g_F7:sm | 2.03636 | 30.5998 | 0.305998 | 0.305998 |
| g_continuous | 0.06696 | 0.1173 | 0.001173 | 0.001216 |

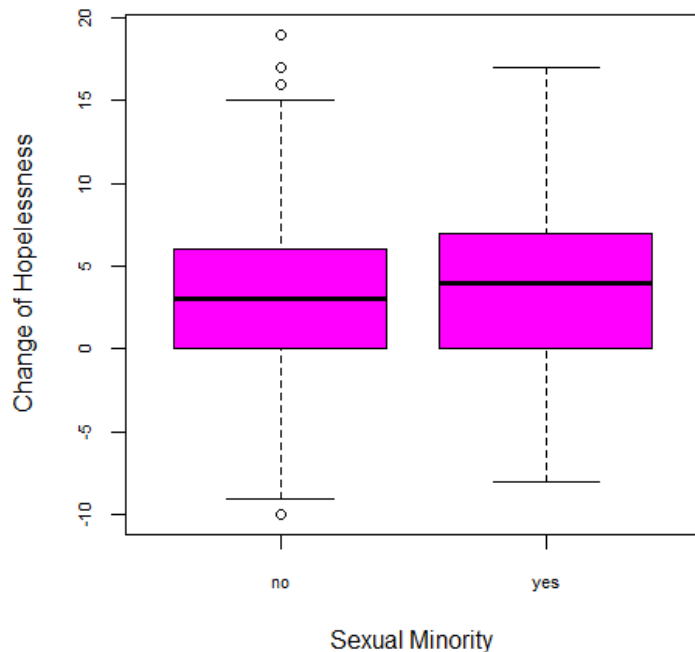
2. Quantiles for each variable:

| | 2.5% | 25% | 50% | 75% | 97.5% |
|--------------------------------|----------|----------|----------|----------|---------|
| mu | 3.87897 | 5.00367 | 5.60531 | 6.21842 | 7.4055 |
| nationality-nationality | -3.41344 | -2.24754 | -1.60604 | -0.99240 | 0.2285 |
| F3-no | -1.75838 | -1.29078 | -1.05540 | -0.81289 | -0.3686 |
| F3-yes | 0.36857 | 0.81289 | 1.05540 | 1.29078 | 1.7584 |
| F7-no | -2.90808 | -1.76171 | -1.18579 | -0.58787 | 0.4811 |
| F7-yes | -0.48108 | 0.58787 | 1.18579 | 1.76171 | 2.9081 |
| sm-no | -3.16095 | -1.99451 | -1.41924 | -0.87486 | 0.1338 |
| sm-yes | -0.13379 | 0.87486 | 1.41924 | 1.99451 | 3.1610 |
| log.length-log.length | -0.85636 | -0.12996 | 0.25380 | 0.62699 | 1.3615 |
| F7:sm-no.&.no | -0.24614 | 0.73632 | 1.29221 | 1.84913 | 2.9990 |
| F7:sm-no.&.yes | -2.99902 | -1.84913 | -1.29221 | -0.73632 | 0.2461 |
| F7:sm-yes.&.no | -2.99902 | -1.84913 | -1.29221 | -0.73632 | 0.2461 |
| F7:sm-yes.&.yes | -0.24614 | 0.73632 | 1.29221 | 1.84913 | 2.9990 |
| sm:log.length-no.&.log.length | -0.79459 | -0.05392 | 0.32786 | 0.69649 | 1.4111 |
| sm:log.length-yes.&.log.length | -1.41110 | -0.69649 | -0.32786 | 0.05392 | 0.7946 |
| sig2 | 52.93818 | 56.76235 | 58.93551 | 61.25491 | 65.6952 |
| g_F3 | 0.03936 | 0.10518 | 0.20719 | 0.50924 | 5.7377 |
| g_F7 | 0.04082 | 0.11217 | 0.22609 | 0.54717 | 5.8945 |
| g_sm | 0.04196 | 0.11568 | 0.24164 | 0.57965 | 6.3022 |
| g_F7:sm | 0.04619 | 0.13281 | 0.27235 | 0.66441 | 8.1026 |
| g_continuous | 0.01214 | 0.02515 | 0.04054 | 0.07054 | 0.2679 |



Adjusted to:F7=no sm=no length.stay=21

2.2 Change of Hopelessness



Linear Regression, with heterosexuals as baseline

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -28.797 | -4.797 | -3.305 | 5.203 | 27.203 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|------------|
| (Intercept) | 4.7968 | 0.3475 | 13.804 | <2e-16 *** |
| smyes | 0.5085 | 0.7639 | 0.666 | 0.506 |

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 7.786 on 631 degrees of freedom
 Multiple R-squared: 0.0007019, Adjusted R-squared: -0.0008818
 F-statistic: 0.4432 on 1 and 631 DF, p-value: 0.5058

Bayesian One-Way-ANOVA

BF = 0.11 ±0.0% (Substantial evidence for H_0 over H_1)

1. Empirical mean and standard deviation for each variable, plus standard error of the mean:

| | Mean | SD | Naive SE | Time-series SE |
|--------|----------|---------|----------|----------------|
| mu | 3.60632 | 0.2344 | 0.002344 | 0.002344 |
| sm-no | -0.05963 | 0.2316 | 0.002316 | 0.002316 |
| sm-yes | 0.05963 | 0.2316 | 0.002316 | 0.002316 |
| sig2 | 23.44497 | 1.3272 | 0.013272 | 0.013272 |
| g_sm | 1.11814 | 13.5453 | 0.135453 | 0.135453 |

2. Quantiles for each variable:

| | 2.5% | 25% | 50% | 75% | 97.5% |
|--------|----------|----------|----------|---------|---------|
| mu | 3.13321 | 3.44901 | 3.60901 | 3.7661 | 4.0590 |
| sm-no | -0.50890 | -0.21476 | -0.06189 | 0.1003 | 0.3911 |
| sm-yes | -0.39111 | -0.10025 | 0.06189 | 0.2148 | 0.5089 |
| sig2 | 20.96028 | 22.54490 | 23.39655 | 24.2911 | 26.2155 |
| g_sm | 0.03432 | 0.09161 | 0.18283 | 0.4588 | 5.2338 |

2.2.1 Interaction with Confounders

F6 Diagnosis

```
lm(formula = d_BHS ~ sm * F6)
```

Residuals:

| | Min | 1Q | Median | 3Q | Max |
|--|----------|---------|---------|--------|---------|
| | -13.5024 | -3.5024 | -0.5024 | 2.7634 | 15.4976 |

Coefficients:

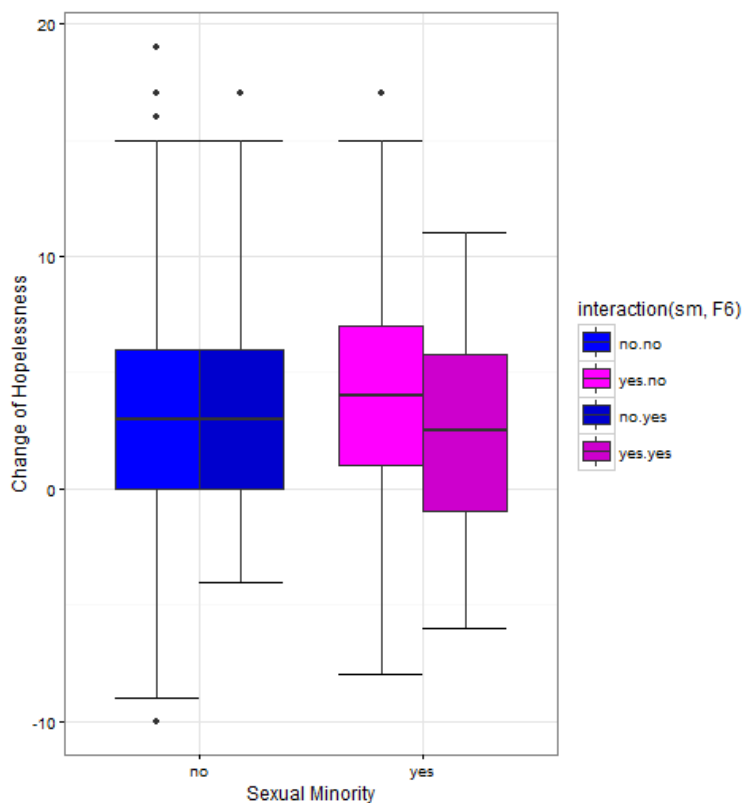
| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|------------|
| (Intercept) | 3.5024 | 0.2378 | 14.726 | <2e-16 *** |
| smyes | 0.7341 | 0.5542 | 1.325 | 0.1858 |
| F6yes | 0.2420 | 0.5617 | 0.431 | 0.6667 |
| smyes:F6yes | -2.1891 | 1.0860 | -2.016 | 0.0442 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 4.828 on 629 degrees of freedom

Multiple R-squared: 0.00733, Adjusted R-squared: 0.002596

F-statistic: 1.548 on 3 and 629 DF, p-value: 0.2009



2.2.2 Adjusting for Confounders

Stepwise regression results for sociodemographics

```
lm(formula = d_BHS ~ income + m_languag)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|----------|---------|---------|--------|---------|
| -13.5700 | -3.3494 | -0.4587 | 2.8067 | 15.3197 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|------------|------------|---------|--------------|
| (Intercept) | 4.6974835 | 0.7776830 | 6.040 | 2.63e-09 *** |
| income | 0.0004412 | 0.0001651 | 2.672 | 0.00774 ** |
| m_languag | -1.5245184 | 0.6432131 | -2.370 | 0.01808 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 4.788 on 630 degrees of freedom

Multiple R-squared: 0.02189, Adjusted R-squared: 0.01878

F-statistic: 7.048 on 2 and 630 DF, p-value: 0.0009393

Stepwise regression results for diagnosis

```
lm(formula = d_BHS ~ F0 + F3 + F8)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|----------|---------|--------|--------|---------|
| -12.8591 | -3.8033 | 0.1409 | 3.1967 | 16.1409 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|--------------|
| (Intercept) | 2.8591 | 0.3898 | 7.336 | 6.83e-13 *** |
| F0yes | 1.6635 | 1.0523 | 1.581 | 0.1144 |
| F3yes | 0.9442 | 0.4470 | 2.112 | 0.0351 * |
| F8yes | -2.1454 | 1.1589 | -1.851 | 0.0646 . |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 4.808 on 629 degrees of freedom

Multiple R-squared: 0.01541, Adjusted R-squared: 0.01071

F-statistic: 3.281 on 3 and 629 DF, p-value: 0.02058

Full Multivariate Model

Call:

```
lm(formula = d_BHS ~ income + m_languag + F0 + F3 + F8 +
    F6 * sm + log(length_stay))
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|----------|---------|---------|--------|---------|
| -13.0885 | -3.3232 | -0.1569 | 3.0194 | 16.0740 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|------------------|------------|------------|---------|--------------|
| (Intercept) | 4.3594531 | 1.2343305 | 3.532 | 0.000443 *** |
| income | 0.0004242 | 0.0001659 | 2.556 | 0.010811 * |
| m_languag | -1.6542639 | 0.6420080 | -2.577 | 0.010204 * |
| F0yes | 1.6797839 | 1.0501397 | 1.600 | 0.110198 |
| F3yes | 0.8831951 | 0.4548372 | 1.942 | 0.052614 . |
| F8yes | -2.0280383 | 1.1485324 | -1.766 | 0.077925 . |
| F6yes | 0.6082591 | 0.5630221 | 1.080 | 0.280406 |
| smyes | 0.8180816 | 0.5514322 | 1.484 | 0.138432 |
| log(length_stay) | -0.1074547 | 0.3098608 | -0.347 | 0.728871 |
| F6yes:smyes | -2.3064893 | 1.0792971 | -2.137 | 0.032984 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 4.76 on 623 degrees of freedom

Multiple R-squared: 0.04391, Adjusted R-squared: 0.0301

F-statistic: 3.179 on 9 and 623 DF, p-value: 0.0009075

Multivariate Bayesian Analysis

Bayes Factor:

1. Only Confounders: BF = 0.07
2. Full Model (Confounders + SM): BF = 0.01
3. Model 1 compared to model 2: BF = 5.7 (substantial evidence for Model 1 over model 2)

Full Bayesian Model:

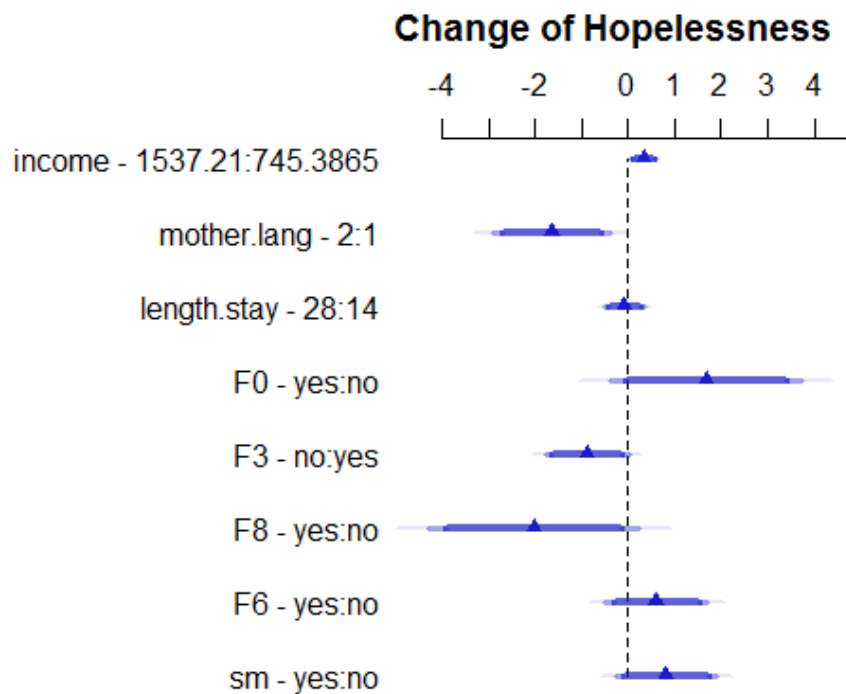
1. Empirical mean and standard deviation for each variable, plus standard error of the mean:

| | Mean | SD | Naive SE | Time-series SE |
|-------------------------|------------|-----------|-----------|----------------|
| mu | 3.1951774 | 7.217e-01 | 7.217e-03 | 7.538e-03 |
| income-income | 0.0004093 | 1.636e-04 | 1.636e-06 | 1.636e-06 |
| mother.lang-mother.lang | -1.5824248 | 6.330e-01 | 6.330e-03 | 6.330e-03 |
| F0-no | -0.7185148 | 4.968e-01 | 4.968e-03 | 5.130e-03 |
| F0-yes | 0.7185148 | 4.968e-01 | 4.968e-03 | 5.130e-03 |
| F3-no | -0.4316995 | 2.250e-01 | 2.250e-03 | 2.162e-03 |
| F3-yes | 0.4316995 | 2.250e-01 | 2.250e-03 | 2.162e-03 |
| F8-no | 0.8660337 | 5.393e-01 | 5.393e-03 | 5.707e-03 |
| F8-yes | -0.8660337 | 5.393e-01 | 5.393e-03 | 5.707e-03 |
| F6-no | 0.2495741 | 2.656e-01 | 2.656e-03 | 2.726e-03 |
| F6-yes | -0.2495741 | 2.656e-01 | 2.656e-03 | 2.726e-03 |
| sm-no | 0.1380902 | 2.583e-01 | 2.583e-03 | 2.632e-03 |
| sm-yes | -0.1380902 | 2.583e-01 | 2.583e-03 | 2.632e-03 |
| log.length-log.length | -0.1005049 | 3.017e-01 | 3.017e-03 | 3.017e-03 |
| F6:sm-no.&.no | -0.5276921 | 2.565e-01 | 2.565e-03 | 2.565e-03 |
| F6:sm-no.&.yes | 0.5276921 | 2.565e-01 | 2.565e-03 | 2.565e-03 |
| F6:sm-yes.&.no | 0.5276921 | 2.565e-01 | 2.565e-03 | 2.565e-03 |
| F6:sm-yes.&.yes | -0.5276921 | 2.565e-01 | 2.565e-03 | 2.565e-03 |
| sig2 | 22.4627919 | 1.285e+00 | 1.285e-02 | 1.326e-02 |
| g_F0 | 2.8630201 | 9.582e+01 | 9.582e-01 | 9.582e-01 |
| g_F3 | 1.2851406 | 1.666e+01 | 1.666e-01 | 1.666e-01 |
| g_F8 | 1.3247582 | 9.829e+00 | 9.829e-02 | 1.050e-01 |
| g_F6 | 1.9395389 | 7.864e+01 | 7.864e-01 | 7.864e-01 |
| g_sm | 1.5736413 | 2.503e+01 | 2.503e-01 | 2.503e-01 |
| g_F6:sm | 2.1689603 | 3.705e+01 | 3.705e-01 | 3.705e-01 |
| g_continuous | 0.0752592 | 1.808e-01 | 1.808e-03 | 1.808e-03 |

2. Quantiles for each variable:

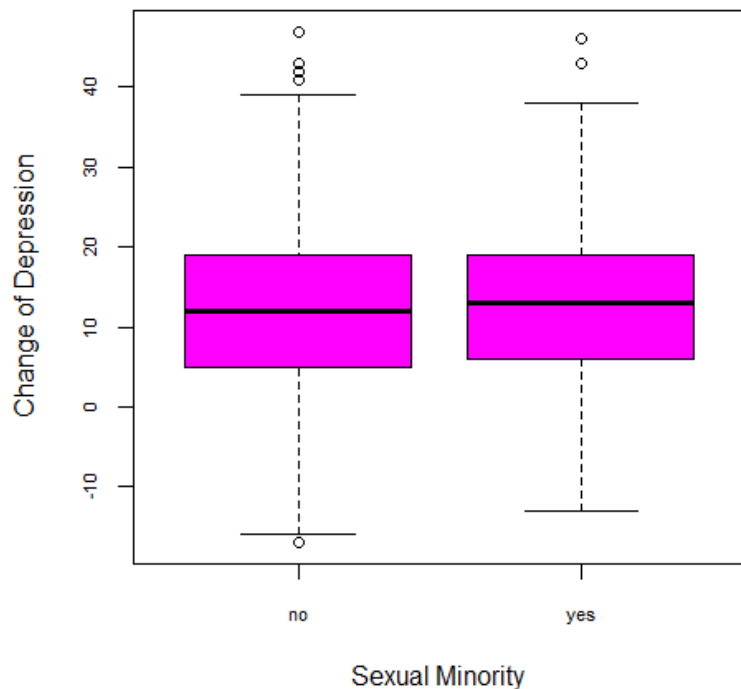
| | 2.5% | 25% | 50% | 75% | 97.5% |
|-----------------------|------------|------------|------------|-----------|------------|
| mu | 1.7859683 | 2.7186183 | 3.1922822 | 3.664335 | 4.6192260 |
| income-income | 0.0000874 | 0.0003004 | 0.0004116 | 0.000519 | 0.0007321 |
| mother.lang ther.lang | -2.8283160 | -2.0114740 | -1.5865528 | -1.152754 | -0.3290182 |
| F0-no | -1.7156073 | -1.0426160 | -0.7095967 | -0.386154 | 0.2509760 |
| F0-yes | -0.2509760 | 0.3861543 | 0.7095967 | 1.042616 | 1.7156073 |
| F3-no | -0.8708692 | -0.5821232 | -0.4319367 | -0.282763 | 0.0162733 |
| F3-yes | -0.0162733 | 0.2827634 | 0.4319367 | 0.582123 | 0.8708692 |
| F8-no | -0.1440552 | 0.4919037 | 0.8678657 | 1.225947 | 1.9384766 |
| F8-yes | -1.9384766 | -1.2259473 | -0.8678657 | -0.491904 | 0.1440552 |
| F6-no | -0.2665656 | 0.0697339 | 0.2471700 | 0.426590 | 0.7749134 |
| F6-yes | -0.7749134 | -0.4265902 | -0.2471700 | -0.069734 | 0.2665656 |
| sm-no | -0.3617087 | -0.0397038 | 0.1383699 | 0.312224 | 0.6378705 |
| sm-yes | -0.6378705 | -0.3122244 | -0.1383699 | 0.039704 | 0.3617087 |
| log.length-log.leng | -0.6814224 | -0.3038581 | -0.1013033 | 0.104284 | 0.4941751 |
| F6:sm-no.&.no | -1.0332855 | -0.7018349 | -0.5271732 | -0.351878 | -0.0348597 |
| F6:sm-no.&.yes | 0.0348597 | 0.3518782 | 0.5271732 | 0.701835 | 1.0332855 |
| F6:sm-yes.&.no | 0.0348597 | 0.3518782 | 0.5271732 | 0.701835 | 1.0332855 |
| F6:sm-yes.&.yes | -1.0332855 | -0.7018349 | -0.5271732 | -0.351878 | -0.0348597 |
| sig2 | 20.0832825 | 21.5808798 | 22.4150061 | 23.295510 | 25.1018222 |
| g_F0 | 0.0409178 | 0.1118296 | 0.2290931 | 0.549711 | 6.3208524 |
| g_F3 | 0.0360932 | 0.0957901 | 0.1927382 | 0.463206 | 5.5067506 |
| g_F8 | 0.0423193 | 0.1198875 | 0.2456934 | 0.595841 | 6.8210647 |
| g_F6 | 0.0351481 | 0.0930778 | 0.1880511 | 0.461874 | 5.6201750 |

| | | | | | |
|--------------|-----------|-----------|-----------|----------|-----------|
| g_sm | 0.0341421 | 0.0917601 | 0.1844349 | 0.450286 | 5.0278359 |
| g_F6:sm | 0.0406700 | 0.1087057 | 0.2228777 | 0.543882 | 5.7754396 |
| g_continuous | 0.0136173 | 0.0277625 | 0.0444567 | 0.078508 | 0.3180942 |



Adjusted to:F6=no sm=no

2.3 Change of Depression



Linear Regression, with heterosexuals as baseline

Residuals:

| Min | 1Q | Median | 3Q | Max |
|----------|---------|---------|--------|---------|
| -13.5458 | -3.5458 | -0.5458 | 2.4542 | 15.4542 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|------------|
| (Intercept) | 3.5458 | 0.2159 | 16.423 | <2e-16 *** |
| smyes | 0.1259 | 0.4746 | 0.265 | 0.791 |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 4.837 on 631 degrees of freedom

Multiple R-squared: 0.0001116, Adjusted R-squared: -0.001473

F-statistic: 0.07042 on 1 and 631 DF, p-value: 0.7908

Bayesian One-Way-ANOVA

BF = 0.11 ±0.02% (Substantial evidence for H0 over H1)

1. Empirical mean and standard deviation for each variable, plus standard error of the mean:

| | Mean | SD | Naive SE | Time-series SE |
|--------|---------|---------|----------|----------------|
| mu | 12.648 | 0.5319 | 0.005319 | 0.005405 |
| sm-no | -0.124 | 0.5227 | 0.005227 | 0.005352 |
| sm-yes | 0.124 | 0.5227 | 0.005227 | 0.005352 |
| sig2 | 117.244 | 6.5703 | 0.065703 | 0.065703 |
| g_sm | 1.292 | 33.2535 | 0.332535 | 0.332535 |

2. Quantiles for each variable:

| | 2.5% | 25% | 50% | 75% | 97.5% |
|--------|----------|----------|----------|----------|----------|
| mu | 11.6106 | 12.2894 | 12.6415 | 13.0095 | 13.6983 |
| sm-no | -1.1552 | -0.4773 | -0.1182 | 0.2307 | 0.8893 |
| sm-yes | -0.8893 | -0.2307 | 0.1182 | 0.4773 | 1.1552 |
| sig2 | 105.1134 | 112.7478 | 116.9963 | 121.4255 | 130.6677 |
| g_sm | 0.0340 | 0.0930 | 0.1872 | 0.4567 | 5.1398 |

2.3.1 Interaction with Confounders

Length of stay

```
lm(formula = d_BDI ~ sm * length_stay)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -29.366 | -7.309 | -0.534 | 6.677 | 34.391 |

Coefficients:

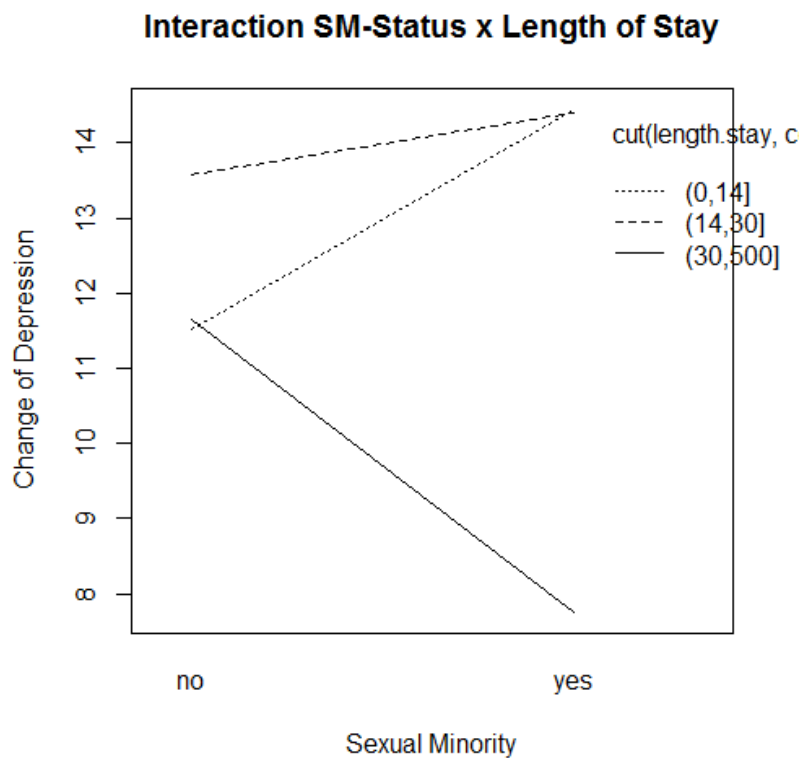
| | Estimate | Std. Error | t value | Pr(> t) |
|-------------------|----------|------------|---------|------------|
| (Intercept) | 12.16639 | 0.67357 | 18.063 | <2e-16 *** |
| smyes | 2.67140 | 1.42736 | 1.872 | 0.0617 . |
| length_stay | 0.01427 | 0.01957 | 0.729 | 0.4664 |
| smyes:length_stay | -0.08287 | 0.03400 | -2.437 | 0.0151 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 10.78 on 629 degrees of freedom

Multiple R-squared: 0.01051, Adjusted R-squared: 0.005794

F-statistic: 2.228 on 3 and 629 DF, p-value: 0.08382



SM vs. heterosexuals: Length of Stay < 15 days $d = -0.28$
 > 30 days $d = 0.34$

2.3.2 Adjusting for Confounders

Stepwise regression results for sociodemographics

```
lm(formula = d_BDI ~ income + m_languag)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -30.025 | -7.227 | -0.469 | 6.507 | 34.063 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|------------|------------|---------|-------------|
| (Intercept) | 16.0491415 | 1.7372320 | 9.238 | < 2e-16 *** |
| income | 0.0008868 | 0.0003689 | 2.404 | 0.01650 * |
| m_languag | -4.1765413 | 1.4368456 | -2.907 | 0.00378 ** |

 Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 10.7 on 630 degrees of freedom
 Multiple R-squared: 0.02433, Adjusted R-squared: 0.02123
 F-statistic: 7.855 on 2 and 630 DF, p-value: 0.000427

Stepwise regression results for diagnosis

```
lm(formula = d_BDI ~ F3)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -30.475 | -7.475 | -0.475 | 6.525 | 33.525 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|--------------|
| (Intercept) | 9.7124 | 0.8650 | 11.229 | < 2e-16 *** |
| F3yes | 3.7626 | 0.9933 | 3.788 | 0.000166 *** |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 10.7 on 631 degrees of freedom

Multiple R-squared: 0.02223, Adjusted R-squared: 0.02068

F-statistic: 14.35 on 1 and 631 DF, p-value: 0.0001664

Full Multivariate Model

Call:

```
lm(formula = d_BDI ~ income + m_languag + F3 + log(length_stay) *
    sm)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -30.992 | -7.020 | -0.964 | 6.579 | 33.256 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|------------------------|------------|------------|---------|--------------|
| (Intercept) | 14.1500874 | 2.9502233 | 4.796 | 2.02e-06 *** |
| income | 0.0007955 | 0.0003645 | 2.182 | 0.02946 * |
| m_languag | -4.5701916 | 1.4198232 | -3.219 | 0.00135 ** |
| F3yes | 3.9406123 | 0.9907661 | 3.977 | 7.78e-05 *** |
| log(length_stay) | -0.2130309 | 0.7837679 | -0.272 | 0.78586 |
| smyes | 11.7819455 | 4.9793312 | 2.366 | 0.01828 * |
| log(length_stay):smyes | -3.6224037 | 1.5779521 | -2.296 | 0.02203 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 10.54 on 626 degrees of freedom

Multiple R-squared: 0.05895, Adjusted R-squared: 0.04993

F-statistic: 6.536 on 6 and 626 DF, p-value: 1.046e-06

Multivariate Bayesian Analysis

Bayes Factor:

1. Only Confounders: BF = 1476.04
2. Full Model (Confounders + SM): BF = 445.06
3. Model 1 compared to model 2: BF = 3.32 (substantial evidence for Model 1 over model 2)

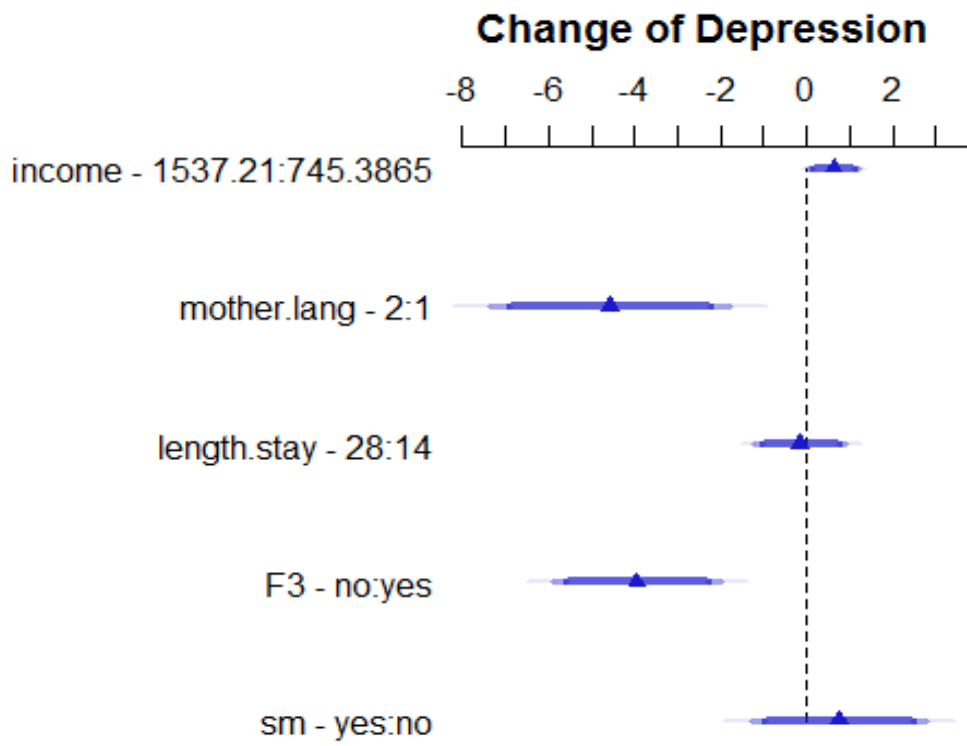
Full Bayesian Model:

1. Empirical mean and standard deviation for each variable, plus standard error of the mean:

| | Mean | SD | Naive SE | Time-series SE |
|-------------------------|------------|-----------|-----------|----------------|
| mu | 1.191e+01 | 5.811e-01 | 5.811e-03 | 5.811e-03 |
| income-income | 7.589e-04 | 3.569e-04 | 3.569e-06 | 3.569e-06 |
| mother.lang-mother.lang | -4.335e+00 | 1.376e+00 | 1.376e-02 | 1.376e-02 |
| F3-no | -1.915e+00 | 4.920e-01 | 4.920e-03 | 4.994e-03 |
| F3-yes | 1.915e+00 | 4.920e-01 | 4.920e-03 | 4.994e-03 |
| log.length-log.length | -1.919e+00 | 7.721e-01 | 7.721e-03 | 7.721e-03 |
| sm-no | -4.230e-01 | 5.148e-01 | 5.148e-03 | 5.148e-03 |
| sm-yes | 4.230e-01 | 5.148e-01 | 5.148e-03 | 5.148e-03 |
| log.length:sm-no | 1.725e+00 | 7.702e-01 | 7.702e-03 | 7.586e-03 |
| log.length:sm-yes | -1.725e+00 | 7.702e-01 | 7.702e-03 | 7.586e-03 |
| sig2 | 1.106e+02 | 6.285e+00 | 6.285e-02 | 6.382e-02 |
| g_F3 | 1.225e+00 | 9.556e+00 | 9.556e-02 | 9.556e-02 |
| g_sm | 1.061e+00 | 1.105e+01 | 1.105e-01 | 1.105e-01 |
| g_continuous | 5.769e-02 | 2.405e-01 | 2.405e-03 | 2.405e-03 |

2. Quantiles for each variable:

| | 2.5% | 25% | 50% | 75% | 97.5% |
|---------------------|------------|------------|------------|------------|------------|
| mu | 1.076e+01 | 1.151e+01 | 1.191e+01 | 1.230e+01 | 13.044263 |
| income-income | 6.056e-05 | 5.168e-04 | 7.619e-04 | 9.974e-04 | 0.001457 |
| mother.lang- r.lang | -7.014e+00 | -5.243e+00 | -4.337e+00 | -3.408e+00 | -1.638172 |
| F3-no | -2.885e+00 | -2.244e+00 | -1.909e+00 | -1.588e+00 | -0.951324 |
| F3-yes | 9.513e-01 | 1.588e+00 | 1.909e+00 | 2.244e+00 | 2.885351 |
| log.length | -3.428e+00 | -2.437e+00 | -1.922e+00 | -1.391e+00 | -0.419981 |
| sm-no | -1.433e+00 | -7.668e-01 | -4.239e-01 | -7.735e-02 | 0.587176 |
| sm-yes | -5.872e-01 | 7.735e-02 | 4.239e-01 | 7.668e-01 | 1.432923 |
| log.length:sm-no | 2.165e-01 | 1.208e+00 | 1.729e+00 | 2.257e+00 | 3.218784 |
| log.length:sm-yes | -3.219e+00 | -2.257e+00 | -1.729e+00 | -1.208e+00 | -0.216499 |
| sig2 | 9.911e+01 | 1.062e+02 | 1.104e+02 | 1.146e+02 | 123.874317 |
| g_F3 | 4.358e-02 | 1.167e-01 | 2.273e-01 | 5.451e-01 | 6.153570 |
| g_sm | 3.440e-02 | 9.271e-02 | 1.845e-01 | 4.329e-01 | 4.587531 |
| g_continuous | 1.273e-02 | 2.494e-02 | 3.839e-02 | 6.155e-02 | 0.197719 |



Adjusted to:length.stay=21 sm=no

3 Responder Analysis

Procedure according to Hiller, W., Schindler, A.C. & Lambert, M. J. (2011). Defining response and remission in psychotherapy research: A comparison of the RCI and the method of percent improvement. *Psychotherapy Research*, 22, 1 – 11.

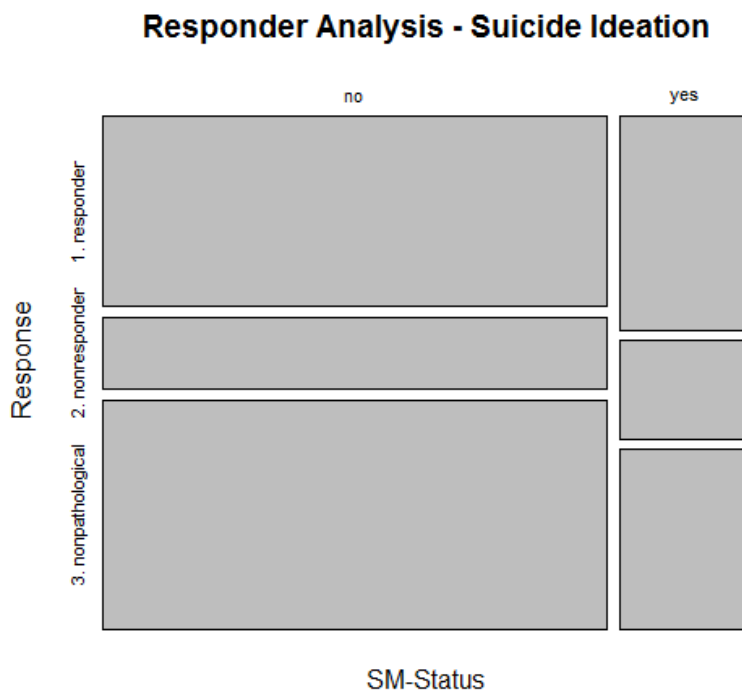
Responder if:

1. baseline is in the pathological range and there is at least 50% improvement in the clinical range (baseline minus cut-off). For example, if a patient scores 30 on the BDI at baseline and 20 at follow-up (10-point difference), the cut-off is 14+, then this results in a percentual improvement of $10 / (30-14) * 100 = 62.5\%$
2. baseline is in the pathological range and the overall improvement has to be at least 25% in the general range (because if a patient's baseline is only slightly above the cut-off, then it is too easy to gain > 50% possible change in the clinical range). E.g, if a patient's baseline is 16 on the BDI and 14 after treatment, then this is an overall improvement of $(16-14)/16*100 = 12.5\%$ (but it would be 100% with criterion 1).
3. Patients can only be responders or nonresponders if the baseline is in the pathological range.

3.1 Suicide Ideation

Cutoff > 4 (arbitrary)

| | | res_BSI | | |
|-----|--|--------------|-----------------|--------------------|
| sm | | 1. responder | 2. nonresponder | 3. nonpathological |
| no | | 194 | 74 | 234 |
| yes | | 57 | 26 | 48 |



Pearson's Chi-squared test

data: sm and res_BSI

X-squared = 4.6542, df = 2, p-value = 0.09758

3.1.1 Interactions with Confounders

F3 Diagnosis

```
lrm(formula = res_BSI_bin ~ sm * F3)
```

| | Obs | | Model Likelihood | | Discrimination | | Rank Discrim. | |
|-----------------|-------|------------|------------------|-------|----------------|---------|---------------|--|
| | | | Ratio Test | | Indexes | Indexes | | |
| | 351 | LR chi2 | 9.51 | R2 | 0.038 | C | 0.563 | |
| 1. responder | 251 | d.f. | 3 | g | 0.236 | Dxy | 0.126 | |
| 2. nonresponder | 100 | Pr(> chi2) | 0.0232 | gr | 1.267 | gamma | 0.221 | |
| max deriv | 2e-11 | | | gp | 0.052 | tau-a | 0.052 | |
| | | | | Brier | 0.198 | | | |

| | Coef | S.E. | wald Z | Pr(> Z) |
|-----------------|---------|--------|--------|----------|
| Intercept | -0.8473 | 0.3086 | -2.75 | 0.0060 |
| sm=yes | 1.2993 | 0.5736 | 2.27 | 0.0235 |
| F3=yes | -0.1441 | 0.3442 | -0.42 | 0.6755 |
| sm=yes * F3=yes | -1.5119 | 0.6625 | -2.28 | 0.0225 |

Oddsratio without F3: 3.56 (1.16-11.67) (SM more likely nonresp.)
 Oddsratio with F3: 0.81 (0.41-1.53)

F6 Diagnosis

Logistic Regression Model

```
lrm(formula = res_BSI_bin ~ sm * F6)
```

Frequencies of Missing Values Due to Each Variable

| | Obs | | Model Likelihood | | Discrimination | | Rank Discrim. | |
|-----------------|-------|------------|------------------|-------|----------------|---------|---------------|--|
| | | | Ratio Test | | Indexes | Indexes | | |
| | 351 | LR chi2 | 12.59 | R2 | 0.051 | C | 0.594 | |
| 1. responder | 251 | d.f. | 3 | g | 0.366 | Dxy | 0.187 | |
| 2. nonresponder | 100 | Pr(> chi2) | 0.0056 | gr | 1.442 | gamma | 0.301 | |
| max deriv | 1e-12 | | | gp | 0.077 | tau-a | 0.077 | |
| | | | | Brier | 0.196 | | | |

| | Coef | S.E. | wald Z | Pr(> Z) |
|-----------------|---------|--------|--------|----------|
| Intercept | -1.0269 | 0.1601 | -6.42 | <0.0001 |
| sm=yes | -0.4547 | 0.3852 | -1.18 | 0.2378 |
| F6=yes | 0.2428 | 0.3082 | 0.79 | 0.4308 |
| sm=yes * F6=yes | 1.4464 | 0.5976 | 2.42 | 0.0155 |

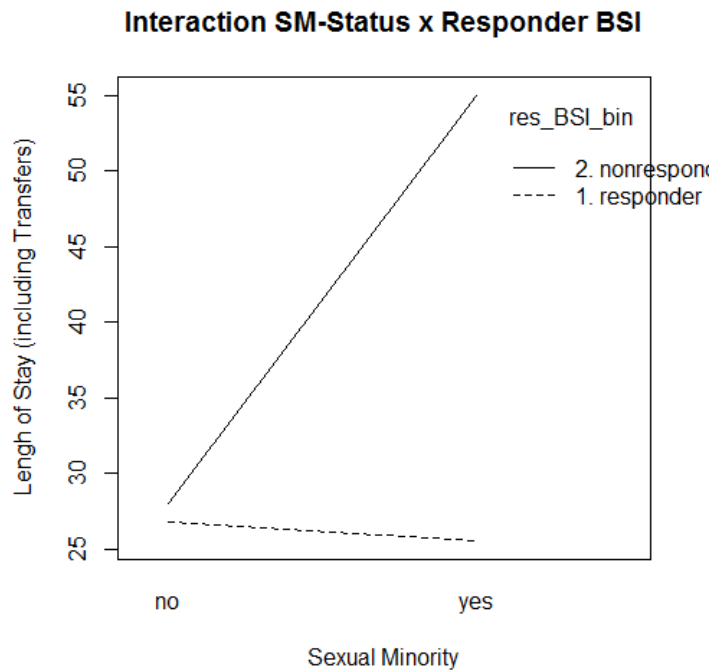
Oddsratio without F6: 0.64 (0.29-1.33) (SM less likely nonresp.)
 Oddsratio with F6: 2.65 (1.08-1.68)

Length of Stay

```
lrm(formula = res_BSI_bin ~ sm * length_stay)
```

| | | Model Likelihood Ratio Test | Discrimination Indexes | Rank Discrim. Indexes |
|-----------------|-------|--------------------------------|---------------------------|--------------------------|
| Obs | 351 | LR chi2 10.76 | R2 0.043 | C 0.564 |
| 1. responder | 251 | d.f. 3 | g 0.224 | Dxy 0.128 |
| 2. nonresponder | 100 | Pr(> chi2) 0.0131 | gr 1.252 | gamma 0.145 |
| max deriv | 3e-04 | | gp 0.042 | tau-a 0.052 |
| | | | Brier 0.197 | |

| | Coef | S.E. | wald Z | Pr(> Z) |
|----------------------|---------|--------|--------|----------|
| Intercept | -0.9977 | 0.1787 | -5.58 | <0.0001 |
| sm=yes | -0.6452 | 0.4533 | -1.42 | 0.1546 |
| length_stay | 0.0012 | 0.0042 | 0.30 | 0.7662 |
| sm=yes * length_stay | 0.0241 | 0.0115 | 2.09 | 0.0370 |



Cohen d responders 0.04 vs. nonresponders 0.69

3.1.2 Adjusting for Confounders

Results from stepwise regression with sociodemographics

```
Call:
glm(formula = res_BSI_bin ~ geschlecht + m_languag, family = "binomial")
```

Deviance Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|---------|--------|--------|
| -1.1187 | -0.8744 | -0.6815 | 1.4931 | 1.7742 |

Coefficients:

| | Estimate | Std. Error | z value | Pr(> z) |
|-------------|----------|------------|---------|--------------|
| (Intercept) | -2.5438 | 0.5941 | -4.282 | 1.85e-05 *** |
| geschlecht | 0.5774 | 0.2476 | 2.332 | 0.0197 * |
| m_languag | 0.6246 | 0.3510 | 1.780 | 0.0751 . |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 419.46 on 350 degrees of freedom
 Residual deviance: 411.10 on 348 degrees of freedom
 (282 observations deleted due to missingness)
 AIC: 417.1

Number of Fisher Scoring iterations: 4

Results from stepwise regression with F0-F9 Diagnosis

```
Call:
glm(formula = res_BSI_bin ~ F6, family = "binomial")
```

Deviance Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|---------|--------|--------|
| -0.9867 | -0.7533 | -0.7533 | 1.3809 | 1.6722 |

Coefficients:

| | Estimate | Std. Error | z value | Pr(> z) |
|-------------|----------|------------|---------|--------------|
| (Intercept) | -1.1144 | 0.1452 | -7.675 | 1.65e-14 *** |
| F6yes | 0.6477 | 0.2551 | 2.540 | 0.0111 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 419.46 on 350 degrees of freedom
 Residual deviance: 413.13 on 349 degrees of freedom
 (282 observations deleted due to missingness)
 AIC: 417.13

Number of Fisher Scoring iterations: 4

Full model

```
lrm(formula = res_BSI_bin ~ geschlecht + m_languag + F3 * sm +
     F6 * sm + log(length_stay) * sm)
```

Frequencies of Missing Values Due to Each Variable

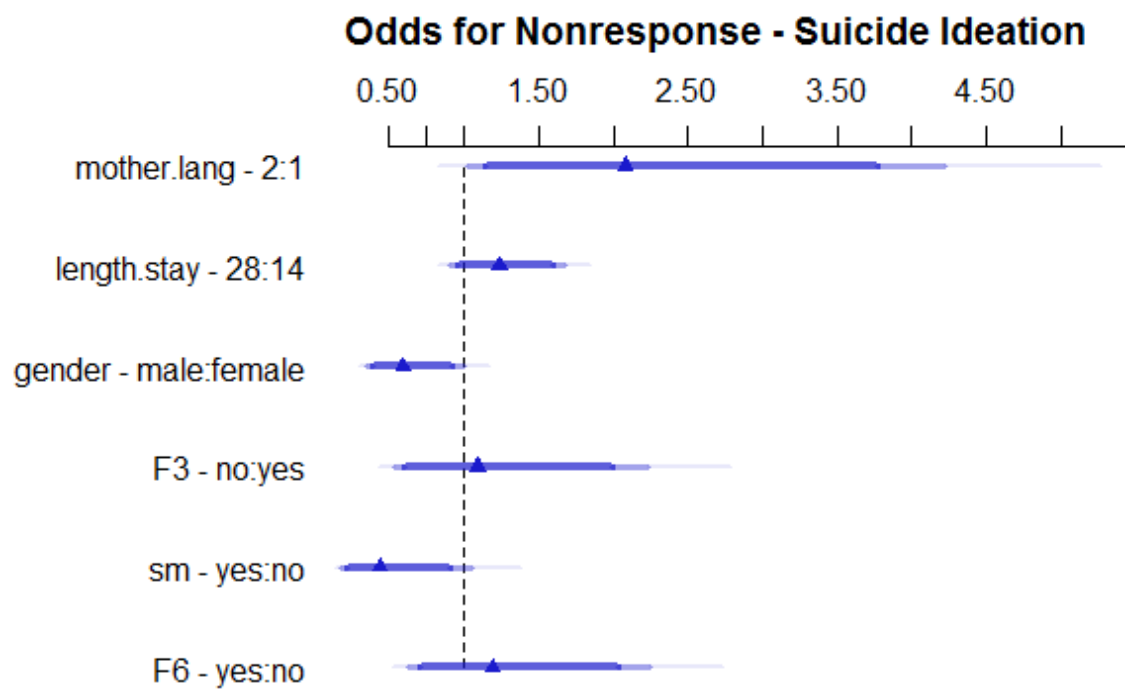
| res_BSI_bin | geschlecht | m_languag | F3 | sm | F6 | |
|-------------|------------|-----------|----|----|----|---|
| length_stay | | | | | | |
| 282 | 0 | 0 | 0 | 0 | 0 | 0 |

| | | Model Likelihood | Discrimination | Rank Discrim. |
|-----------------|-------|-------------------|----------------|---------------|
| | | Ratio Test | Indexes | Indexes |
| Obs | 351 | LR chi2 31.60 | R2 0.123 | C 0.675 |
| 1. responder | 251 | d.f. 9 | g 0.738 | Dxy 0.351 |
| 2. nonresponder | 100 | Pr(> chi2) 0.0002 | gr 2.092 | gamma 0.354 |
| max deriv | 3e-07 | | gp 0.138 | tau-a 0.143 |
| | | | Brier 0.185 | |

| | Coef | S.E. | wald Z | Pr(> Z) |
|----------------------|---------|--------|--------|----------|
| Intercept | -3.5367 | 1.0410 | -3.40 | 0.0007 |
| geschlecht | 0.5224 | 0.2637 | 1.98 | 0.0476 |
| m_languag | 0.7328 | 0.3605 | 2.03 | 0.0421 |
| F3=yes | -0.0887 | 0.3639 | -0.24 | 0.8074 |
| sm=yes | -2.8614 | 1.8020 | -1.59 | 0.1123 |
| F6=yes | 0.1745 | 0.3233 | 0.54 | 0.5893 |
| length_stay | 0.3065 | 0.2259 | 1.36 | 0.1749 |
| F3=yes * sm=yes | -1.0060 | 0.7764 | -1.30 | 0.1951 |
| sm=yes * F6=yes | 0.9439 | 0.6868 | 1.37 | 0.1694 |
| sm=yes * length_stay | 0.9976 | 0.5269 | 1.89 | 0.0583 |

| Effects | | | | Response : res_BSI_bin | | | |
|-------------|-----|------|-------|------------------------|---------|------------|------------|
| Factor | Low | High | Diff. | Effect | S.E. | Lower 0.95 | Upper 0.95 |
| geschlecht | 1 | 2 | 1 | 0.522420 | 0.26368 | 0.0056113 | 1.039200 |
| Odds Ratio | 1 | 2 | 1 | 1.686100 | NA | 1.0056000 | 2.827000 |
| m_languag | 1 | 2 | 1 | 0.732840 | 0.36049 | 0.0263010 | 1.439400 |
| Odds Ratio | 1 | 2 | 1 | 2.081000 | NA | 1.0267000 | 4.218100 |
| length_stay | 14 | 28 | 14 | 0.212430 | 0.15659 | -0.0944910 | 0.519350 |
| Odds Ratio | 14 | 28 | 14 | 1.236700 | NA | 0.9098400 | 1.680900 |
| F3 - no:yes | 2 | 1 | NA | 0.088744 | 0.36395 | -0.6245800 | 0.802060 |
| Odds Ratio | 2 | 1 | NA | 1.092800 | NA | 0.5354900 | 2.230100 |
| sm - yes:no | 1 | 2 | NA | -0.830190 | 0.44766 | -1.7076000 | 0.047195 |
| Odds Ratio | 1 | 2 | NA | 0.435970 | NA | 0.1813000 | 1.048300 |
| F6 - yes:no | 1 | 2 | NA | 0.174530 | 0.32327 | -0.4590600 | 0.808120 |
| Odds Ratio | 1 | 2 | NA | 1.190700 | NA | 0.6318800 | 2.243700 |

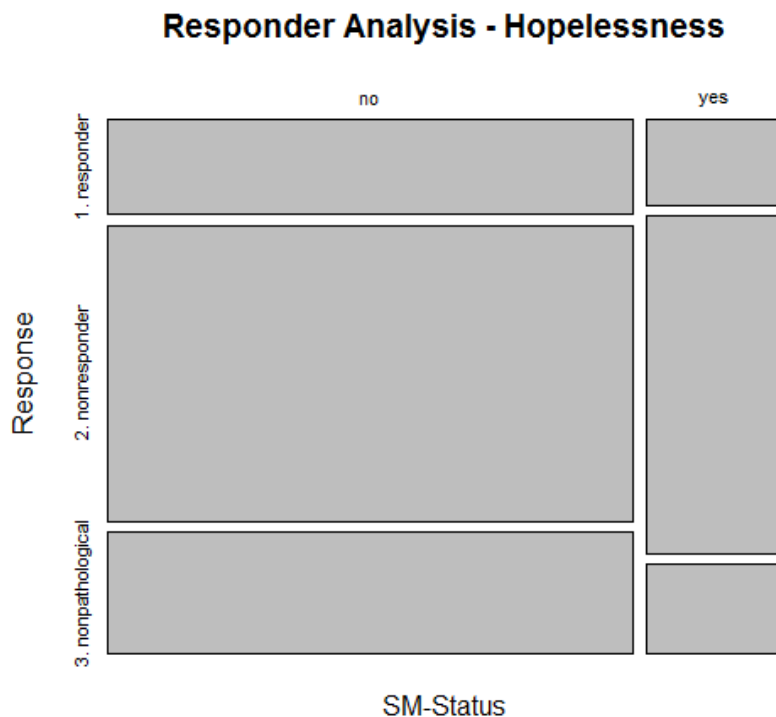
Adjusted to: F3=yes sm=no F6=no length_stay=21



Adjusted to:F3=yes sm=no F6=no length.stay=21

3.2 Hopelessness

| res_BHS | | sm | | |
|---------|--------------|-----------------|--------------------|-----|
| | 1. responder | 2. nonresponder | 3. nonpathological | |
| no | 93 | 290 | | 119 |
| yes | 22 | 86 | | 23 |



Pearson's Chi-squared test

data: sm and res_BHS
 X-squared = 3.008, df = 2, p-value = 0.2222

3.2.1 Interactions with Confounders

F4 Diagnosis

```
lrm(formula = res_BHS_bin ~ sm * F4)
```

Frequencies of Missing Values Due to Each Variable

| res_BHS_bin | sm | F4 |
|-------------|----|----|
| 142 | 0 | 0 |

| | | Model Likelihood Ratio Test | | Discrimination Indexes | | Rank Discrim. Indexes | |
|-----------------|-------|--------------------------------|--------|---------------------------|-------|--------------------------|-------|
| Obs | 491 | LR chi2 | 7.95 | R2 | 0.024 | C | 0.568 |
| 1. responder | 115 | d.f. | 3 | g | 0.292 | Dxy | 0.136 |
| 2. nonresponder | 376 | Pr(> chi2) | 0.0470 | gr | 1.340 | gamma | 0.222 |
| max deriv | 4e-10 | | | gp | 0.049 | tau-a | 0.049 |

Brier 0.177

| | Coef | S.E. | Wald Z | Pr(> Z) |
|-----------------|---------|--------|--------|----------|
| Intercept | 1.1036 | 0.1410 | 7.83 | <0.0001 |
| sm=yes | 0.7682 | 0.3678 | 2.09 | 0.0367 |
| F4=yes | 0.1157 | 0.2640 | 0.44 | 0.6613 |
| sm=yes * F4=yes | -1.4279 | 0.5622 | -2.54 | 0.0111 |

Oddsratio without F4: 2.12 (1.07-4.64) (SM more likely nonresp.)
 Oddsratio with F4: 0.51 (0.23-1.22)

3.2.2 Adjusting for Confounders

Results from stepwise regression with sociodemographics

```
glm(formula = res_BHS_bin ~ nationality, family = "binomial")
```

Deviance Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|--------|--------|
| -1.9121 | 0.5919 | 0.7474 | 0.7474 | 0.7474 |

Coefficients:

| | Estimate | Std. Error | z value | Pr(> z) |
|-------------|----------|------------|---------|----------|
| (Intercept) | 0.6123 | 0.4269 | 1.434 | 0.152 |
| nationality | 0.5203 | 0.3806 | 1.367 | 0.172 |

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 534.52 on 490 degrees of freedom
 Residual deviance: 532.47 on 489 degrees of freedom
 (142 observations deleted due to missingness)
 AIC: 536.47

Number of Fisher Scoring iterations: 4

Results from stepwise regression with F0-F9 Diagnosis

```
glm(formula = res_BHS_bin ~ F0 + F6, family = "binomial")
```

Deviance Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|--------|--------|
| -1.8750 | 0.6152 | 0.7487 | 0.7487 | 1.1213 |

Coefficients:

| | Estimate | Std. Error | z value | Pr(> z) |
|-------------|----------|------------|---------|------------|
| (Intercept) | 1.1285 | 0.1226 | 9.202 | <2e-16 *** |
| F0yes | -0.9949 | 0.5319 | -1.871 | 0.0614 . |
| F6yes | 0.4402 | 0.2747 | 1.602 | 0.1091 |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 534.52 on 490 degrees of freedom

Residual deviance: 527.80 on 488 degrees of freedom
 (142 observations deleted due to missingness)
 AIC: 533.8
 Number of Fisher Scoring iterations: 4

Full model

Logistic Regression Model

```
lrm(formula = res_BHS_bin ~ nationality + F0 + F4 * sm + log(length_stay))
Frequencies of Missing Values Due to Each Variable
```

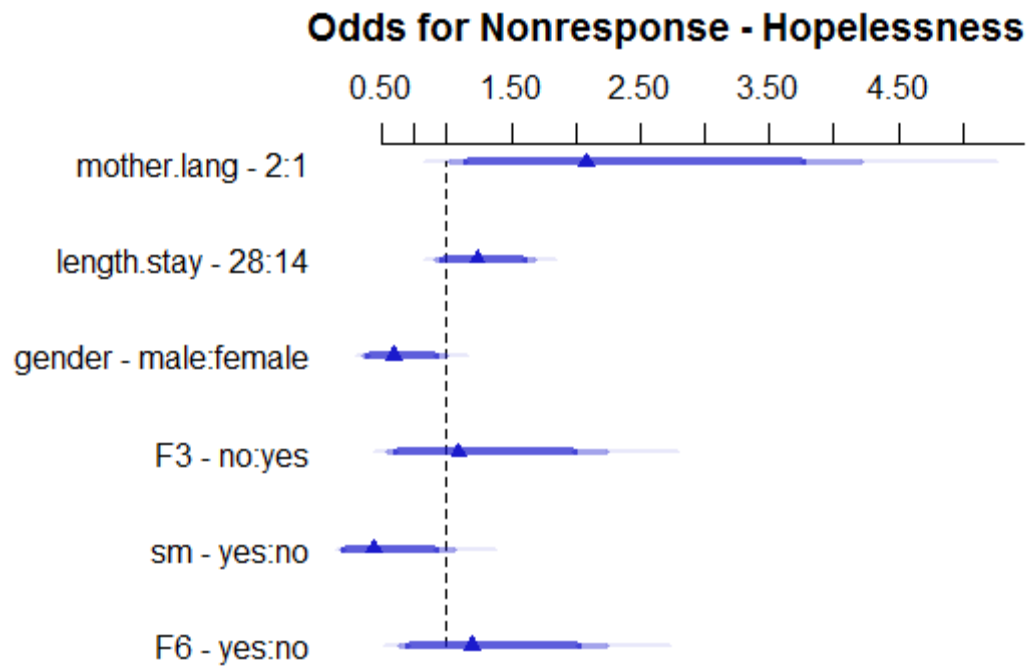
| res_BHS_bin | nationality | F0 | F4 | sm | length_stay |
|-------------|-------------|----|----|----|-------------|
| 142 | 0 | 0 | 0 | 0 | 0 |

| | Model Likelihood Ratio Test | Discrimination Indexes | Rank Discrim. Indexes |
|-----------------|-----------------------------|------------------------|-----------------------|
| Obs | LR chi2 17.35 | R2 0.052 | C 0.606 |
| 1. responder | d.f. 6 | g 0.499 | Dxy 0.213 |
| 2. nonresponder | Pr(> chi2) 0.0081 | gr 1.647 | gamma 0.216 |
| max deriv | 5e-09 | gp 0.086 | tau-a 0.076 |
| | | Brier 0.173 | |

| | Coef | S.E. | wald Z | Pr(> Z) |
|-----------------|---------|--------|--------|----------|
| Intercept | -0.4853 | 0.7244 | -0.67 | 0.5029 |
| nationality | 0.5947 | 0.3874 | 1.54 | 0.1248 |
| F0=yes | -1.1124 | 0.5380 | -2.07 | 0.0387 |
| F4=yes | 0.1624 | 0.2688 | 0.60 | 0.5456 |
| sm=yes | 0.6983 | 0.3710 | 1.88 | 0.0598 |
| length_stay | 0.3213 | 0.1856 | 1.73 | 0.0834 |
| F4=yes * sm=yes | -1.4914 | 0.5672 | -2.63 | 0.0086 |

| Effects | Response : res_BHS_bin | | | | | | |
|-------------|------------------------|------|-------|----------|---------|------------|------------|
| | Low | High | Diff. | Effect | S.E. | Lower 0.95 | Upper 0.95 |
| nationality | 1 | 2 | 1 | 0.59466 | 0.38738 | -0.164580 | 1.353900 |
| Odds Ratio | 1 | 2 | 1 | 1.81240 | NA | 0.848250 | 3.872500 |
| length_stay | 14 | 28 | 14 | 0.22269 | 0.12862 | -0.029413 | 0.474780 |
| Odds Ratio | 14 | 28 | 14 | 1.24940 | NA | 0.971010 | 1.607700 |
| F0 - yes:no | 1 | 2 | NA | -1.11240 | 0.53798 | -2.166800 | -0.057957 |
| Odds Ratio | 1 | 2 | NA | 0.32877 | NA | 0.114540 | 0.943690 |
| F4 - yes:no | 1 | 2 | NA | 0.16244 | 0.26877 | -0.364340 | 0.689220 |
| Odds Ratio | 1 | 2 | NA | 1.17640 | NA | 0.694650 | 1.992200 |
| sm - yes:no | 1 | 2 | NA | 0.69832 | 0.37100 | -0.028819 | 1.425500 |
| Odds Ratio | 1 | 2 | NA | 2.01040 | NA | 0.971590 | 4.159800 |

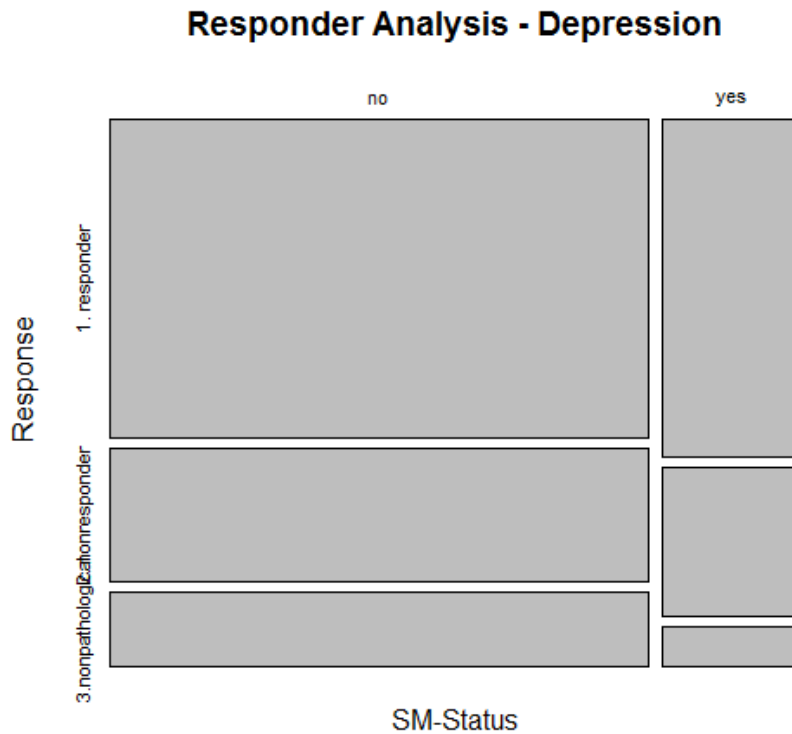
Adjusted to: F4=no sm=no



Adjusted to:F3=yes sm=no F6=no length.stay=21

3.3 Depression

| | | res_BDI | | |
|----|-----|--------------|-----------------|-------------------|
| sm | | 1. responder | 2. nonresponder | 3.nonpathological |
| | no | 304 | 127 | 71 |
| | yes | 84 | 37 | 10 |



Pearson's Chi-squared test

data: sm and res_BDI
 X-squared = 4.0038, df = 2, p-value = 0.1351

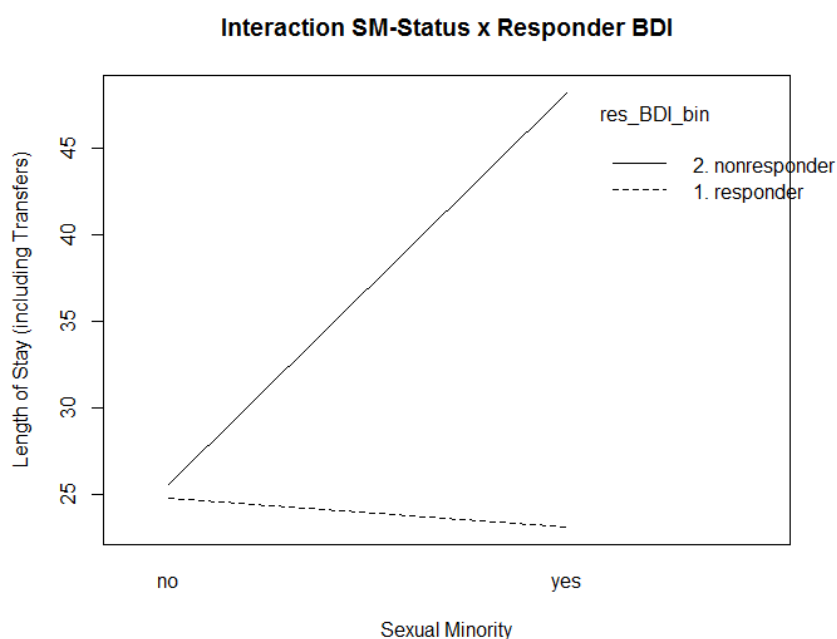
3.3.1 Interactions with Confounders

Length of Stay

```
lrm(formula = res_BDI_bin ~ sm * length_stay)
Frequencies of Missing Values Due to Each Variable
res_BDI_bin      sm length_stay
      81          0          0
```


| | | Model Likelihood Ratio Test | Discrimination Indexes | Rank Discrim. Indexes |
|-----------------|-------|--------------------------------|---------------------------|--------------------------|
| Obs | 552 | LR chi2 15.34 | R2 0.039 | C 0.584 |
| 1. responder | 388 | d.f. 3 | g 0.240 | Dxy 0.168 |
| 2. nonresponder | 164 | Pr(> chi2) 0.0015 | gr 1.271 | gamma 0.196 |
| max deriv | 3e-08 | | gp 0.043 | tau-a 0.070 |
| | | | Brier 0.203 | |

| | Coef | S.E. | wald Z | Pr(> Z) |
|----------------------|---------|--------|--------|----------|
| Intercept | -0.9010 | 0.1448 | -6.22 | <0.0001 |
| sm=yes | -0.8932 | 0.4087 | -2.19 | 0.0288 |
| length_stay | 0.0011 | 0.0039 | 0.29 | 0.7748 |
| sm=yes * length_stay | 0.0315 | 0.0121 | 2.59 | 0.0095 |



Cohen d responders 0.06 vs. nonresponders 0.73

3.3.2 Adjusting for Confounders

Results from stepwise regression with sociodemographics

```
glm(formula = res_BDI_bin ~ income + m_languag, family = "binomial")
```

Deviance Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|---------|--------|--------|
| -1.4365 | -0.8115 | -0.7580 | 1.0742 | 1.8704 |

Coefficients:

| | Estimate | Std. Error | z value | Pr(> z) | |
|-------------|------------|------------|---------|----------|-----|
| (Intercept) | -1.9324600 | 0.3844942 | -5.026 | 5.01e-07 | *** |
| income | -0.0002863 | 0.0001289 | -2.221 | 0.0263 | * |
| m_languag | 1.2617893 | 0.2941104 | 4.290 | 1.79e-05 | *** |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 671.66 on 551 degrees of freedom
 Residual deviance: 643.51 on 549 degrees of freedom
 (81 observations deleted due to missingness)
 AIC: 649.51

Number of Fisher Scoring iterations: 4

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 419.46 on 350 degrees of freedom
 Residual deviance: 411.10 on 348 degrees of freedom
 (282 observations deleted due to missingness)
 AIC: 417.1

Number of Fisher Scoring iterations: 4

Results from stepwise regression with F0-F9 Diagnosis

Call:

glm(formula = res_BDI_bin ~ F6, family = "binomial")

Deviance Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|---------|--------|--------|
| -1.0108 | -0.7908 | -0.7908 | 1.3537 | 1.6216 |

Coefficients:

| | Estimate | Std. Error | z value | Pr(> z) | |
|-------------|----------|------------|---------|----------|-----|
| (Intercept) | -1.0022 | 0.1086 | -9.231 | < 2e-16 | *** |
| F6yes | 0.5967 | 0.2157 | 2.767 | 0.00566 | ** |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

(Dispersion parameter for binomial family taken to be 1)

Null deviance: 671.66 on 551 degrees of freedom
 Residual deviance: 664.18 on 550 degrees of freedom
 (81 observations deleted due to missingness)
 AIC: 668.18

Number of Fisher Scoring iterations: 4

Full model

```
lrm(formula = res_BDI_bin ~ income + m_languag + F6 + log(length_stay)
*
sm)
```

Frequencies of Missing Values Due to Each Variable

| res_BDI_bin | income | m_languag | F6 | length_stay | sm |
|-------------|--------|-----------|----|-------------|----|
| 81 | 0 | 0 | 0 | 0 | 0 |

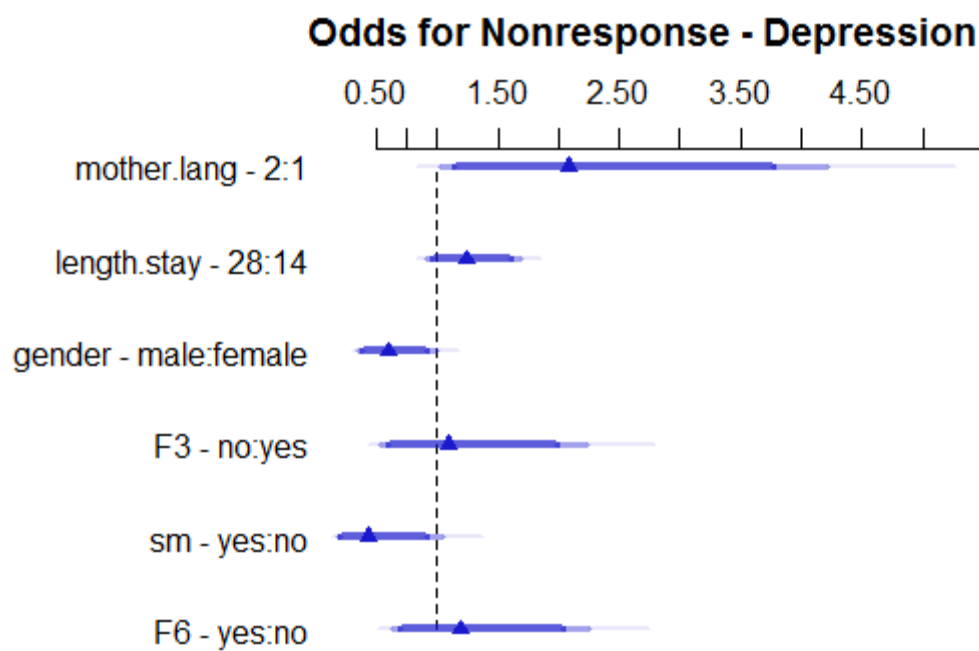
| | Obs | 552 | Model Likelihood Ratio Test | | Discrimination Indexes | | Rank Discrim. Indexes | |
|--|-----------------|------|-----------------------------|---------|------------------------|-------|-----------------------|-------|
| | | | LR chi2 | 52.36 | R2 | 0.129 | C | 0.674 |
| | 1. responder | 388 | d.f. | 6 | g | 0.743 | Dxy | 0.348 |
| | 2. nonresponder | 164 | Pr(> chi2) | <0.0001 | gr | 2.102 | gamma | 0.350 |
| | max deriv | 0.02 | | | gp | 0.145 | tau-a | 0.145 |
| | | | | | Brier | 0.189 | | |

| | Coef | S.E. | wald Z | Pr(> Z) |
|----------------------|---------|--------|--------|----------|
| Intercept | -2.9233 | 0.7151 | -4.09 | <0.0001 |
| income | -0.0002 | 0.0001 | -1.84 | 0.0663 |
| m_languag | 1.3052 | 0.2995 | 4.36 | <0.0001 |
| F6=yes | 0.4994 | 0.2312 | 2.16 | 0.0308 |
| length_stay | 0.2515 | 0.1838 | 1.37 | 0.1712 |
| sm=yes | -3.7088 | 1.4048 | -2.64 | 0.0083 |
| length_stay * sm=yes | 1.1305 | 0.4282 | 2.64 | 0.0083 |

Effects Response : res_BDI_bin

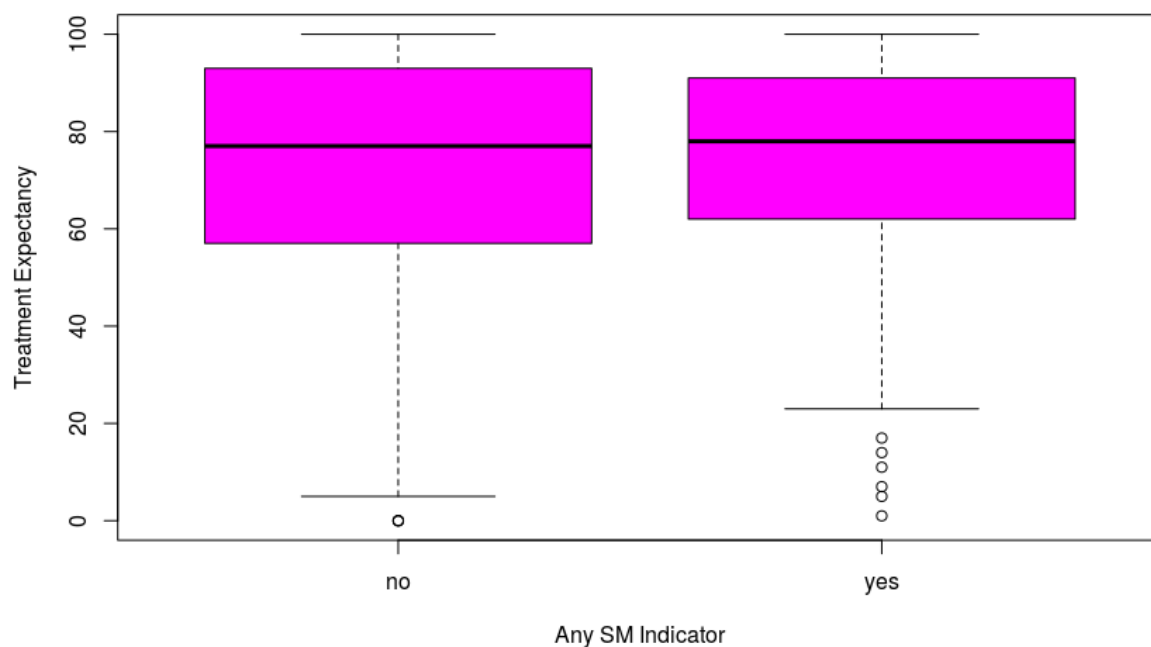
| Factor | Low | High | Diff. | Effect | S.E. | Lower 0.95 | Upper 0.95 |
|-------------|--------|--------|--------|----------|----------|------------|------------|
| income | 745.39 | 1537.2 | 791.82 | -0.18265 | 0.099453 | -0.377580 | 0.012271 |
| Odds Ratio | 745.39 | 1537.2 | 791.82 | 0.83306 | NA | 0.685520 | 1.012300 |
| m_languag | 1.00 | 2.0 | 1.00 | 1.30520 | 0.299500 | 0.718160 | 1.892200 |
| Odds Ratio | 1.00 | 2.0 | 1.00 | 3.68830 | NA | 2.050700 | 6.633900 |
| length_stay | 14.00 | 28.0 | 14.00 | 0.17435 | 0.127420 | -0.075388 | 0.424090 |
| Odds Ratio | 14.00 | 28.0 | 14.00 | 1.19050 | NA | 0.927380 | 1.528200 |
| F6 - yes:no | 1.00 | 2.0 | NA | 0.49936 | 0.231230 | 0.046166 | 0.952550 |
| Odds Ratio | 1.00 | 2.0 | NA | 1.64770 | NA | 1.047200 | 2.592300 |
| sm - yes:no | 1.00 | 2.0 | NA | -0.26707 | 0.262130 | -0.780840 | 0.246700 |
| Odds Ratio | 1.00 | 2.0 | NA | 0.76562 | NA | 0.458020 | 1.279800 |

Adjusted to: length_stay=21 sm=no



Adjusted to:F3=yes sm=no F6=no length.stay=21

4 Treatment Expectancy



Linear Regression, with heterosexuals as baseline

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|--------|--------|--------|
| -73.127 | -15.127 | 3.873 | 19.873 | 26.873 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|------------|
| (Intercept) | 73.1275 | 1.0372 | 70.503 | <2e-16 *** |
| smyes | 0.5748 | 2.2800 | 0.252 | 0.801 |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 23.24 on 631 degrees of freedom

Multiple R-squared: 0.0001007, Adjusted R-squared: -0.001484

F-statistic: 0.06356 on 1 and 631 DF, p-value: 0.801

Bayesian One-Way-ANOVA

BF = 0.11 ±0% - Substantial evidence for H_0 (grand mean) over H_1 (main effect for sexual orientation)

- Empirical mean and standard deviation for each variable, plus standard error of the mean:

| | Mean | SD | Naive SE | Time-series SE |
|--------|---------|--------|----------|----------------|
| mu | 73.409 | 1.129 | 0.01129 | 0.01157 |
| sm-no | -0.264 | 1.119 | 0.01119 | 0.01119 |
| sm-yes | 0.264 | 1.119 | 0.01119 | 0.01119 |
| sig2 | 540.930 | 30.528 | 0.30528 | 0.30528 |
| g_sm | 1.201 | 15.155 | 0.15155 | 0.16536 |

- Quantiles for each variable:

| | 2.5% | 25% | 50% | 75% | 97.5% |
|--------|-----------|-----------|----------|----------|---------|
| mu | 71.20005 | 72.66074 | 73.3977 | 74.1614 | 75.615 |
| sm-no | -2.48472 | -1.02215 | -0.2599 | 0.4973 | 1.927 |
| sm-yes | -1.92746 | -0.49726 | 0.2599 | 1.0222 | 2.485 |
| sig2 | 483.03239 | 520.08465 | 539.8786 | 561.1415 | 602.684 |
| g_sm | 0.03567 | 0.08955 | 0.1825 | 0.4546 | 5.083 |

3.4 Interaction with Confounders

3.4.1 Nationality

```
lm(formula = EXPECTANCY ~ sm * nationality)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|---------|--------|--------|--------|
| -72.778 | -14.778 | 4.017 | 20.017 | 34.200 |

Coefficients:

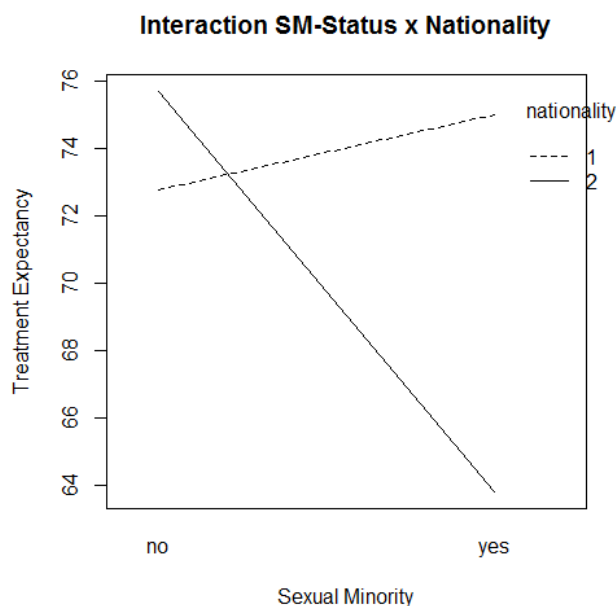
| | Estimate | Std. Error | t value | Pr(> t) |
|-------------------|----------|------------|---------|------------|
| (Intercept) | 69.857 | 3.721 | 18.773 | <2e-16 *** |
| smyes | 16.309 | 8.265 | 1.973 | 0.0489 * |
| nationality | 2.922 | 3.192 | 0.915 | 0.3604 |
| smyes:nationality | -14.104 | 7.122 | -1.980 | 0.0481 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 23.2 on 629 degrees of freedom

Multiple R-squared: 0.006298, Adjusted R-squared: 0.001558

F-statistic: 1.329 on 3 and 629 DF, p-value: 0.264



3.5 Adjusting for Confounders

Stepwise regression results for sociodemographics

Call:

```
lm(formula = EXPECTANCY ~ age + education)
```

Residuals:

| | Min | 1Q | Median | 3Q | Max |
|--|---------|---------|--------|--------|--------|
| | -77.381 | -14.533 | 4.526 | 18.866 | 36.479 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) | |
|-------------|----------|------------|---------|----------|-----|
| (Intercept) | 67.14008 | 3.32956 | 20.165 | < 2e-16 | *** |
| age | 0.32440 | 0.07284 | 4.454 | 9.98e-06 | *** |
| education | -2.73504 | 0.82751 | -3.305 | 0.001 | ** |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 22.78 on 630 degrees of freedom

Multiple R-squared: 0.04057, Adjusted R-squared: 0.03752

F-statistic: 13.32 on 2 and 630 DF, p-value: 2.159e-06

Stepwise regression results for diagnosis

Call:

```
lm(formula = EXPECTANCY ~ F1 + F3 + F6 + F8)
```

Residuals:

| | Min | 1Q | Median | 3Q | Max |
|--|---------|---------|--------|--------|--------|
| | -76.305 | -14.816 | 4.184 | 18.597 | 35.502 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) | |
|-------------|----------|------------|---------|----------|-----|
| (Intercept) | 77.305 | 2.041 | 37.880 | < 2e-16 | *** |
| F1yes | 4.098 | 2.050 | 1.999 | 0.045993 | * |
| F3yes | -4.489 | 2.158 | -2.080 | 0.037889 | * |
| F6yes | -7.671 | 2.307 | -3.326 | 0.000933 | *** |
| F8yes | -8.319 | 5.494 | -1.514 | 0.130509 | |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 22.96 on 628 degrees of freedom

Multiple R-squared: 0.02876, Adjusted R-squared: 0.02257

F-statistic: 4.649 on 4 and 628 DF, p-value: 0.001052

Full Multivariate Model

```
lm(formula = EXPECTANCY ~ age + education + F1 + F3 + F6 + F8 +
    log(length.stay) + nationality * sm)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|--------|--------|--------|-------|-------|
| -76.76 | -13.13 | 3.90 | 16.91 | 38.52 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) | |
|-------------------|-----------|------------|---------|----------|-----|
| (Intercept) | 73.33841 | 6.63933 | 11.046 | < 2e-16 | *** |
| age | 0.33529 | 0.07592 | 4.416 | 1.19e-05 | *** |
| education | -2.71690 | 0.82170 | -3.306 | 0.000999 | *** |
| F1yes | 3.11889 | 2.02283 | 1.542 | 0.123619 | |
| F3yes | -6.01239 | 2.17746 | -2.761 | 0.005929 | ** |
| F6yes | -5.46526 | 2.33113 | -2.344 | 0.019368 | * |
| F8yes | -7.68336 | 5.39733 | -1.424 | 0.155079 | |
| log(length.stay) | -1.70657 | 1.46991 | -1.161 | 0.246085 | |
| nationality | 2.66771 | 3.10681 | 0.859 | 0.390856 | |
| smyes | 16.52923 | 8.05765 | 2.051 | 0.040649 | * |
| nationality:smyes | -12.69204 | 6.97115 | -1.821 | 0.069140 | . |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 22.52 on 622 degrees of freedom

Multiple R-squared: 0.07458, Adjusted R-squared: 0.0597

F-statistic: 5.013 on 10 and 622 DF, p-value: 4.996e-07

Multivariate Bayesian Analysis

Bayes Factor:

1. Confounders: BF = 179.75
2. Full Model (Confounders + SM): BF = 34.05
3. Model 1 compared to model 2: BF = 5.28 (support for Model 1 over model 2)

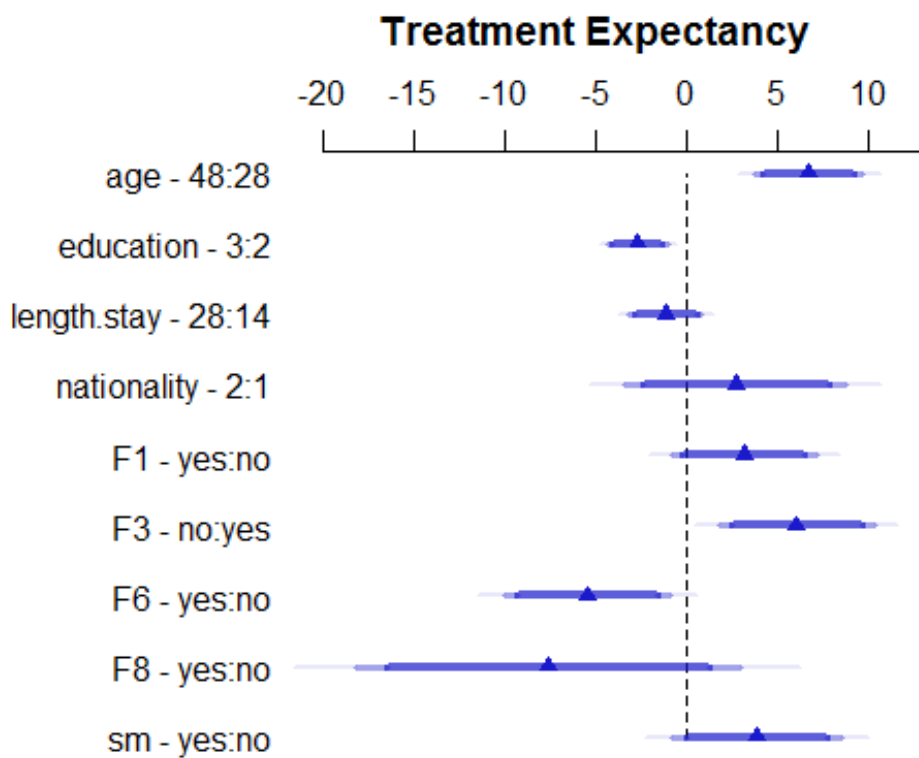
Full Bayesian Model:

1. Empirical mean and standard deviation for each variable, plus standard error of the mean:

| | Mean | SD | Naive SE | Time-series SE |
|-------------------------|-----------|-----------|-----------|----------------|
| mu | 71.27012 | 2.78830 | 0.0278830 | 0.0291168 |
| age-age | 0.31588 | 0.07432 | 0.0007432 | 0.0007581 |
| education-education | -2.59334 | 0.79361 | 0.0079361 | 0.0079361 |
| F1-no | -1.51847 | 1.00047 | 0.0100047 | 0.0100047 |
| F1-yes | 1.51847 | 1.00047 | 0.0100047 | 0.0100047 |
| F3-no | 2.86833 | 1.06983 | 0.0106983 | 0.0109820 |
| F3-yes | -2.86833 | 1.06983 | 0.0106983 | 0.0109820 |
| F6-no | 2.67989 | 1.12734 | 0.0112734 | 0.0112734 |
| F6-yes | -2.67989 | 1.12734 | 0.0112734 | 0.0112734 |
| F8-no | 3.34291 | 2.51531 | 0.0251531 | 0.0258096 |
| F8-yes | -3.34291 | 2.51531 | 0.0251531 | 0.0258096 |
| log.length-log.length | -1.63568 | 1.40933 | 0.0140933 | 0.0140933 |
| nationality-nationality | -3.47554 | 3.38545 | 0.0338545 | 0.0338545 |
| sm-no | -1.07799 | 1.11041 | 0.0111041 | 0.0111041 |
| sm-yes | 1.07799 | 1.11041 | 0.0111041 | 0.0111041 |
| nationality:sm-no | 6.03608 | 3.42015 | 0.0342015 | 0.0342015 |
| nationality:sm-yes | -6.03608 | 3.42015 | 0.0342015 | 0.0342015 |
| sig2 | 502.86103 | 28.46846 | 0.2846846 | 0.2893053 |
| g_F1 | 1.13834 | 11.78702 | 0.1178702 | 0.1232479 |
| g_F3 | 2.43098 | 107.64445 | 1.0764445 | 1.0764445 |
| g_F6 | 1.22591 | 12.38279 | 0.1238279 | 0.1238279 |
| g_F8 | 1.77744 | 50.27138 | 0.5027138 | 0.5296815 |
| g_sm | 1.70781 | 38.61940 | 0.3861940 | 0.3861940 |
| g_continuous | 0.04443 | 0.04228 | 0.0004228 | 0.0004349 |

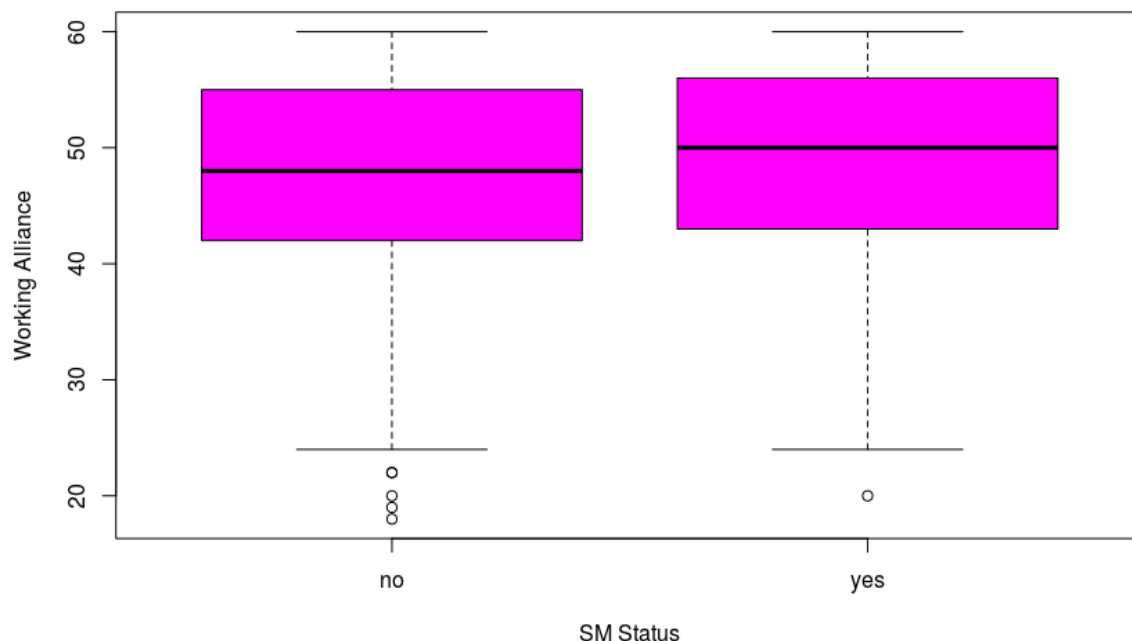
2. Quantiles for each variable:

| | 2.5% | 25% | 50% | 75% | 97.5% |
|-------------------------|-----------|-----------|-----------|-----------|----------|
| mu | 65.72874 | 69.45696 | 71.29337 | 73.15114 | 76.6777 |
| age-age | 0.17128 | 0.26502 | 0.31582 | 0.36615 | 0.4622 |
| education-education | -4.16848 | -3.12466 | -2.58775 | -2.04853 | -1.0586 |
| F1-no | -3.47372 | -2.19840 | -1.52456 | -0.83879 | 0.4524 |
| F1-yes | -0.45238 | 0.83879 | 1.52456 | 2.19840 | 3.4737 |
| F3-no | 0.78382 | 2.13603 | 2.84954 | 3.60426 | 4.9469 |
| F3-yes | -4.94686 | -3.60426 | -2.84954 | -2.13603 | -0.7838 |
| F6-no | 0.45854 | 1.92167 | 2.67932 | 3.43542 | 4.9050 |
| F6-yes | -4.90502 | -3.43542 | -2.67932 | -1.92167 | -0.4585 |
| F8-no | -1.48554 | 1.61550 | 3.30775 | 5.02256 | 8.4227 |
| F8-yes | -8.42267 | -5.02256 | -3.30775 | -1.61550 | 1.4855 |
| log.length-log.length | -4.40389 | -2.58655 | -1.62277 | -0.68415 | 1.1265 |
| nationality-nationality | -10.16511 | -5.75426 | -3.45445 | -1.21503 | 3.1157 |
| sm-no | -3.27146 | -1.81873 | -1.07280 | -0.33757 | 1.0919 |
| sm-yes | -1.09195 | 0.33757 | 1.07280 | 1.81873 | 3.2715 |
| nationality:sm-no | -0.72465 | 3.75877 | 5.99703 | 8.36343 | 12.7933 |
| nationality:sm-yes | -12.79333 | -8.36343 | -5.99703 | -3.75877 | 0.7247 |
| sig2 | 450.52814 | 483.09742 | 501.85141 | 521.15041 | 562.5157 |
| g_F1 | 0.03512 | 0.09550 | 0.19055 | 0.44531 | 4.8457 |
| g_F3 | 0.03738 | 0.10388 | 0.20808 | 0.49851 | 5.3888 |
| g_F6 | 0.03804 | 0.10259 | 0.20603 | 0.48252 | 5.2919 |
| g_F8 | 0.04026 | 0.11441 | 0.23377 | 0.54895 | 5.6929 |
| g_sm | 0.03504 | 0.09702 | 0.19199 | 0.46737 | 5.5338 |
| g_continuous | 0.01194 | 0.02256 | 0.03318 | 0.05155 | 0.1469 |



Adjusted to:nationality=1 sm=no

5 Working Alliance



Linear Regression, with heterosexuals as baseline

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -29.542 | -5.542 | 1.458 | 7.458 | 12.458 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|------------|
| (Intercept) | 47.5420 | 0.4093 | 116.140 | <2e-16 *** |
| smyes | 0.8301 | 0.9039 | 0.918 | 0.359 |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 9.153 on 627 degrees of freedom
(4 observations deleted due to missingness)

Multiple R-squared: 0.001343, Adjusted R-squared: -0.0002495
F-statistic: 0.8433 on 1 and 627 DF, p-value: 0.3588

Bayesian One-Way-ANOVA

BF = 0.16 ±0.03% - Substantial evidence for H_0 (grand mean) over H_1 (main effect for sexual orientation)

1. Empirical mean and standard deviation for each variable, plus standard error of the mean:

| | Mean | SD | Naive SE | Time-series SE |
|--------|---------|---------|----------|----------------|
| mu | 47.9502 | 0.4472 | 0.004472 | 0.004343 |
| sm-no | -0.4016 | 0.4418 | 0.004418 | 0.004418 |
| sm-yes | 0.4016 | 0.4418 | 0.004418 | 0.004418 |
| sig2 | 83.9676 | 4.7374 | 0.047374 | 0.046019 |
| g_sm | 1.5077 | 24.2152 | 0.242152 | 0.242152 |

2. Quantiles for each variable:

| | 2.5% | 25% | 50% | 75% | 97.5% |
|--------|----------|----------|---------|---------|---------|
| mu | 47.06837 | 47.64354 | 47.9489 | 48.2571 | 48.8153 |
| sm-no | -1.27033 | -0.69722 | -0.4028 | -0.0976 | 0.4471 |
| sm-yes | -0.44705 | 0.09760 | 0.4028 | 0.6972 | 1.2703 |
| sig2 | 75.18607 | 80.72280 | 83.7850 | 87.0322 | 93.7607 |
| g_sm | 0.03486 | 0.09357 | 0.1840 | 0.4472 | 5.6566 |

3.6 Interaction with Confounders

Nationality

```
lm(formula = WORKING_ALLIANCE ~ sm * nationality)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|--------|-------|--------|------|-------|
| -29.70 | -5.70 | 1.30 | 7.30 | 16.27 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------------|----------|------------|---------|------------|
| (Intercept) | 49.017 | 1.460 | 33.583 | <2e-16 *** |
| smyes | 7.741 | 3.248 | 2.384 | 0.0174 * |
| nationality | -1.317 | 1.252 | -1.052 | 0.2932 |
| smyes:nationality | -6.196 | 2.794 | -2.218 | 0.0269 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

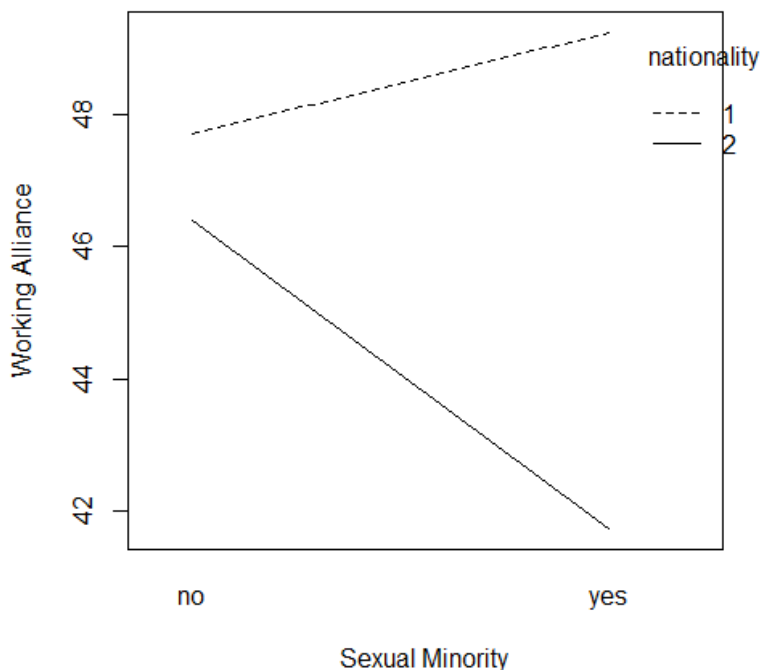
Residual standard error: 9.094 on 625 degrees of freedom
(4 observations deleted due to missingness)

Multiple R-squared: 0.0173, Adjusted R-squared: 0.01259

F-statistic: 3.669 on 3 and 625 DF, p-value: 0.01217

F-statistic: 1.329 on 3 and 629 DF, p-value: 0.264

Interaction SM-Status x Nationality



Length of stay

`lm(formula = WORKING_ALLIANCE ~ sm * length_stay)`

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -29.545 | -5.756 | 1.175 | 7.217 | 14.620 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------------|----------|------------|---------|------------|
| (Intercept) | 48.18007 | 0.56586 | 85.144 | <2e-16 *** |
| smyes | 2.91048 | 1.20213 | 2.421 | 0.0158 * |
| length_stay | -0.02648 | 0.01643 | -1.612 | 0.1075 |
| smyes:length_stay | -0.06416 | 0.02856 | -2.246 | 0.0250 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

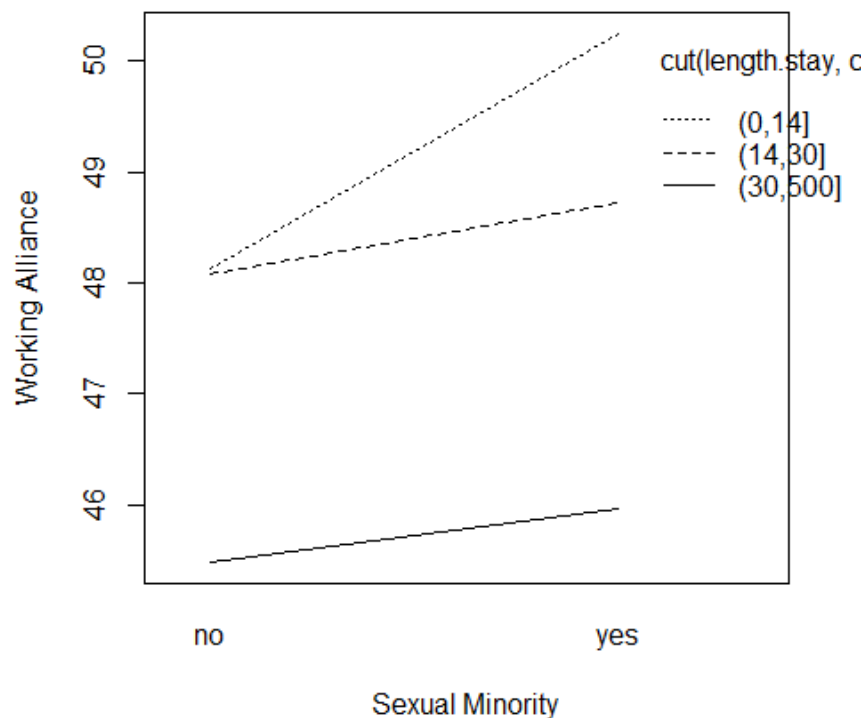
Residual standard error: 9.041 on 625 degrees of freedom

(4 observations deleted due to missingness)

Multiple R-squared: 0.02876, Adjusted R-squared: 0.0241

F-statistic: 6.169 on 3 and 625 DF, p-value: 0.0003902

Interaction SM-Status x Length of Stay



3.7 Adjusting for Confounders

Stepwise regression results for sociodemographics

Call:

```
lm(formula = WORKING_ALLIANCE~ age + income + mother.lang)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -30.170 | -5.247 | 1.239 | 7.175 | 14.941 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|------------|------------|---------|-------------|
| (Intercept) | 47.5918067 | 1.7913966 | 26.567 | < 2e-16 *** |
| age | 0.0550982 | 0.0296830 | 1.856 | 0.06389 . |
| income | 0.0008446 | 0.0003245 | 2.603 | 0.00947 ** |
| mother.lang | -2.8105508 | 1.2129209 | -2.317 | 0.02082 * |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 9.025 on 625 degrees of freedom
(4 observations deleted due to missingness)

Multiple R-squared: 0.0323, Adjusted R-squared: 0.02766

F-statistic: 6.954 on 3 and 625 DF, p-value: 0.0001313

Stepwise regression results for diagnosis

Call:

```
lm(formula = WORKING_ALLIANCE~ F6)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -28.522 | -5.512 | 1.478 | 7.478 | 15.488 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) |
|-------------|----------|------------|---------|--------------|
| (Intercept) | 48.5219 | 0.4024 | 120.574 | < 2e-16 *** |
| F6yes | -4.0101 | 0.8956 | -4.478 | 8.97e-06 *** |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 9.016 on 627 degrees of freedom
(4 observations deleted due to missingness)

Multiple R-squared: 0.03099, Adjusted R-squared: 0.02944

F-statistic: 20.05 on 1 and 627 DF, p-value: 8.968e-06

Full Multivariate Model

```
lm(formula = WORKING_ALLIANCE ~ age + income + mother.lang + F6 +
    nationality *
    sm + log(length.stay) * sm)
```

Residuals:

| Min | 1Q | Median | 3Q | Max |
|---------|--------|--------|-------|--------|
| -27.846 | -5.006 | 1.324 | 6.783 | 15.705 |

Coefficients:

| | Estimate | Std. Error | t value | Pr(> t) | |
|------------------------|------------|------------|---------|----------|-----|
| (Intercept) | 53.1870257 | 2.8033334 | 18.973 | < 2e-16 | *** |
| age | 0.0372529 | 0.0300199 | 1.241 | 0.215098 | |
| income | 0.0008752 | 0.0003190 | 2.744 | 0.006251 | ** |
| mother.lang | -2.1360386 | 1.3435372 | -1.590 | 0.112377 | |
| F6yes | -3.2776815 | 0.9042098 | -3.625 | 0.000313 | *** |
| nationality | -0.4411467 | 1.3462041 | -0.328 | 0.743252 | |
| smyes | 12.7364565 | 5.0569053 | 2.519 | 0.012032 | * |
| log(length.stay) | -1.6213674 | 0.6572585 | -2.467 | 0.013900 | * |
| nationality:smyes | -5.1899957 | 2.7390247 | -1.895 | 0.058580 | . |
| smyes:log(length.stay) | -1.6774997 | 1.3338478 | -1.258 | 0.208996 | |

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Residual standard error: 8.796 on 619 degrees of freedom

(4 observations deleted due to missingness)

Multiple R-squared: 0.08961, Adjusted R-squared: 0.07637

F-statistic: 6.77 on 9 and 619 DF, p-value: 2.678e-09

Multivariate Bayesian Analysis

Bayes Factor:

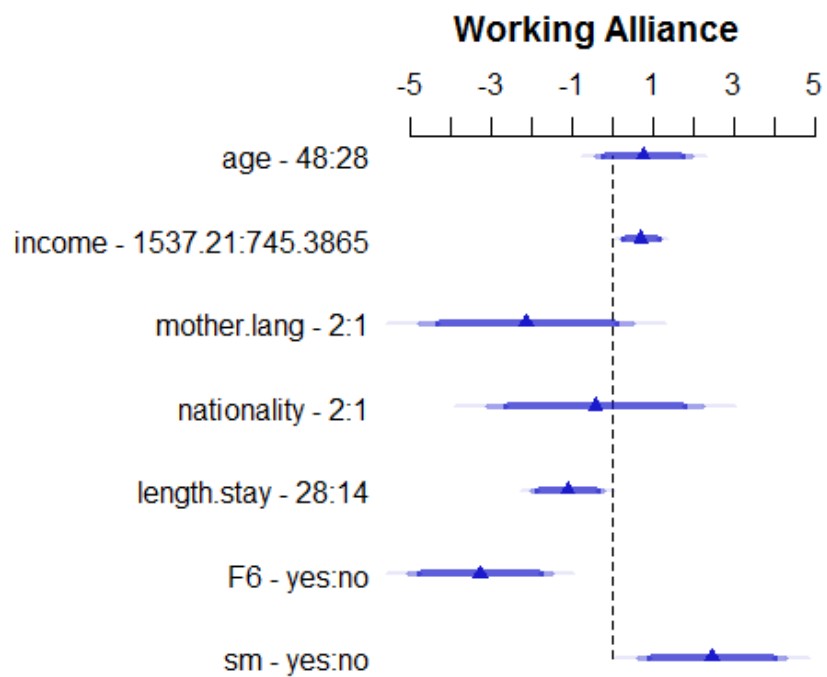
1. Confounders: BF = 169798.1
2. Full Model (Confounders + SM): BF = 83921.01
3. Model 1 compared to model 2: BF = 2.02 (anecdotal support for Model 1 over model 2)

1. Empirical mean and standard deviation for each variable,
plus standard error of the mean:

| | Mean | SD | Naive SE | Time-series |
|-------------------------------|------------|-----------|-----------|-------------|
| SE | 47.3185841 | 4.962e-01 | 4.962e-03 | 4.962e-03 |
| age-age | 0.0341839 | 2.907e-02 | 2.907e-04 | 3.049e-04 |
| income-income | 0.0008201 | 3.096e-04 | 3.096e-06 | 3.096e-06 |
| mother.lang-mother.lang | -2.0258695 | 1.296e+00 | 1.296e-02 | 1.296e-02 |
| F6-no | 1.5950478 | 4.481e-01 | 4.481e-03 | 4.594e-03 |
| F6-yes | -1.5950478 | 4.481e-01 | 4.481e-03 | 4.594e-03 |
| nationality-nationality | -2.8696455 | 1.433e+00 | 1.433e-02 | 1.484e-02 |
| sm-no | -0.8808201 | 4.375e-01 | 4.375e-03 | 4.375e-03 |
| sm-yes | 0.8808201 | 4.375e-01 | 4.375e-03 | 4.375e-03 |
| log.length-log.length | -2.2543423 | 6.422e-01 | 6.422e-03 | 6.518e-03 |
| nationality:sm-no | 2.4631121 | 1.328e+00 | 1.328e-02 | 1.328e-02 |
| nationality:sm-yes | -2.4631121 | 1.328e+00 | 1.328e-02 | 1.328e-02 |
| sm:log.length-no.&.log.length | 0.7394074 | 6.440e-01 | 6.440e-03 | 6.924e-03 |
| sm:log.length-yes.&.log.len | -0.7394074 | 6.440e-01 | 6.440e-03 | 6.924e-03 |
| sig2 | 76.4389099 | 4.302e+00 | 4.302e-02 | 4.302e-02 |
| g_F6 | 1.4928534 | 1.670e+01 | 1.670e-01 | 1.919e-01 |
| g_sm | 1.2202645 | 1.688e+01 | 1.688e-01 | 1.688e-01 |
| g_continuous | 0.0319039 | 2.386e-02 | 2.386e-04 | 2.386e-04 |

2. Quantiles for each variable:

| | 2.5% | 25% | 50% | 75% | 97.5% |
|--------------------------------|------------|------------|------------|-----------|-----------|
| mu | 46.3359153 | 46.9836373 | 47.3254989 | 47.643479 | 48.300198 |
| age-age | -0.0225961 | 0.0148531 | 0.0340991 | 0.053836 | 0.091758 |
| income-income | 0.0002158 | 0.0006061 | 0.0008184 | 0.001028 | 0.001429 |
| mother.lang-mother.l | -4.5835722 | -2.8954893 | -2.0230154 | -1.163896 | 0.510693 |
| F6-no | 0.7176617 | 1.2956012 | 1.5944873 | 1.898461 | 2.458356 |
| F6-yes | -2.4583563 | -1.8984611 | -1.5944873 | -1.295601 | -0.717662 |
| nationality-national | -5.7315366 | -3.8319283 | -2.8746818 | -1.911374 | -0.032014 |
| sm-no | -1.7347943 | -1.1725270 | -0.8883389 | -0.589882 | -0.026702 |
| sm-yes | 0.0267022 | 0.5898822 | 0.8883389 | 1.172527 | 1.734794 |
| log.length-log.length | -3.4919019 | -2.6860264 | -2.2634855 | -1.819041 | -0.992489 |
| nationality:sm-no | -0.0957914 | 1.5631041 | 2.4631931 | 3.357007 | 5.060870 |
| nationality:sm-yes | -5.0608701 | -3.3570066 | -2.4631931 | -1.563104 | 0.095791 |
| sm:log.length-no.&.log.length | -0.5040659 | 0.3043952 | 0.7297048 | 1.170551 | 2.005365 |
| sm:log.length-yes.&.log.length | -2.0053654 | -1.1705511 | -0.7297048 | -0.304395 | 0.504066 |
| sig2 | 68.4630054 | 73.4139987 | 76.2942282 | 79.259782 | 85.223403 |
| g_F6 | 0.0414281 | 0.1150946 | 0.2305666 | 0.563603 | 6.016946 |
| g_sm | 0.0369353 | 0.0992796 | 0.2015939 | 0.490815 | 5.377724 |
| g_continuous | 0.0106735 | 0.0184283 | 0.0259142 | 0.037601 | 0.088853 |



Adjusted to:nationality=1 sm=no length.stay=21