Final Report

due October 11, 2021 by 11:59 PM

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10/11/2021

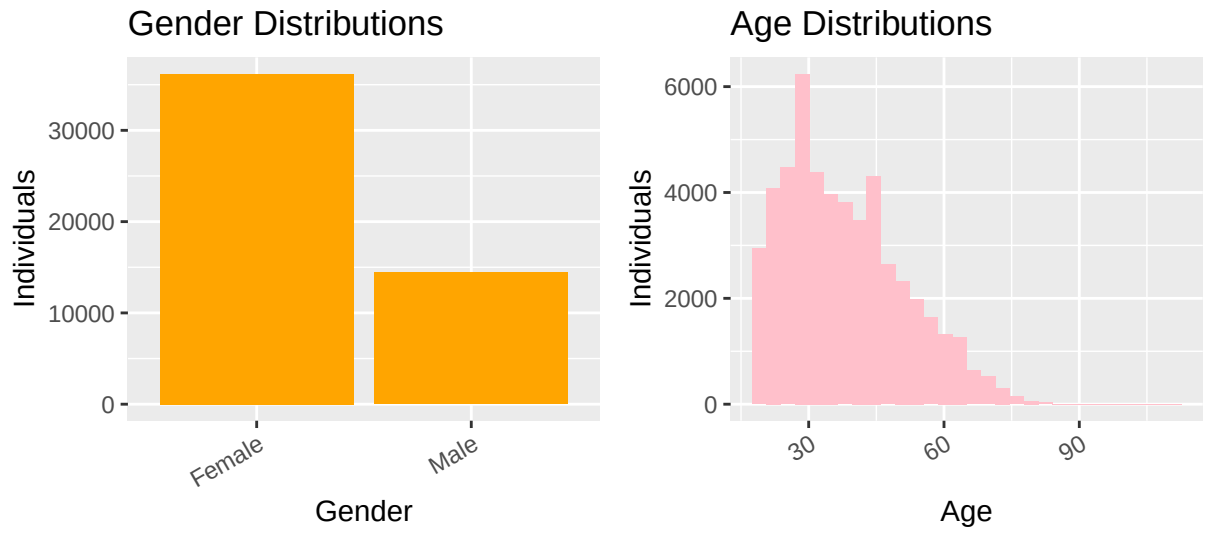
Load Packages

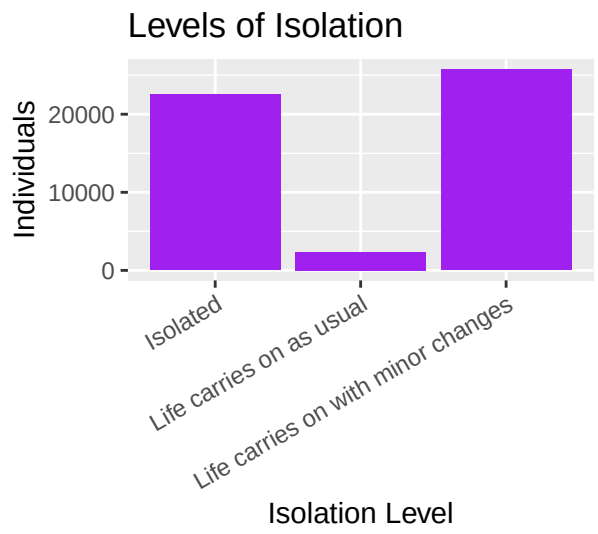
```
library(tidyverse)
library(tidymodels)
library(infer)
library(readxl)
library(skimr)
library(dplyr)
library(patchwork)
```

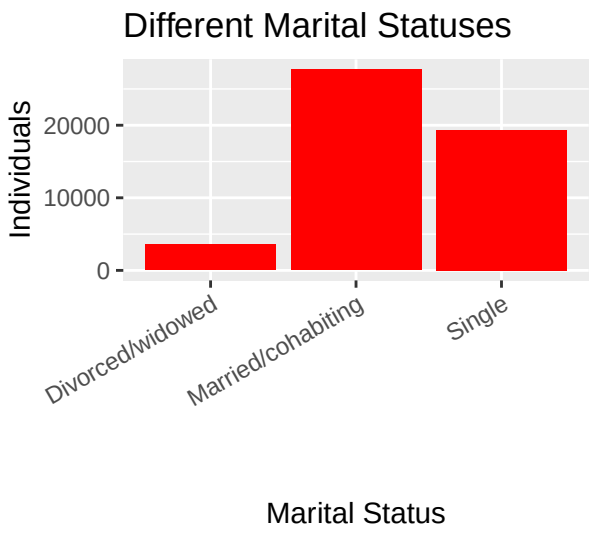
Load Data

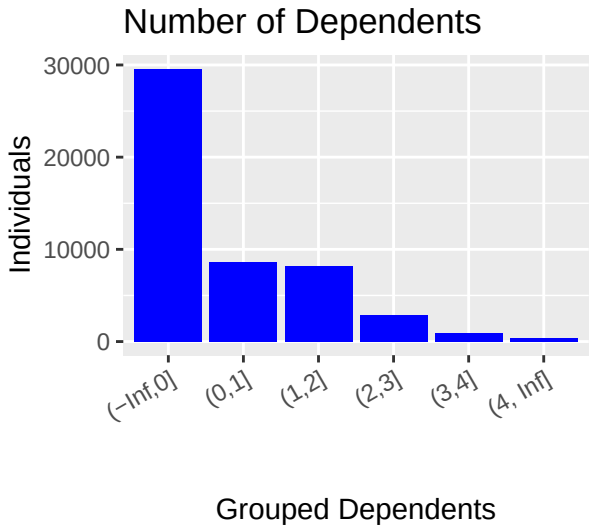
```
cleancovid <- subset (covidstressdata, select = -c(AD_gain, AD_loss, RecordedDate, Duration..in.seconds
  #removed because of laTex incompatible but will use this for analysis

filter(Dem_gender %in% c("Male", "Female"), answered_all == "Yes", Dem_isolation %in% c("Isolated", "Li

mutate(Dem_dependentsgrouped = cut(Dem_dependents, breaks = c(-Inf,0,1,2,3,4,Inf)))
```

```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
```










```
## `stat_bin()` using `bins = 30`. Pick better value with `binwidth`.
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```
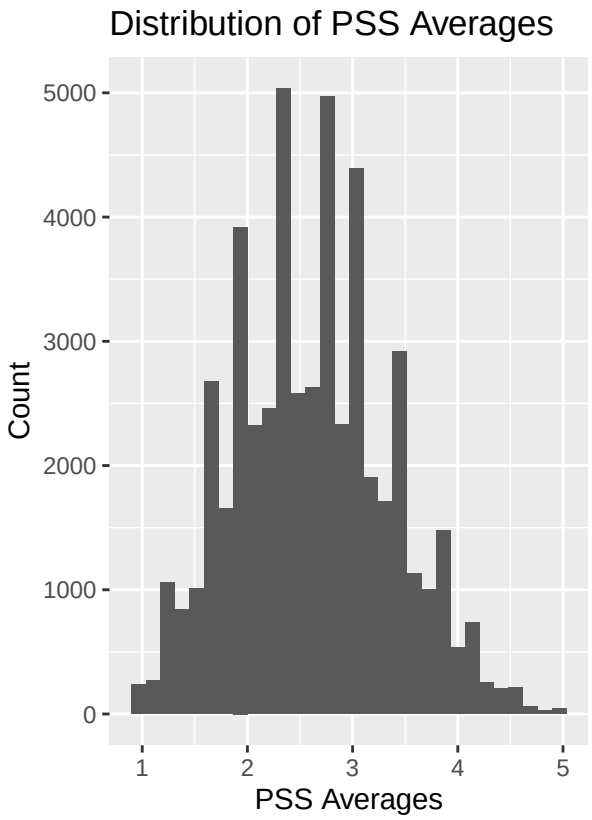



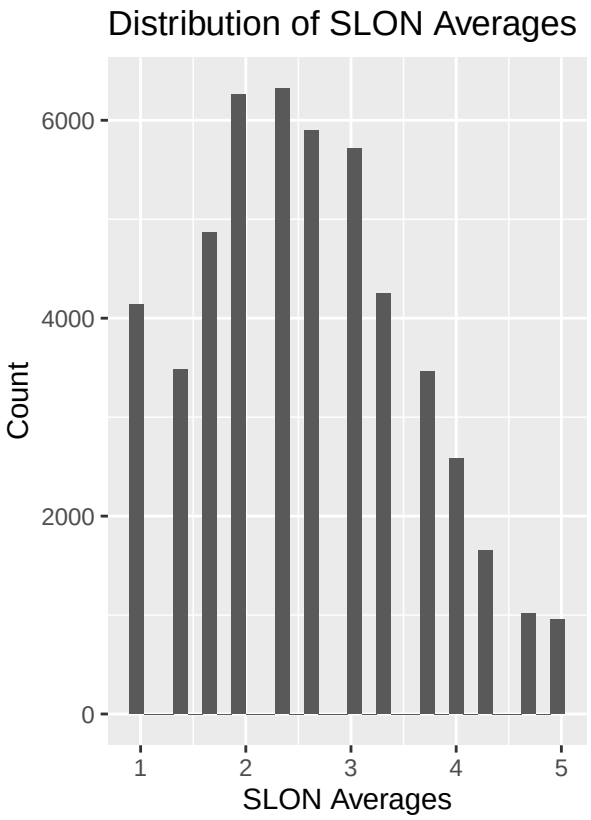


Table 1: T-Test Results for Gender with PSS and SLON Scales

	PSS	SLON
P values	0.000	0.000
Confidence Intervals Low	0.211	0.221
Confidence Intervals High	0.239	0.259

Table 2: P Values for ANOVA Results

	PSS	SLON
Isolation Status	<0.0001	<0.0001
Marital Status	<0.0001	<0.0001
Employment	<0.0001	<0.0001
Dependents	<0.0001	<0.0001

Table 3: F Values for ANOVA Results

	PSS	SLON
Isolation Status	1547.0	1398.0
Marital Status	22.8	695.0
Employment	128.0	151.0
Dependents	20.8	60.5

```
anovaPSSisolation_step <- pairwise.t.test(cleancovid$PSS10_avg,cleancovid$Dem_isolation, p.adj = "holm")
sigpairs <- broom::tidy(anovaPSSisolation_step) %>%
  filter(p.value<0.05) %>%
  arrange(group1,group2)
nrow(sigpairs)
```

```
## [1] 3
```

```
knitr::kable(sigpairs, digits=10,caption="Step-down Test: Isolation")
```

Table 4: Step-down Test: Isolation

group1	group2	p.value
Life carries on as usual	Isolated	0e+00
Life carries on with minor changes	Isolated	0e+00
Life carries on with minor changes	Life carries on as usual	1e-10

```
anovaPSSmarital_step <- pairwise.t.test(cleancovid$PSS10_avg,cleancovid$Dem_maritalstatus, p.adj = "holm")
sigpairs <- broom::tidy(anovaPSSmarital_step) %>%
  filter(p.value<0.05) %>%
  arrange(group1,group2)
nrow(sigpairs)
```

```
## [1] 3
```

```
knitr::kable(sigpairs, digits=10,caption="Step-down Test: Marital status")
```

Table 5: Step-down Test: Marital status

group1	group2	p.value
Married/cohabiting	Divorced/widowed	7e-10
Single	Divorced/widowed	0e+00
Single	Married/cohabiting	0e+00

```
anovaPSSemploy_step <- pairwise.t.test(cleancovid$PSS10_avg,cleancovid$Dem_employment, p.adj = "holm")
sigpairs <- broom::tidy(anovaPSSemploy_step) %>%
  filter(p.value<0.05) %>%
  arrange(group1,group2)
nrow(sigpairs)
```

```
## [1] 15
```

```
knitr::kable(sigpairs, digits=10,caption="Step-down Test: Employment")
```

Table 6: Step-down Test: Employment

group1	group2	p.value
Not employed	Full time employed	0.0000000000
Part time employed	Full time employed	0.0000000000
Part time employed	Not employed	0.0000000001
Retired	Full time employed	0.0000000000
Retired	Not employed	0.0000000000

group1	group2	p.value
Retired	Part time employed	0.0000000000
Self-employed	Full time employed	0.0000000004
Self-employed	Not employed	0.0000000000
Self-employed	Part time employed	0.0000000001
Self-employed	Retired	0.0000000000
Student	Full time employed	0.0000000000
Student	Not employed	0.0001243294
Student	Part time employed	0.0000000000
Student	Retired	0.0000000000
Student	Self-employed	0.0000000000

```
anovaPSSdepend_step <- pairwise.t.test(cleancovid$PSS10_avg,cleancovid$Dem_dependentsgrouped, p.adj = "
sigpairs <- broom::tidy(anovaPSSdepend_step) %>%
  filter(p.value<0.05) %>%
  arrange(group1,group2)
nrow(sigpairs)
```

```
## [1] 3
```

```
knitr::kable(sigpairs, digits=10,caption="Step-down: Dependents")
```

Table 7: Step-down: Dependents

group1	group2	p.value
(0,1]	(-Inf,0]	8.2800e-08
(1,2]	(-Inf,0]	1.0000e-10
(2,3]	(-Inf,0]	5.1094e-06

```
anovaSLONisolation_step <- pairwise.t.test(cleancovid$SLON3_avg,cleancovid$Dem_isolation, p.adj = "holm
sigpairs <- broom::tidy(anovaSLONisolation_step) %>%
  filter(p.value<0.05) %>%
  arrange(group1,group2)
nrow(sigpairs)
```

```
## [1] 3
```

```
knitr::kable(sigpairs, digits=10,caption="Step-down: Isolation")
```

Table 8: Step-down: Isolation

group1	group2	p.value
Life carries on as usual	Isolated	0
Life carries on with minor changes	Isolated	0
Life carries on with minor changes	Life carries on as usual	0

```
anovaSLONmarital_step <- pairwise.t.test(cleancovid$SLON3_avg,cleancovid$Dem_maritalstatus, p.adj = "ho
sigpairs <- broom::tidy(anovaSLONmarital_step) %>%
  filter(p.value<0.05) %>%
  arrange(group1,group2)
nrow(sigpairs)
```

```
## [1] 3
```

```
knitr::kable(sigpairs, digits=10,caption="Step-down: Marital status")
```

Table 9: Step-down: Marital status

group1	group2	p.value
Married/cohabiting	Divorced/widowed	0.0000e+00
Single	Divorced/widowed	2.2617e-06
Single	Married/cohabiting	0.0000e+00

```
anovaSLONemploy_step <- pairwise.t.test(cleancovid$SLON3_avg,cleancovid$Dem_employment, p.adj = "holm")
sigpairs <- broom::tidy(anovaSLONemploy_step) %>%
  filter(p.value<0.05) %>%
  arrange(group1,group2)
nrow(sigpairs)
```

```
## [1] 15
```

```
knitr::kable(sigpairs, digits=10,caption="Step-down: Employment")
```

Table 10: Step-down: Employment

group1	group2	p.value
Not employed	Full time employed	0.0000000000
Part time employed	Full time employed	0.0008950825
Part time employed	Not employed	0.0000000000
Retired	Full time employed	0.0000000000
Retired	Not employed	0.0000000000
Retired	Part time employed	0.0000000000
Self-employed	Full time employed	0.0000616810
Self-employed	Not employed	0.0000000000
Self-employed	Part time employed	0.0000000063
Self-employed	Retired	0.0007611027
Student	Full time employed	0.0000000000
Student	Not employed	0.0170447932
Student	Part time employed	0.0000000000
Student	Retired	0.0000000000
Student	Self-employed	0.0000000000

```
anovaSLONdepend_step <- pairwise.t.test(cleancovid$SLON3_avg,cleancovid$Dem_dependentsgrouped, p.adj =
sigpairs <- broom::tidy(anovaSLONdepend_step) %>%
  filter(p.value<0.05) %>%
  arrange(group1,group2)
nrow(sigpairs)
```

```
## [1] 9
```

```
knitr::kable(sigpairs, digits=10,caption="Step-down: Dependents")
```

Table 11: Step-down: Dependents

group1	group2	p.value
(0,1]	(-Inf,0]	0.0000000000
(1,2]	(-Inf,0]	0.0000000000
(1,2]	(0,1]	0.0002723704
(2,3]	(-Inf,0]	0.0000000000
(2,3]	(0,1]	0.0000056126
(3,4]	(-Inf,0]	0.0000000000
(3,4]	(0,1]	0.0000286591
(3,4]	(1,2]	0.0319042337
(4, Inf]	(-Inf,0]	0.0193009207

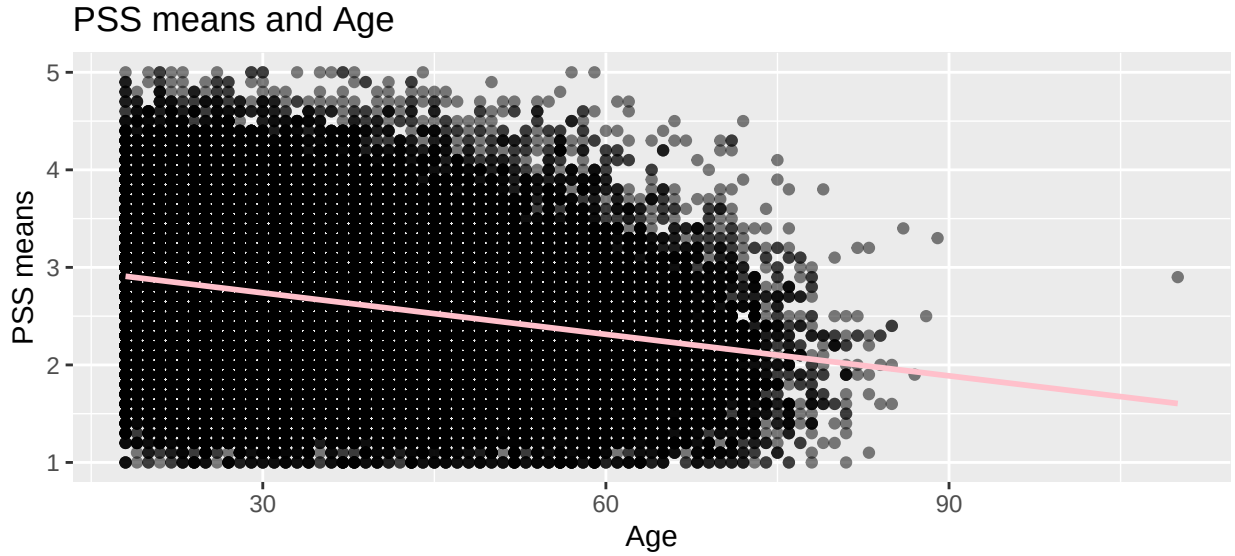
Table 12: Linear Regression Results for Age with PSS and SLON Scales

	PSS	SLON
Estimate	-0.014	-0.013
P values	0.000	0.000
Confidence Intervals Low	3.145	3.047
Confidence Intervals High	3.183	3.099

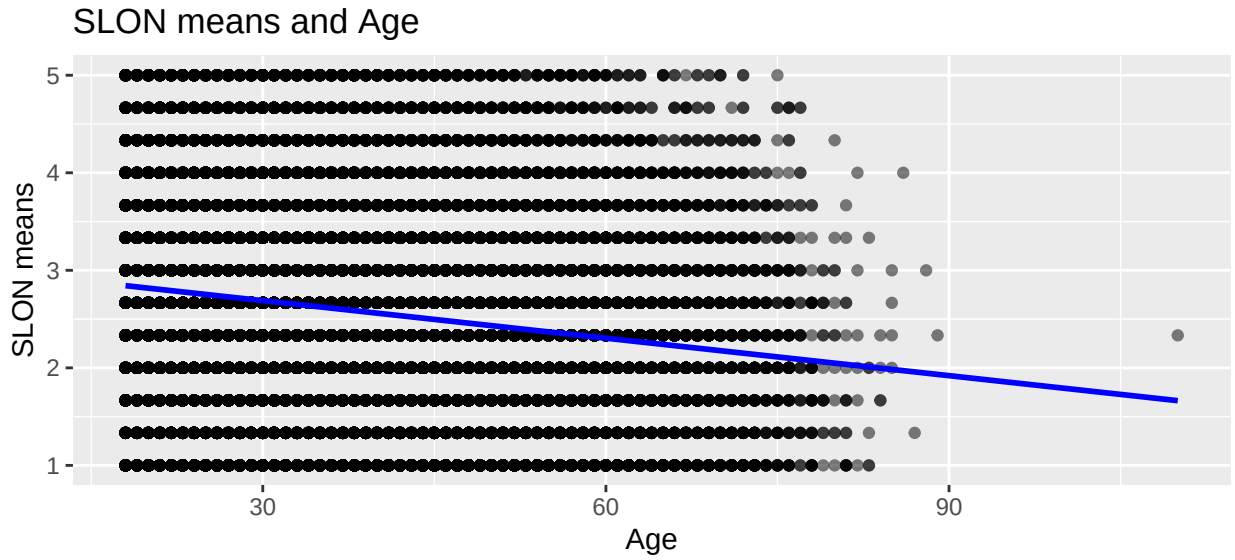
Table 13: Linear Regression Results for Age with PSS and SLON Scales

	PSS	SLON
Equation	y_expected = 3.164 - 0.014(age)	y_expected = 3.073 - 0.013(age)

```
## `geom_smooth()` using formula 'y ~ x'
```




```
## `geom_smooth()` using formula 'y ~ x'
```




```
PSS_maineffect_table <- matrix(c(-0.2037, -0.0116, -0.0260, 0.0786, -0.0673, -0.2342, 0.2092, 0.1192, -0
                       ncol=1, byrow=TRUE)
colnames(PSS_maineffect_table) <- c('Estimate')
rownames(PSS_maineffect_table) <- c('Dem_gender: Male', 'Dem_age', 'Dem_maritalstatus: Married/cohabiti
PSS_maineffect_table <- as.table(PSS_maineffect_table)
knitr::kable(PSS_maineffect_table,digits=10,caption="Main Effect Models: Estimates for PSS: Overall Mai
```

Table 14: Main Effect Models: Estimates for PSS: Overall Main Effect

	Estimate
Dem_gender: Male	-0.2037
Dem_age	-0.0116
Dem_maritalstatus: Married/cohabiting	-0.0260
Dem_maritalstatus: Single	0.0786
Dem_isolation: Life carries on as usual	-0.0673
Dem_isolation: Life carries on with minor changes	-0.2342
Dem_employment: Not employed	0.2092
Dem_employment: Part time employed	0.1192
Dem_employment: Retired	-0.0064
Dem_employment: Self-employed	0.0808
Dem_employment: Student	0.1197
Dem_dependentsgrouped: 1	0.0714
Dem_dependentsgrouped: 2	0.0711
Dem_dependentsgrouped: 3	0.0835
Dem_dependentsgrouped: 4	0.0826
Dem_dependentsgrouped: 4+	0.0856

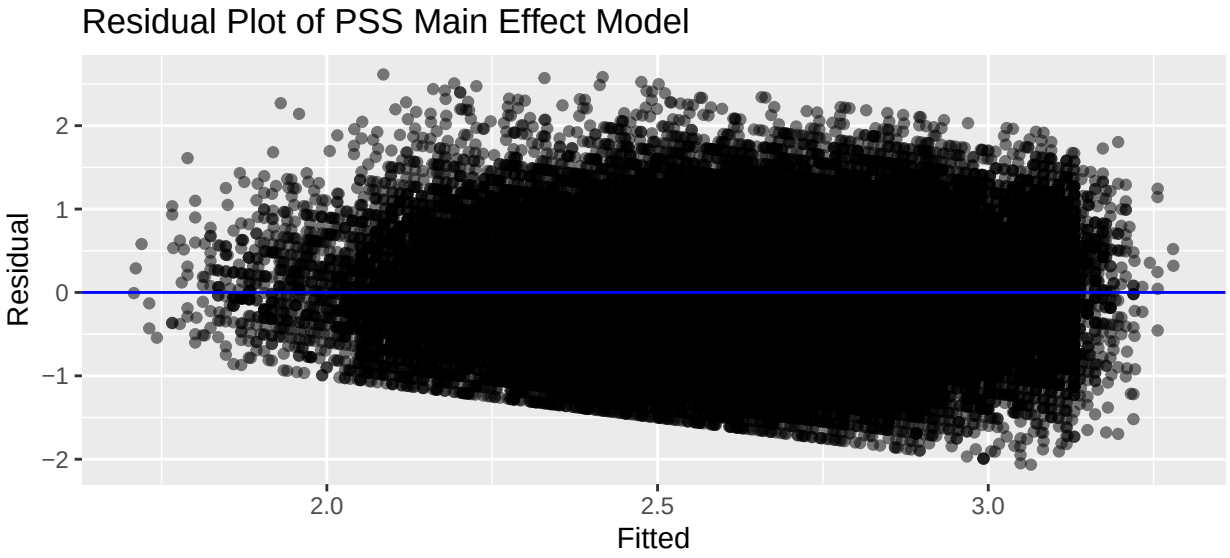
```
SLON_maineffect_table <- matrix(c(-0.1947, -0.0010, -0.3214, -0.0922, -0.5862, -0.3988, 0.1591, 0.0122,
                       ncol=1, byrow=TRUE)
colnames(SLON_maineffect_table) <- c('Estimate')
rownames(SLON_maineffect_table) <- c('Dem_gender: Male', 'Dem_age', 'Dem_maritalstatus: Married/cohabit
SLON_maineffect_table <- as.table(SLON_maineffect_table)
knitr::kable(SLON_maineffect_table,digits=10,caption="Main Effect Models: Estimates for SLON: Overall Ma
```

Table 15: Main Effect Models: Estimates for SLON: Overall Main Effect

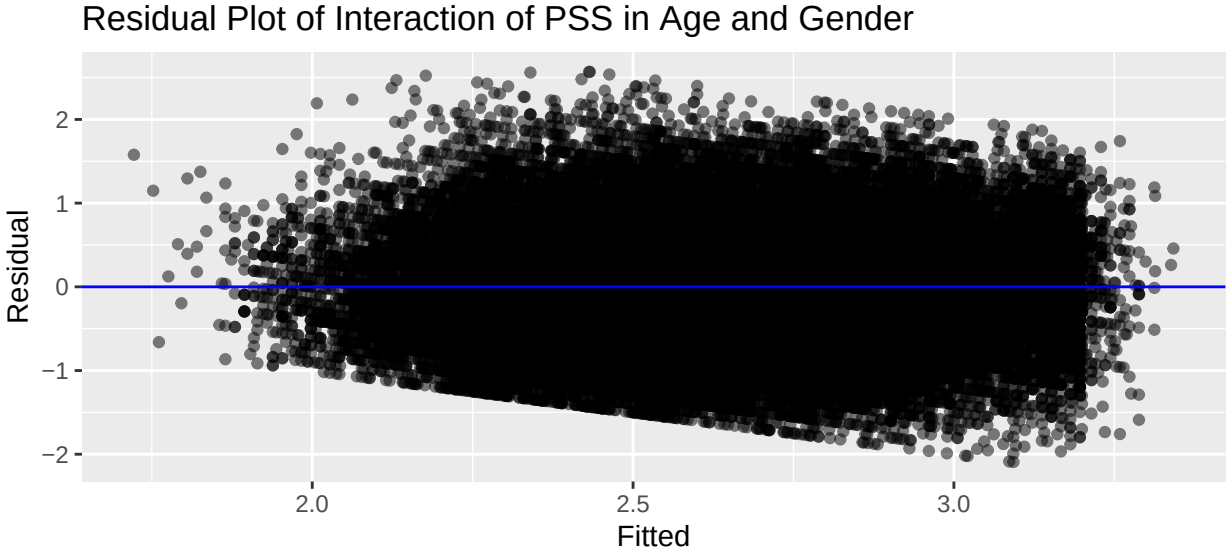
	Estimate
Dem_gender: Male	-0.1947
Dem_age	-0.0010
Dem_maritalstatus: Married/cohabiting	-0.3214
Dem_maritalstatus: Single	-0.0922
Dem_isolation: Life carries on as usual	-0.5862
Dem_isolation: Life carries on with minor changes	-0.3988
Dem_employment: Not employed	0.1591
Dem_employment: Part time employed	0.0122
Dem_employment: Retired	0.0370
Dem_employment: Self-employed	-0.0693
Dem_employment: Student	0.0116
Dem_dependentsgrouped: 1	0.0330
Dem_dependentsgrouped: 2	-0.0016
Dem_dependentsgrouped: 3	-0.0176
Dem_dependentsgrouped: 4	-0.0694
Dem_dependentsgrouped: 4+	0.0031

Table 16: Main Effect Models: Adjusted R^2 Values for PSS and SLON

	Adjusted R^2 Value
PSS	0.1044
SLON	0.1028




Residual Plot of SLON Main Effect Model
Residual
2
0
−2
1.5
2.0
2.5
3.0
Fitted


Residual Plot of Interaction of PSS in Age and Gender
Residual
2
1
0
−1
−2
2.0
2.5
3.0
Fitted

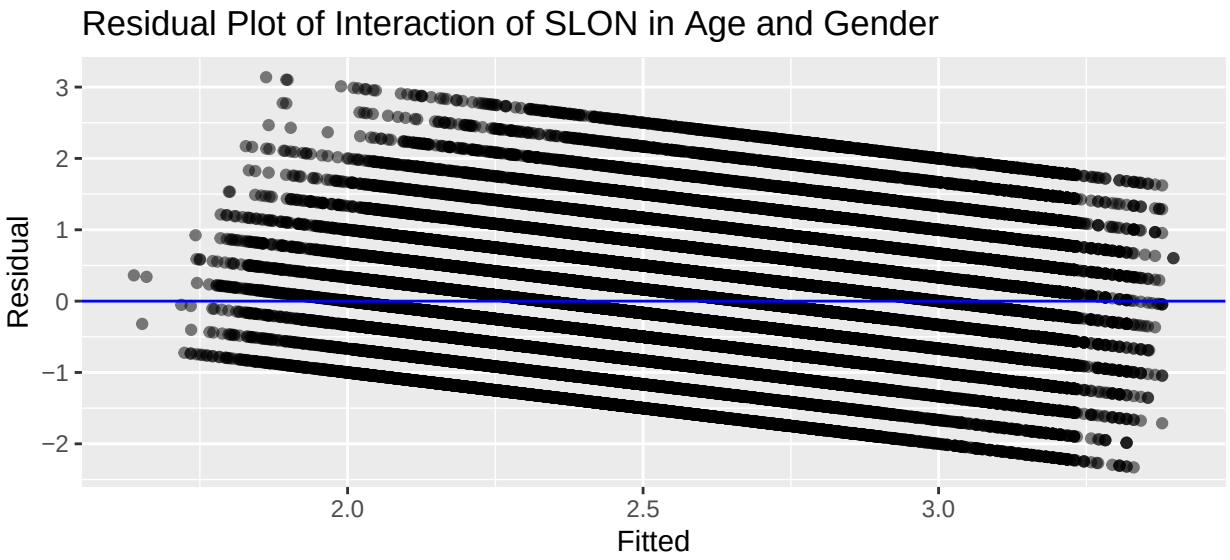


Table 17: Interaction Models: Adjusted R^2 Values for PSS and SLON

	Adjusted R^2 Value
PSS: Age+Gender	0.1303
PSS: Employment+Isolation	0.1250
PSS: Marital+Isolation	0.1231
PSS: Age+Isolation	0.1256
PSS: Gender+Isolation	0.1250
PSS: Dependents+Isolation	0.1230
SLON: Age+Gender	0.1044
SLON: Employment+Isolation	0.1040
SLON: Marital+Isolation	0.1032