Descriptives and Graphs

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```
data_wide <- read.csv("/Users/BrentRappaport/Box Sync/WashU/Classes/Longtudinal Methods/1-descriptives-a
```

Question 1 & 2

```
data_long <- data_wide %>%
  gather(c(-ID,-sex,-T1_ACES_sum,-ethin,-T1Income_to_Need,-IQ),
         key = "time", value = "value") %>%
  separate(time, into = c("variable", "wave")) %>%
  spread(variable,value)

data_long$wave <- as.integer(data_long$wave)
```

Question 3

```
samplesize_wave <- matrix(ncol=7,nrow=8)
samplesize_wave <- as.data.frame(samplesize_wave)
colnames(samplesize_wave) <-c("Wave","Parent-report","Teacher-report",
                              "Parent-report","Teacher-report",
                              "Parent-report","Teacher-report")

samplesize_wave[,1:2] <- aggregate(PPeerScale ~ wave, data=data_long,
                                   function(x) {sum(!is.na(x))}, na.action=NULL)
samplesize_wave[,3] <- aggregate(TPeerScale ~ wave, data=data_long,
                                 function(x) {sum(!is.na(x))}, na.action=NULL)[2]
samplesize_wave[,4] <- aggregate(PAggScale ~ wave, data=data_long,
                                   function(x) {sum(!is.na(x))}, na.action=NULL)[2]
samplesize_wave[,5] <- aggregate(TAggScale ~ wave, data=data_long,
                                 function(x) {sum(!is.na(x))}, na.action=NULL)[2]
samplesize_wave[,6] <- aggregate(PProScale ~ wave, data=data_long,
                                   function(x) {sum(!is.na(x))}, na.action=NULL)[2]
samplesize_wave[,7] <- aggregate(TProScale ~ wave, data=data_long,
                                 function(x) {sum(!is.na(x))}, na.action=NULL)[2]

kable(samplesize_wave,"html") %>%
  kable_styling("striped") %>%
  add_header_above(c(" "=1,"Peer Scale"=2,"Aggression Scale"=2,"Prosocial Scale"=2))
```

Peer Scale

Aggression Scale

Prosocial Scale

Wave

Parent-report

Teacher-report

Parent-report

Teacher-report

Parent-report

Teacher-report

1

283

202

283

202

282

200

3

258

176

258

176

258

176

5

246

186

246

185

246

186

10

228

171

228

170

228

170

12

257

166

257

166

257

166

14

221

147

221

147

221

147

16

125

75

125

75

125

75

18

66

36

66

36

66

36

Question 4

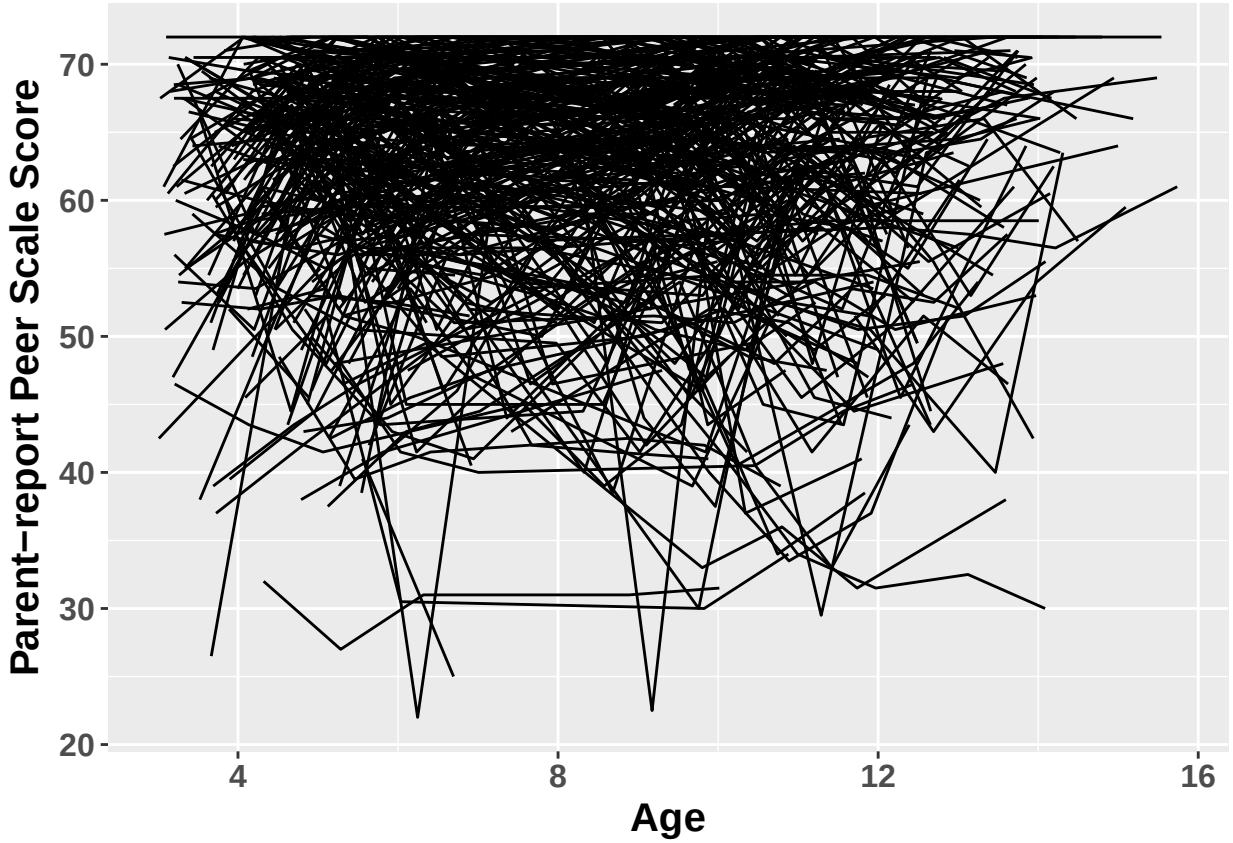
```
data_long$age_days <- data_long$age*365
```

Age in days may actully be a more precise measurement of time, but more difficult to interpret (particularly graphically).

Question 5

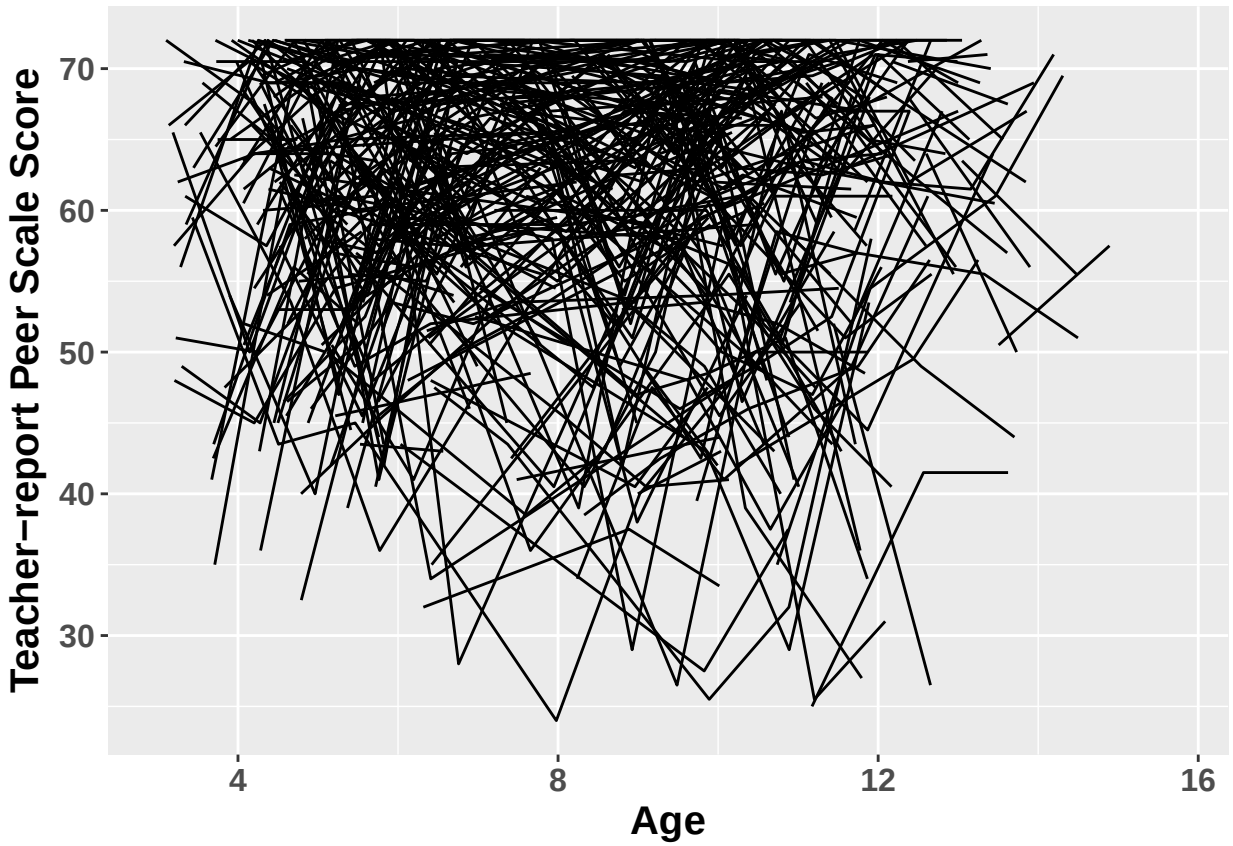
```
ggplot(data_long,aes(age,PPeerScale,group=ID)) +
  geom_line(alpha=1) +
  labs(x="Age",y="Parent-report Peer Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="none")
```

```
## Warning: Removed 693 rows containing missing values (geom_path).
```



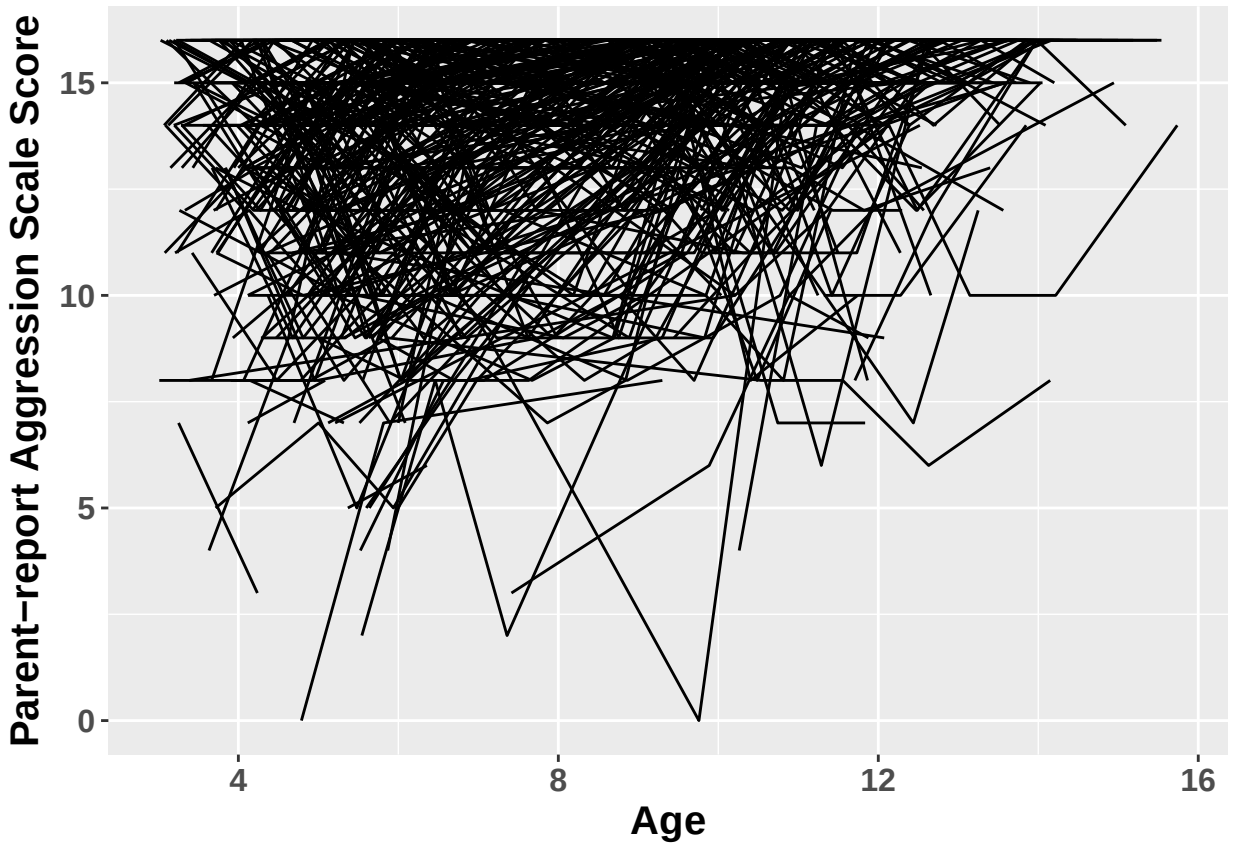

```
ggplot(data_long,aes(age,TPeerScale,group=ID)) +
  geom_line(alpha=1) +
  labs(x="Age",y="Teacher-report Peer Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="none")
```

```
## Warning: Removed 886 rows containing missing values (geom_path).
```



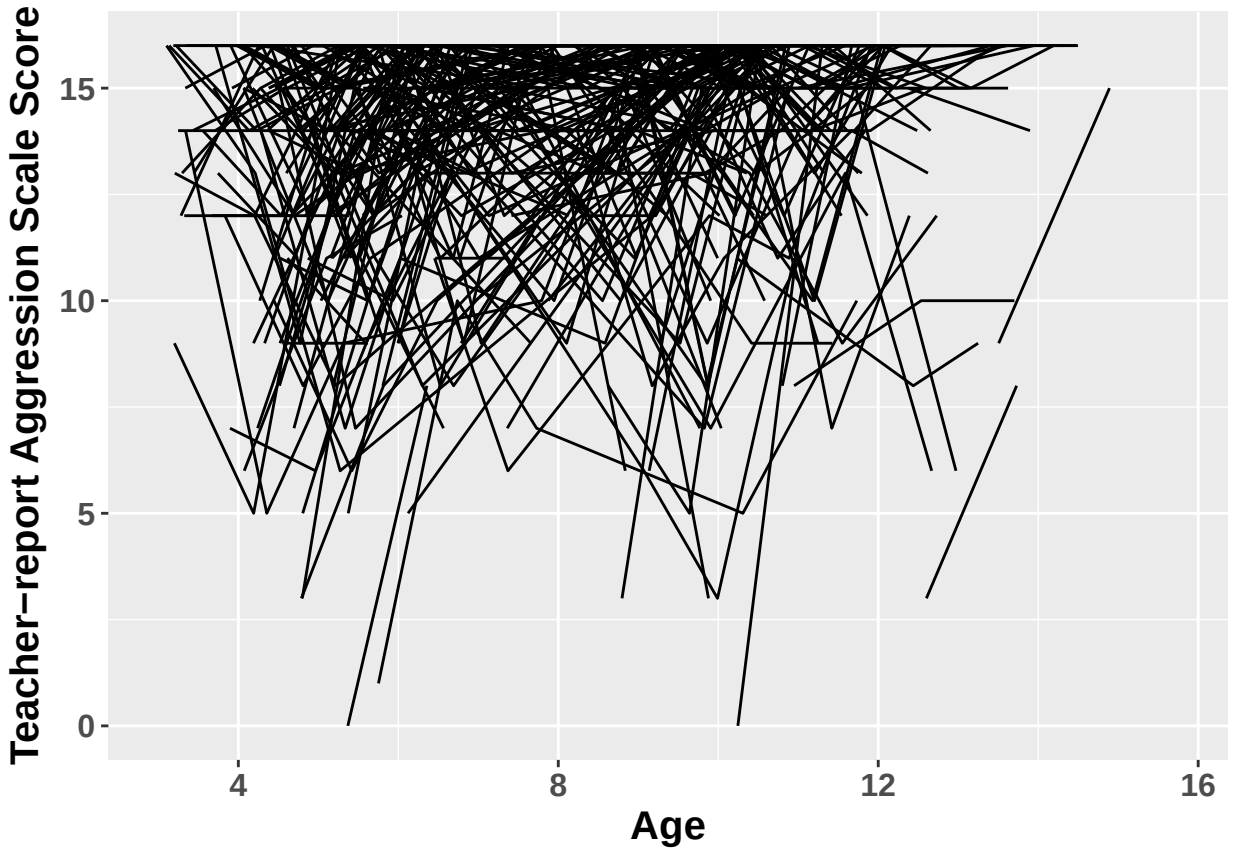

```
ggplot(data_long,aes(age,PAggScale,group=ID)) +
  geom_line(alpha=1) +
  labs(x="Age",y="Parent-report Aggression Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="none")
```

```
## Warning: Removed 693 rows containing missing values (geom_path).
```



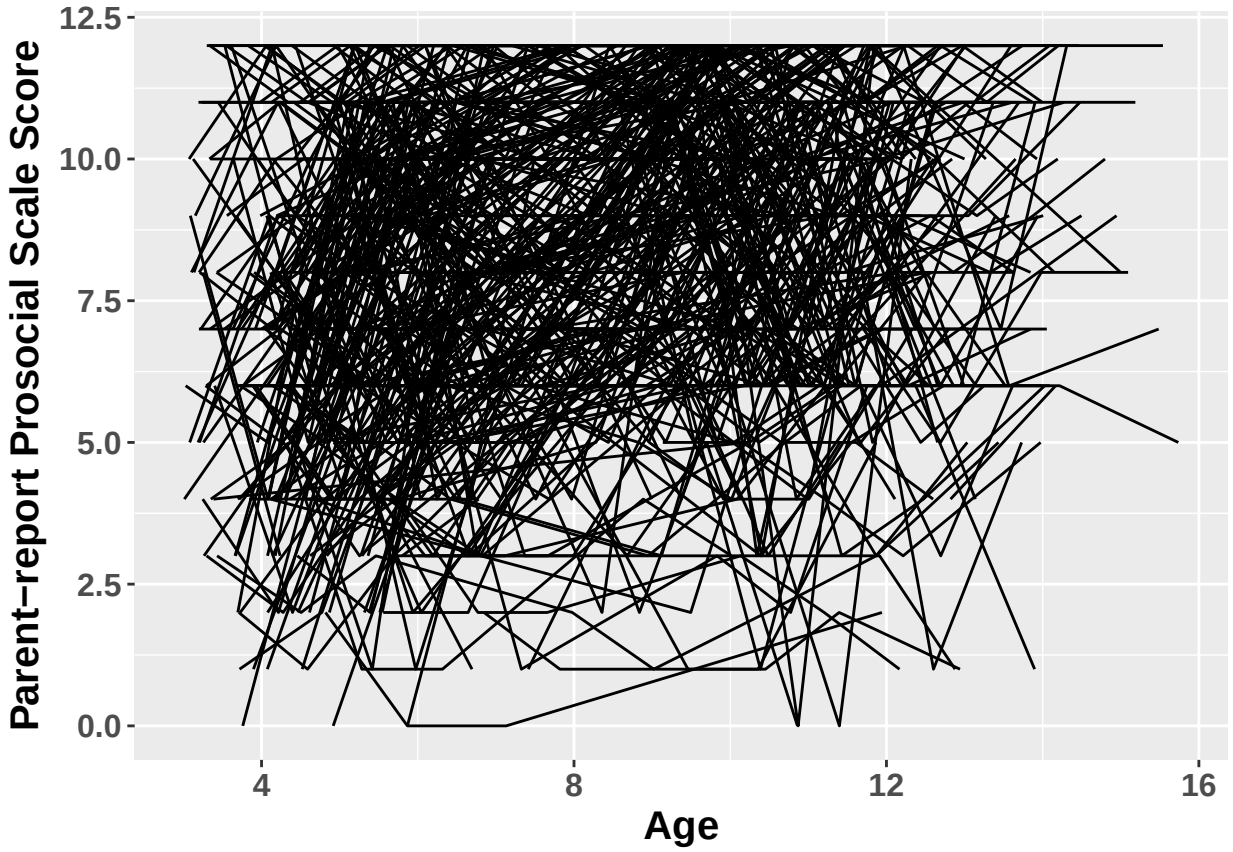

```
ggplot(data_long,aes(age,TAggScale,group=ID)) +
  geom_line(alpha=1) +
  labs(x="Age",y="Teacher-report Aggression Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="none")
```

```
## Warning: Removed 886 rows containing missing values (geom_path).
```



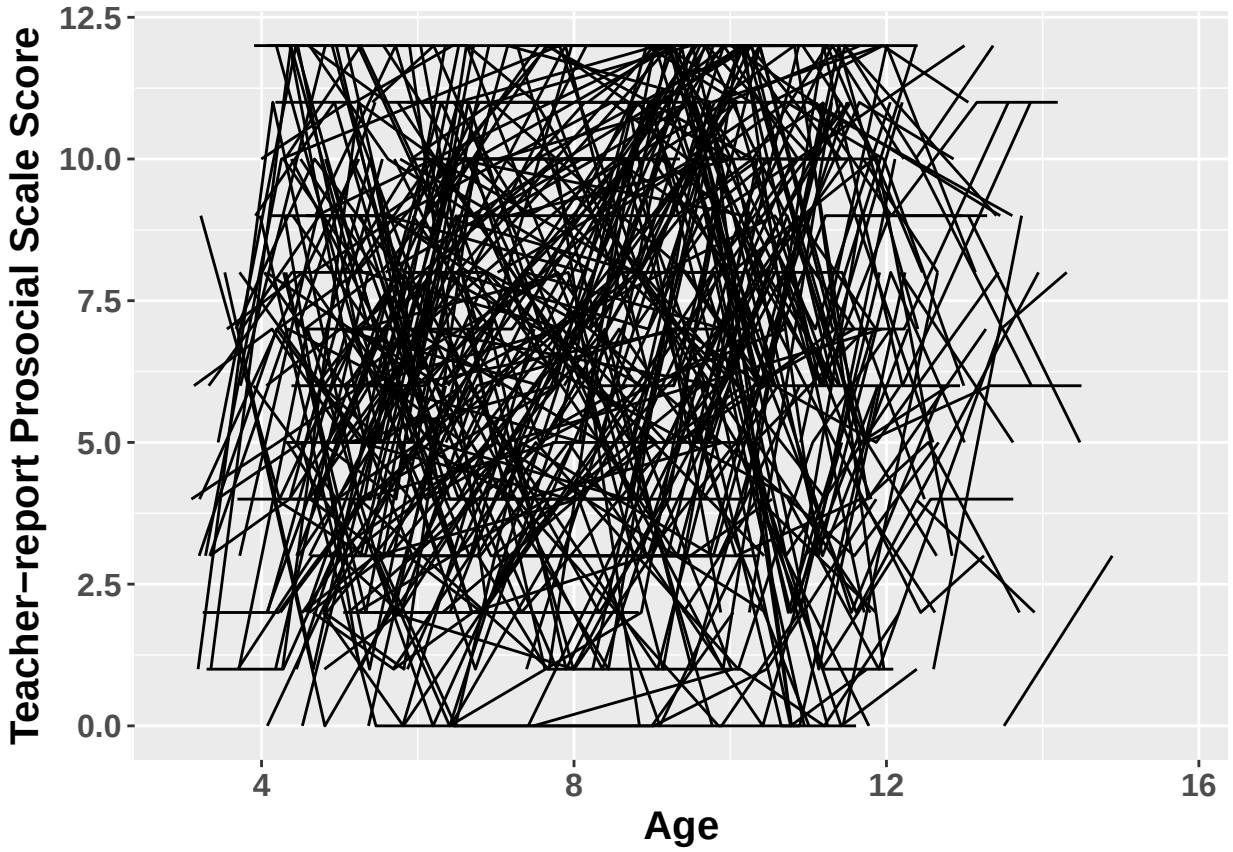

```
ggplot(data_long,aes(age,PProScale,group=ID)) +
  geom_line(alpha=1) +
  labs(x="Age",y="Parent-report Prosocial Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="none")
```

```
## Warning: Removed 686 rows containing missing values (geom_path).
```




```
ggplot(data_long,aes(age,TProScale,group=ID)) +
  geom_line(alpha=1) +
  labs(x="Age",y="Teacher-report Prosocial Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="none")
```

```
## Warning: Removed 892 rows containing missing values (geom_path).
```

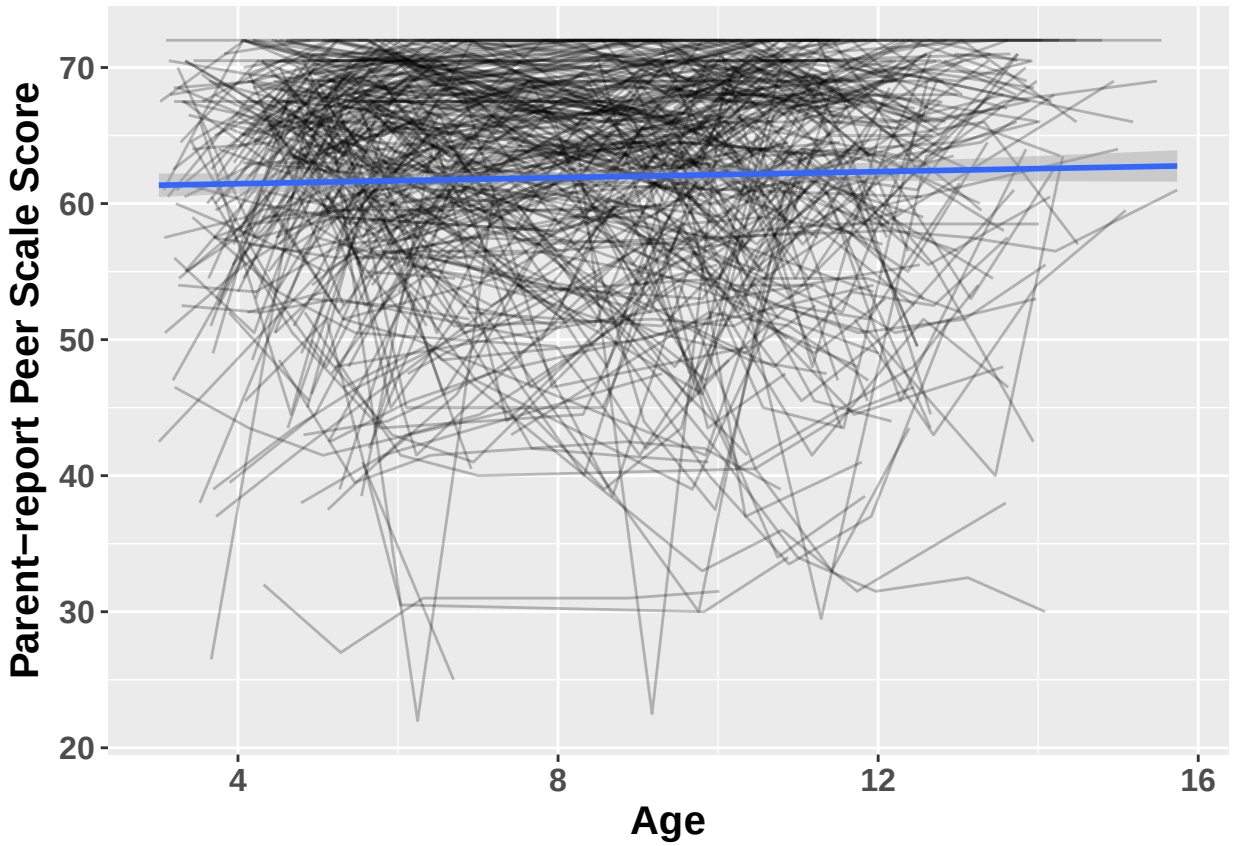


Question 6

```
ggplot(data_long,aes(age,PPeerScale,group=ID)) +
  geom_line(alpha=.25) +
  stat_smooth(aes(group=1),method="lm",size=1) +
  labs(x="Age",y="Parent-report Peer Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="none")
```

```
## Warning: Removed 766 rows containing non-finite values (stat_smooth).
```

```
## Warning: Removed 693 rows containing missing values (geom_path).
```



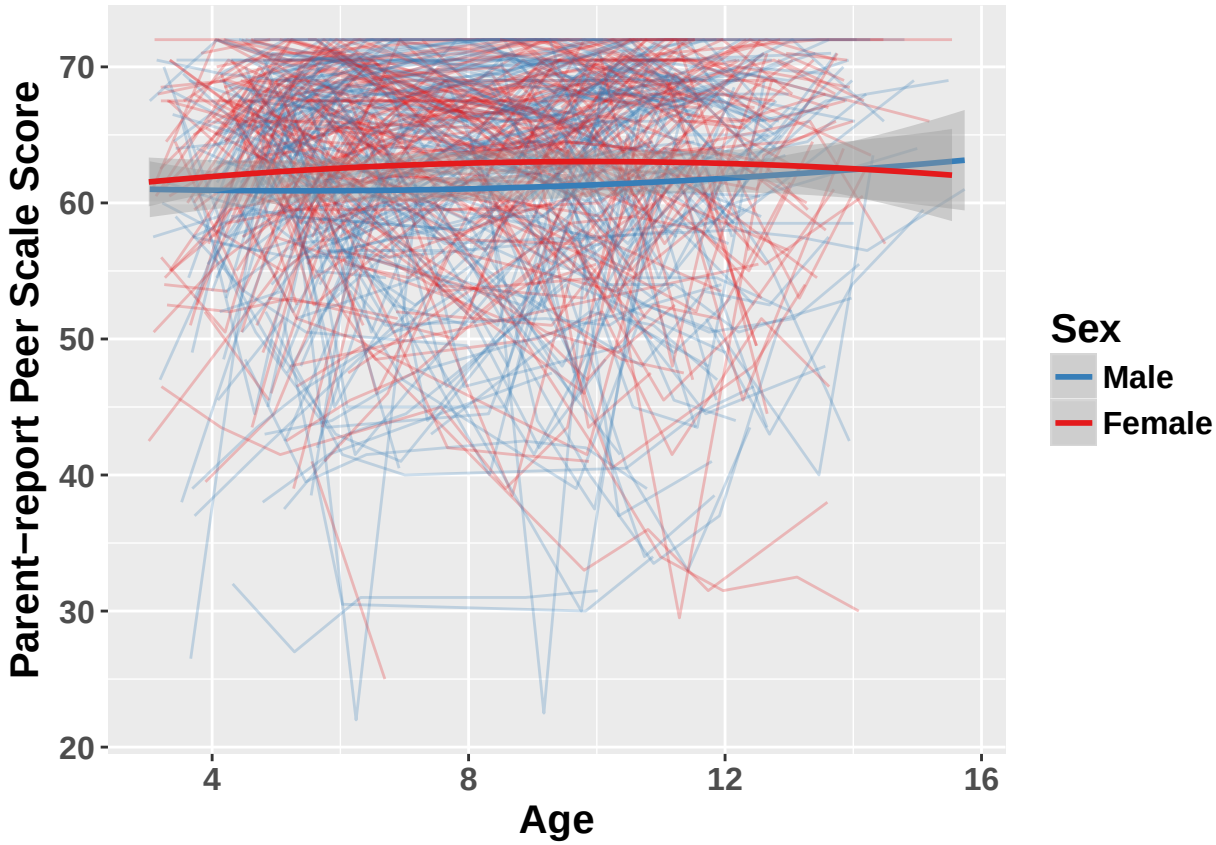

```
ggplot(data_long,aes(age,PPeerScale,group=ID,color=factor(sex))) +
  geom_line(alpha=.25) +
  scale_color_manual(values=c("#377EB8","#E41A1C"),
                     name ="Sex", breaks=c(1,2),
                         labels=c("Male","Female")) +
  stat_smooth(aes(group=factor(sex)),method="lm",
              formula=y~x+I(x^2),size=1) +
  labs(x="Age",y="Parent-report Peer Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="right")
```

```
## Warning: Removed 766 rows containing non-finite values (stat_smooth).
```

```
## Warning: Removed 693 rows containing missing values (geom_path).
```

Table 1: Parent-report Peer Scale

	1	3	5	10	12	14	16	18
PPeerScale_1	1.00	0.56	0.52	0.45	0.39	0.34	0.18	0.27
PPeerScale_3	0.56	1.00	0.66	0.48	0.49	0.43	0.28	0.35
PPeerScale_5	0.52	0.66	1.00	0.63	0.54	0.55	0.37	0.34
PPeerScale_10	0.45	0.48	0.63	1.00	0.62	0.64	0.51	0.59
PPeerScale_12	0.39	0.49	0.54	0.62	1.00	0.71	0.51	0.57
PPeerScale_14	0.34	0.43	0.55	0.64	0.71	1.00	0.69	0.64
PPeerScale_16	0.18	0.28	0.37	0.51	0.51	0.69	1.00	0.61
PPeerScale_18	0.27	0.35	0.34	0.59	0.57	0.64	0.61	1.00



Question 7

```
kable(corr.test(data_wide[,15:22],adjust="bonferroni",alpha=.01)[1],
      digits=2,caption="Parent-report Peer Scale",
      col.names=c("1","3","5","10","12","14","16","18"))
```

```
kable(corr.test(data_wide[,39:46],adjust="bonferroni",alpha=.01)[1],
      digits=2,caption="Teacher-report Peer Scale",
      col.names=c("1","3","5","10","12","14","16","18"))
```

```
kable(corr.test(data_wide[,23:30],adjust="bonferroni",alpha=.01)[1],
```

Table 2: Teacher-report Peer Scale

	1	3	5	10	12	14	16	18
TPeerScale_1	1.00	0.33	0.26	0.24	0.31	0.32	0.51	0.11
TPeerScale_3	0.33	1.00	0.19	0.15	0.24	0.30	0.19	0.19
TPeerScale_5	0.26	0.19	1.00	0.50	0.50	0.51	0.33	0.51
TPeerScale_10	0.24	0.15	0.50	1.00	0.59	0.52	0.43	0.20
TPeerScale_12	0.31	0.24	0.50	0.59	1.00	0.48	0.48	0.44
TPeerScale_14	0.32	0.30	0.51	0.52	0.48	1.00	0.54	0.38
TPeerScale_16	0.51	0.19	0.33	0.43	0.48	0.54	1.00	0.67
TPeerScale_18	0.11	0.19	0.51	0.20	0.44	0.38	0.67	1.00

Table 3: Parent-report Aggression Scale

	1	3	5	10	12	14	16	18
PAggScale_1	1.00	0.64	0.59	0.39	0.34	0.49	0.39	0.39
PAggScale_3	0.64	1.00	0.64	0.33	0.35	0.36	0.51	0.46
PAggScale_5	0.59	0.64	1.00	0.54	0.48	0.51	0.42	0.52
PAggScale_10	0.39	0.33	0.54	1.00	0.62	0.54	0.51	0.42
PAggScale_12	0.34	0.35	0.48	0.62	1.00	0.44	0.38	0.49
PAggScale_14	0.49	0.36	0.51	0.54	0.44	1.00	0.60	0.49
PAggScale_16	0.39	0.51	0.42	0.51	0.38	0.60	1.00	0.70
PAggScale_18	0.39	0.46	0.52	0.42	0.49	0.49	0.70	1.00

```
      digits=2,caption="Parent-report Aggression Scale",
      col.names=c("1","3","5","10","12","14","16","18"))
```

```
kable(corr.test(data_wide[,47:54],adjust="bonferroni",alpha=.01)[1],
      digits=2,caption="Teacher-report Aggression Scale",
      col.names=c("1","3","5","10","12","14","16","18"))
```

```
kable(corr.test(data_wide[,31:38],adjust="bonferroni",alpha=.01)[1],
      digits=2,caption="Parent-report Prosocial Scale",
      col.names=c("1","3","5","10","12","14","16","18"))
```

```
kable(corr.test(data_wide[,55:62],adjust="bonferroni",alpha=.01)[1],
      digits=2,caption="Teacher-report Prosocial Scale",
      col.names=c("1","3","5","10","12","14","16","18"))
```

Table 4: Teacher-report Aggression Scale

	1	3	5	10	12	14	16	18
TAggScale_1	1.00	0.41	0.31	0.29	0.11	0.40	0.28	0.56
TAggScale_3	0.41	1.00	0.31	0.26	0.28	0.22	-0.02	-0.08
TAggScale_5	0.31	0.31	1.00	0.25	0.24	0.38	0.18	0.44
TAggScale_10	0.29	0.26	0.25	1.00	0.34	0.41	0.45	0.10
TAggScale_12	0.11	0.28	0.24	0.34	1.00	0.17	0.45	0.61
TAggScale_14	0.40	0.22	0.38	0.41	0.17	1.00	0.46	0.85
TAggScale_16	0.28	-0.02	0.18	0.45	0.45	0.46	1.00	0.79
TAggScale_18	0.56	-0.08	0.44	0.10	0.61	0.85	0.79	1.00

Table 5: Parent-report Prosocial Scale

	1	3	5	10	12	14	16	18
PProScale_1	1.00	0.58	0.60	0.43	0.36	0.35	0.25	0.19
PProScale_3	0.58	1.00	0.61	0.51	0.49	0.45	0.30	0.30
PProScale_5	0.60	0.61	1.00	0.52	0.56	0.44	0.40	0.51
PProScale_10	0.43	0.51	0.52	1.00	0.66	0.57	0.61	0.50
PProScale_12	0.36	0.49	0.56	0.66	1.00	0.60	0.63	0.46
PProScale_14	0.35	0.45	0.44	0.57	0.60	1.00	0.53	0.57
PProScale_16	0.25	0.30	0.40	0.61	0.63	0.53	1.00	0.58
PProScale_18	0.19	0.30	0.51	0.50	0.46	0.57	0.58	1.00

Table 6: Teacher-report Prosocial Scale

	1	3	5	10	12	14	16	18
TProScale_1	1.00	0.40	0.40	0.22	0.25	0.16	0.08	-0.35
TProScale_3	0.40	1.00	0.33	0.22	0.27	0.25	0.31	-0.17
TProScale_5	0.40	0.33	1.00	0.33	0.34	0.38	0.20	0.35
TProScale_10	0.22	0.22	0.33	1.00	0.36	0.32	0.33	0.62
TProScale_12	0.25	0.27	0.34	0.36	1.00	0.33	0.51	0.55
TProScale_14	0.16	0.25	0.38	0.32	0.33	1.00	0.53	0.34
TProScale_16	0.08	0.31	0.20	0.33	0.51	0.53	1.00	0.40
TProScale_18	-0.35	-0.17	0.35	0.62	0.55	0.34	0.40	1.00