Online Supplement

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

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

2 Treatment Outcome – Difference Intake-Discharge Assessments

2.1 Change of Suicide Ideation

Linear Regression – SM Status as only predictor

```
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
```

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
```
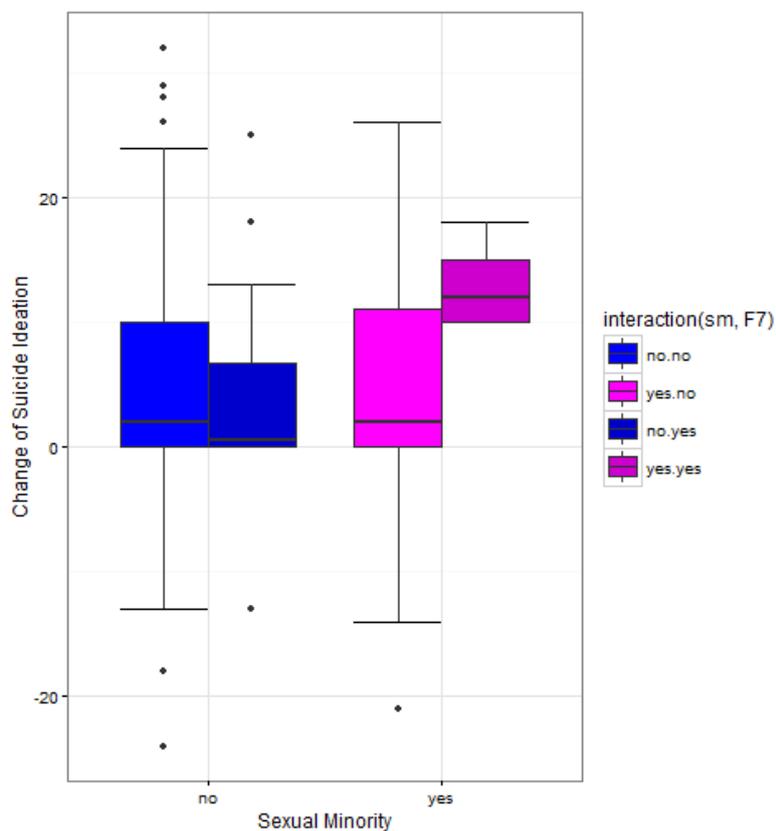
2.1.2 Adjusting for Confounders

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
```

Change of Suicide Ideation
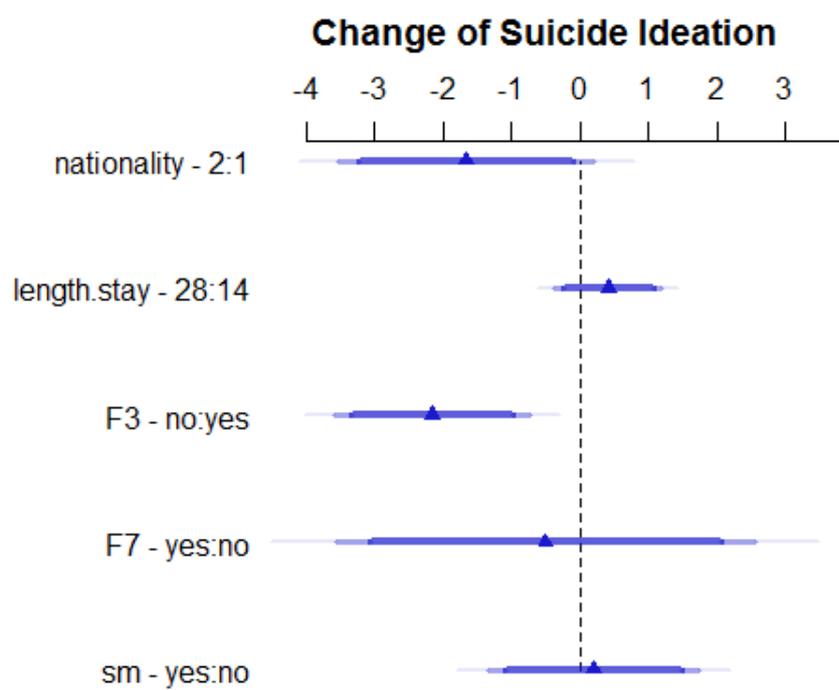
Adjusted to:F7=no sm=no length.stay=21

2.2 Change of Hopelessness

Linear Regression – SM Status as only predictor

```
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
```

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
```
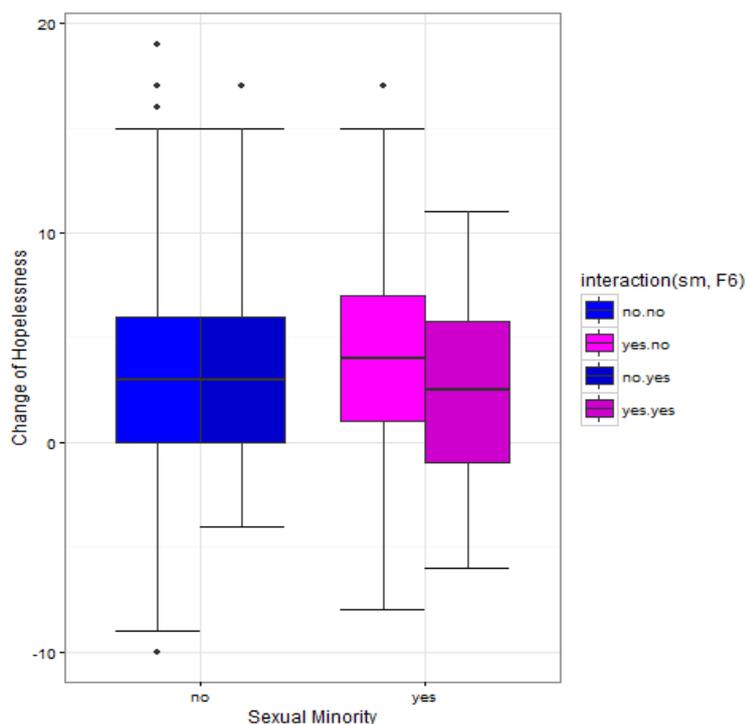
2.2.2 Adjusting for Confounders

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
```

Change of Hopelessness
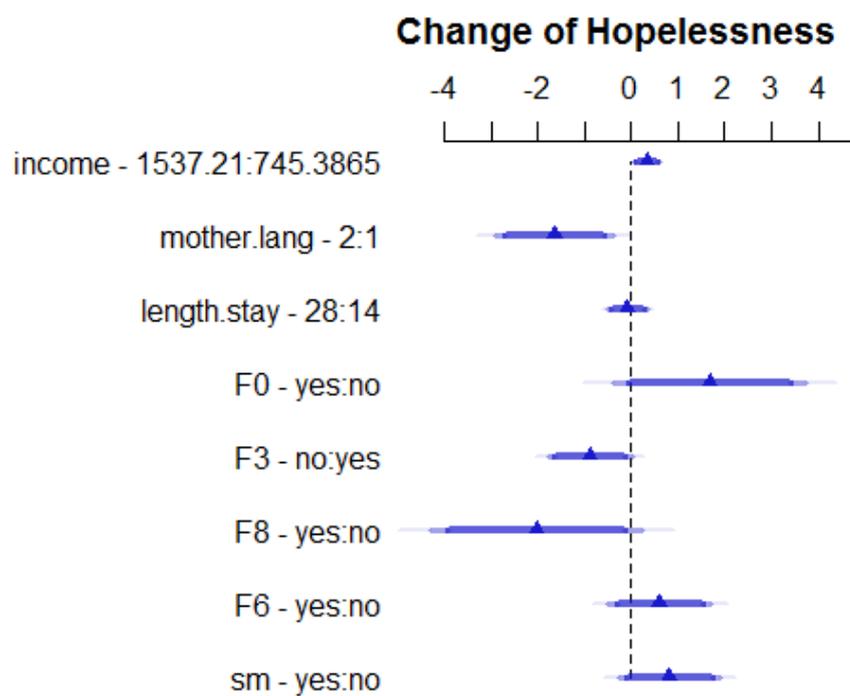
Adjusted to:F6=no sm=no

2.3   Change of Depression

Linear Regression – SM Status as only predictor

```
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
```

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
```

Interaction SM-Status x Length of Stay
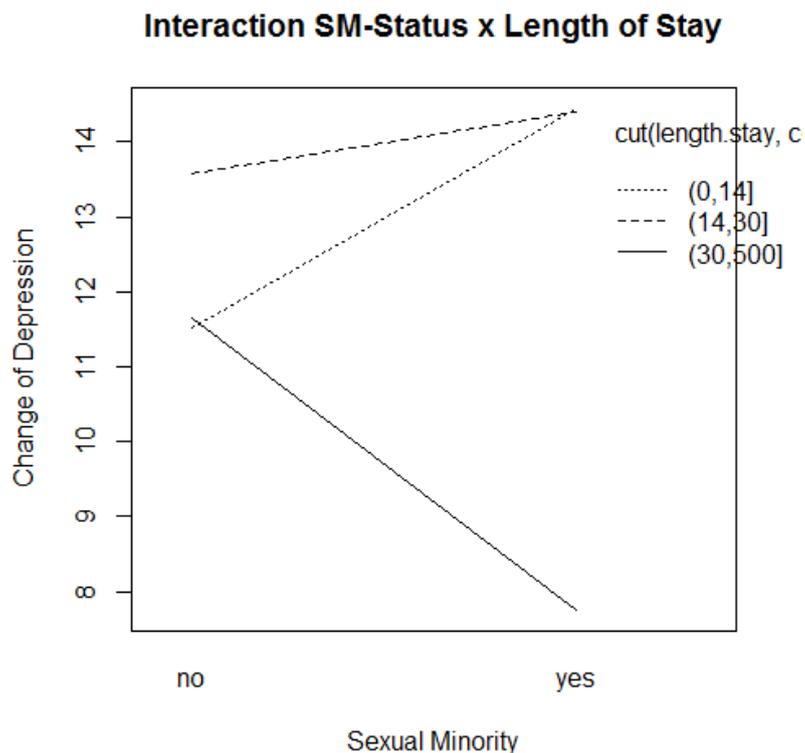
SM vs. heterosexuals:Lengh of Stay < 15 days d = - 0.28
> 30 days d = 0.34

2.3.2 Adjusting for Confounders

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
```

Change of Depression

income - 1537.21:745.3865

mother.lang - 2:1

length.stay - 28:14

F3 - no:yes

sm - yes:no
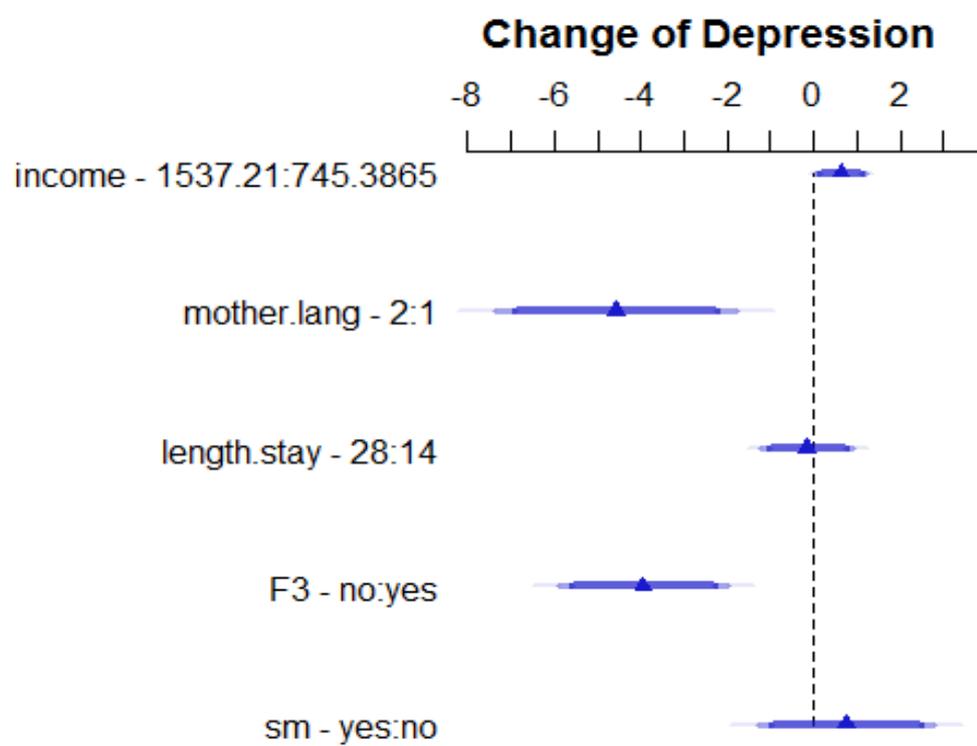
Adjusted to:length.stay=21 sm=no

3 Responder Analysis

Procedure accoding 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 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
```

Responder Analysis - Suicide Ideation
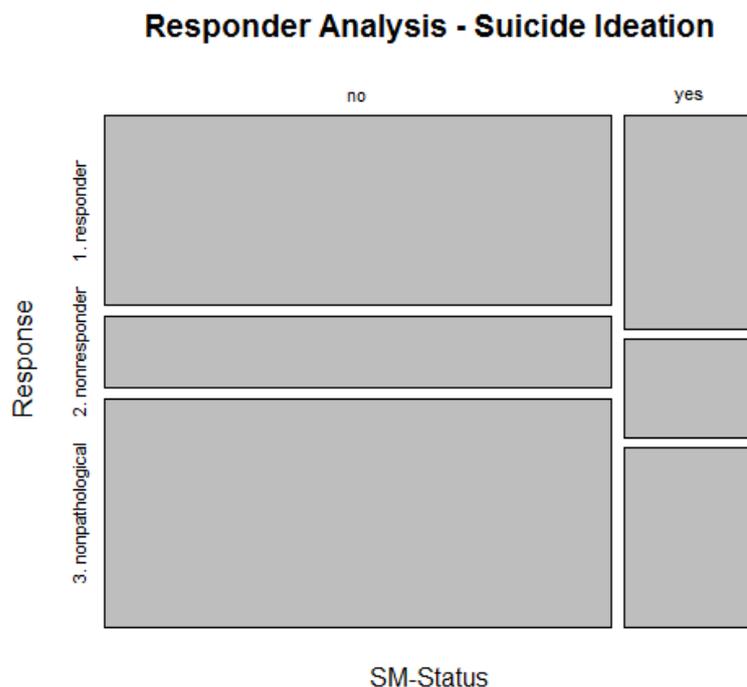

```
             Pearson's Chi-squared test
data:  sm and res_BSI
X-squared = 4.6542, df = 2, p-value = 0.09758
```

3.1.1 Interactions with Confounders

F3 Diagnosis

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

		Model Likelihood Ratio Test		Discrimination Indexes		Rank Discrim. Indexes	
Obs	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
```

		Model Likelihood Ratio Test		Discrimination Indexes		Rank Discrim. Indexes	
Obs	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
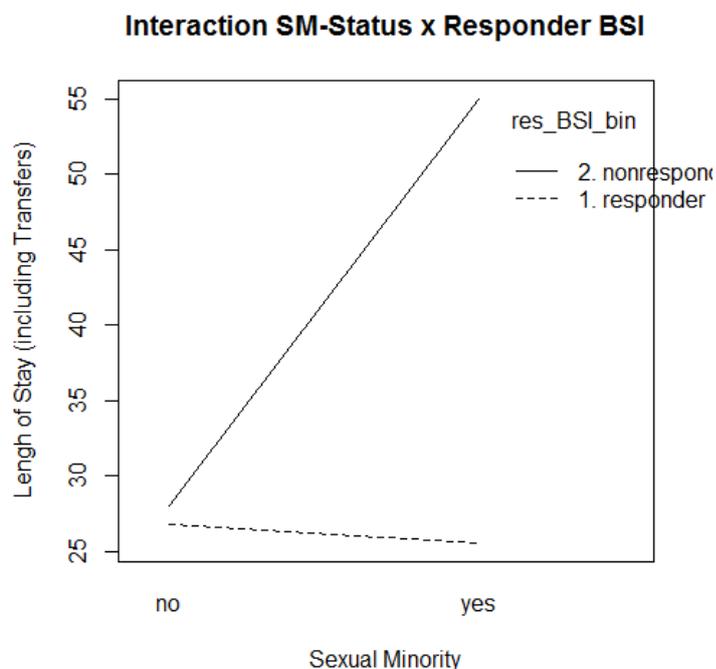
Cohen d responders 0.04 vs. nonresponders 0.69

3.1.2 Adjusting for Confounders

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 Ratio Test		Discrimination Indexes		Rank Discrim. 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
```

Odds for Nonresponse - Suicide Ideation
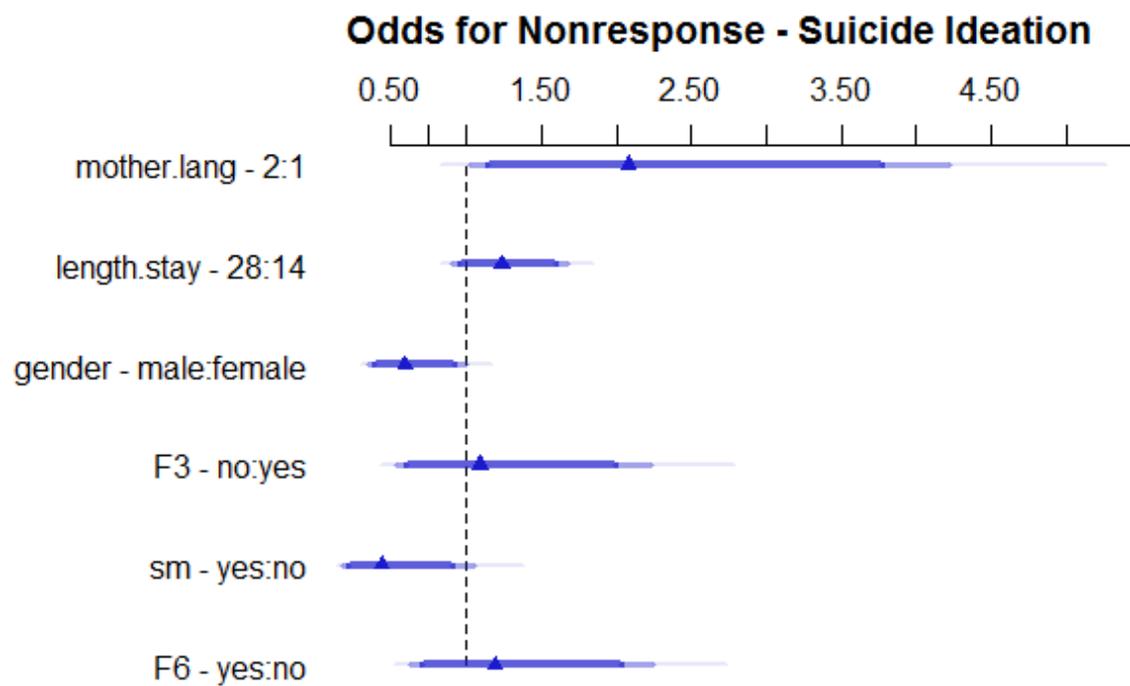
Adjusted to:F3=yes sm=no F6=no length.stay=21

3.2 Hopelessness

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

Responder Analysis - Hopelessness
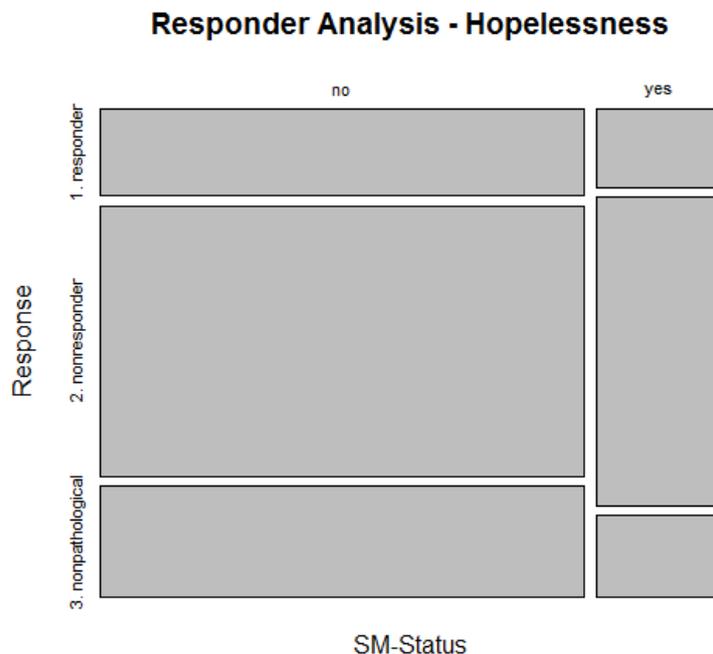

```
          Pearson's Chi-squared test
data:  sm and res_BHS
X-squared = 3.008, df = 2, p-value = 0.2222
```

3.2.1 Interactions with Confounders

F4 Diagnosis

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

		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

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	491	LR chi2	17.35	R2	0.052	C	0.606
1. responder	115	d.f.	6	g	0.499	Dxy	0.213
2. nonresponder	376	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
```

Factor	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
```

Odds for Nonresponse - Hopelessness
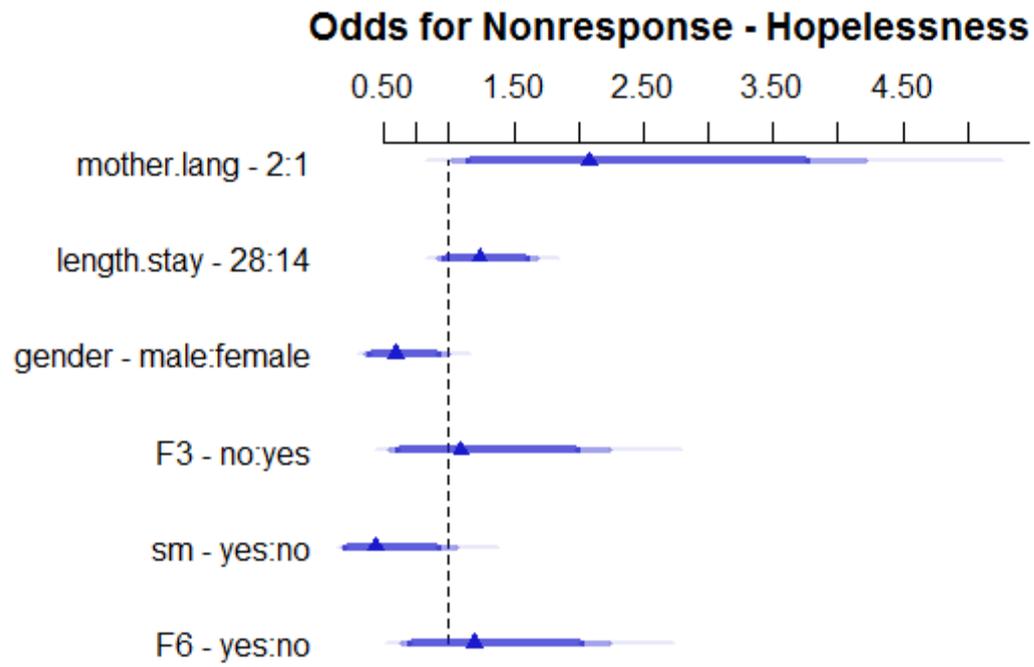
Adjusted to:F3=yes sm=no F6=no length.stay=21

## 3.3 Depression

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

Responder Analysis - Depression
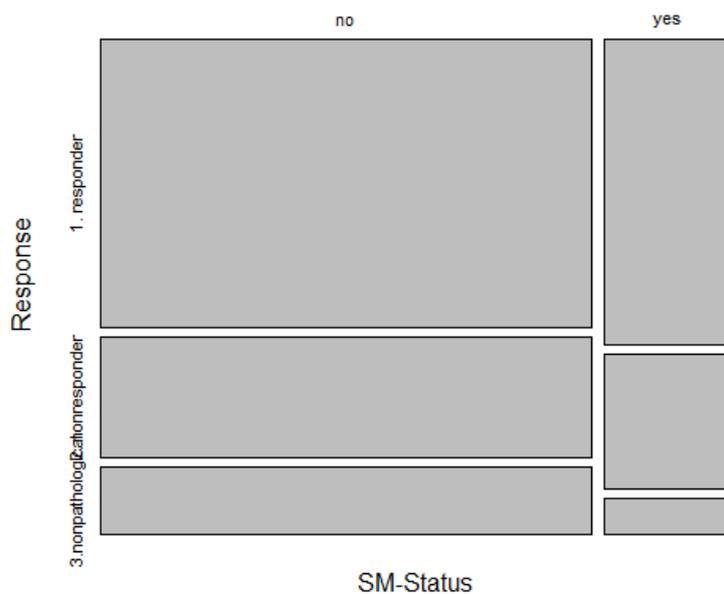

```
              Pearson's Chi-squared test

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
```

Interaction SM-Status x Responder BDI
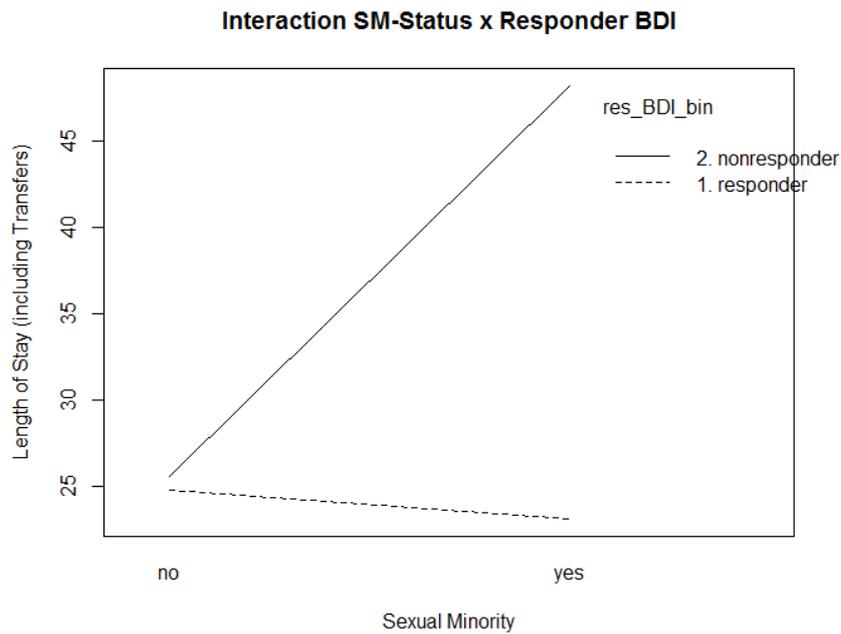
Cohen d responders 0.06 vs. nonresponders 0.73

3.3.2 Adjusting for Confounders

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
```

		Model Likelihood Ratio Test		Discrimination Indexes		Rank Discrim. Indexes	
Obs	552	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
```

Odds for Nonresponse - Depression
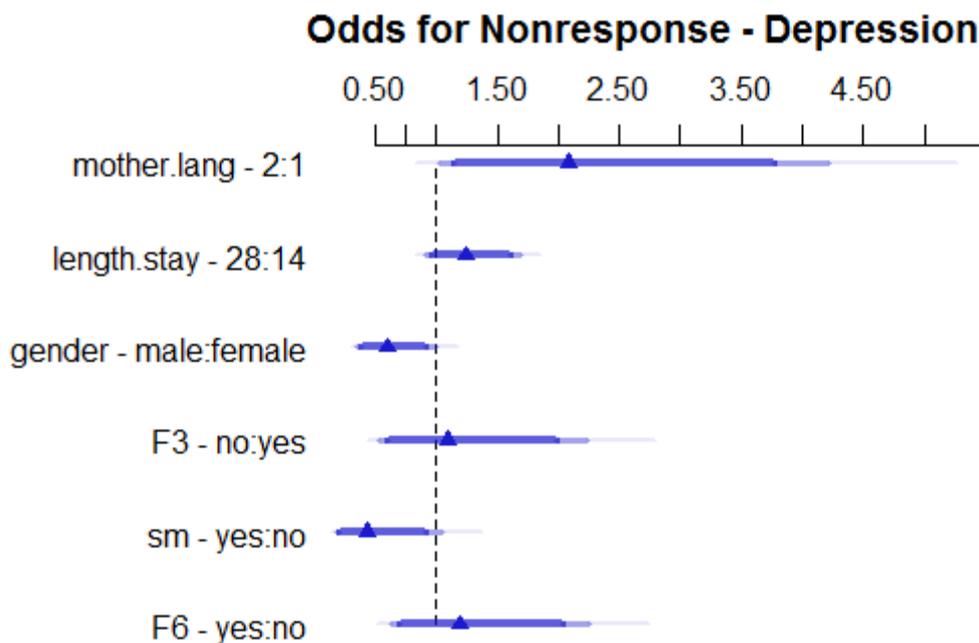
Adjusted to:F3=yes sm=no F6=no length.stay=21

4   Treatment Expectancy

Linear Regression – SM Status as only predictor

```
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
```

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
```


Interaction SM-Status x Nationality
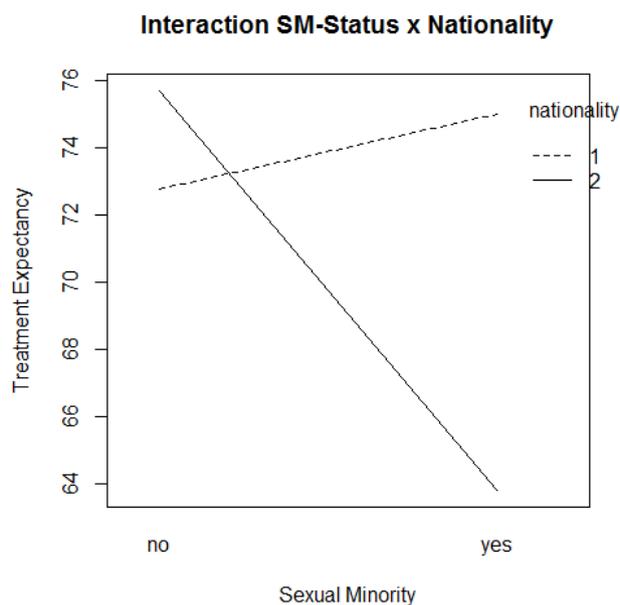
3.5 Adjusting for Confounders

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
```

Treatment Expectancy
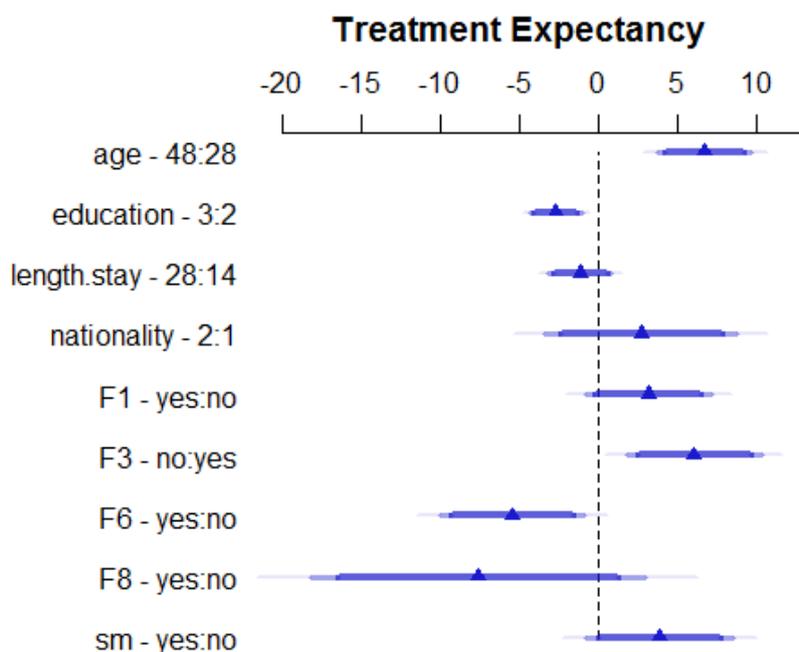
Adjusted to:nationality=1 sm=no

5 Working Alliance

Linear Regression – SM Status as only predictor

```
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
```

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
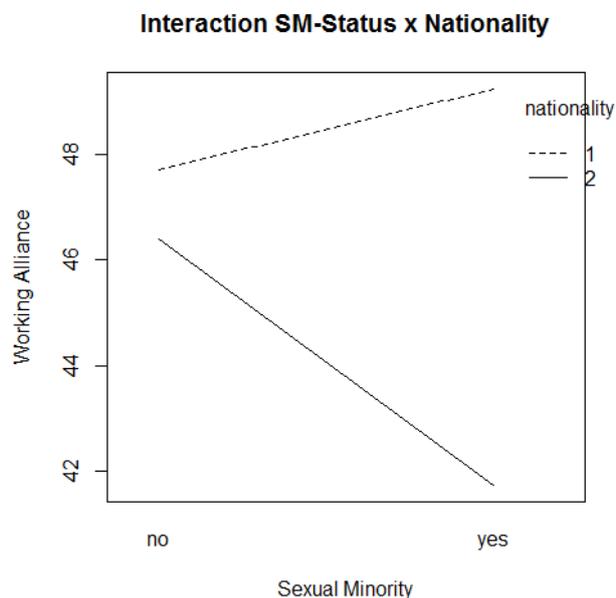
Length of stay

```
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
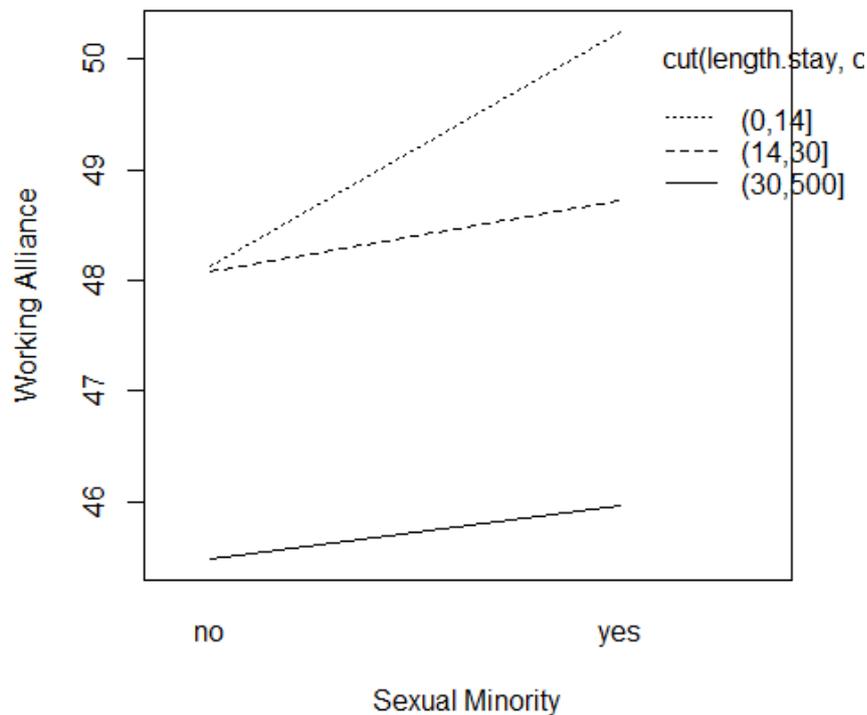
3.7 Adjusting for Confounders

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
```
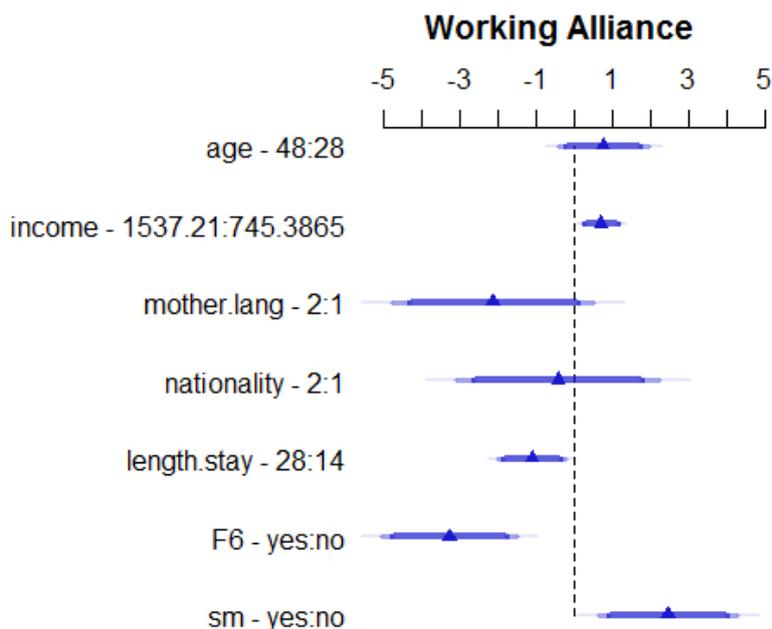

Adjusted to:nationality=1 sm=no length.stay=21