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=3,nrow=8)
samplesize_wave <- as.data.frame(samplesize_wave)
colnames(samplesize_wave) <-c("Wave","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]
```

Question 4

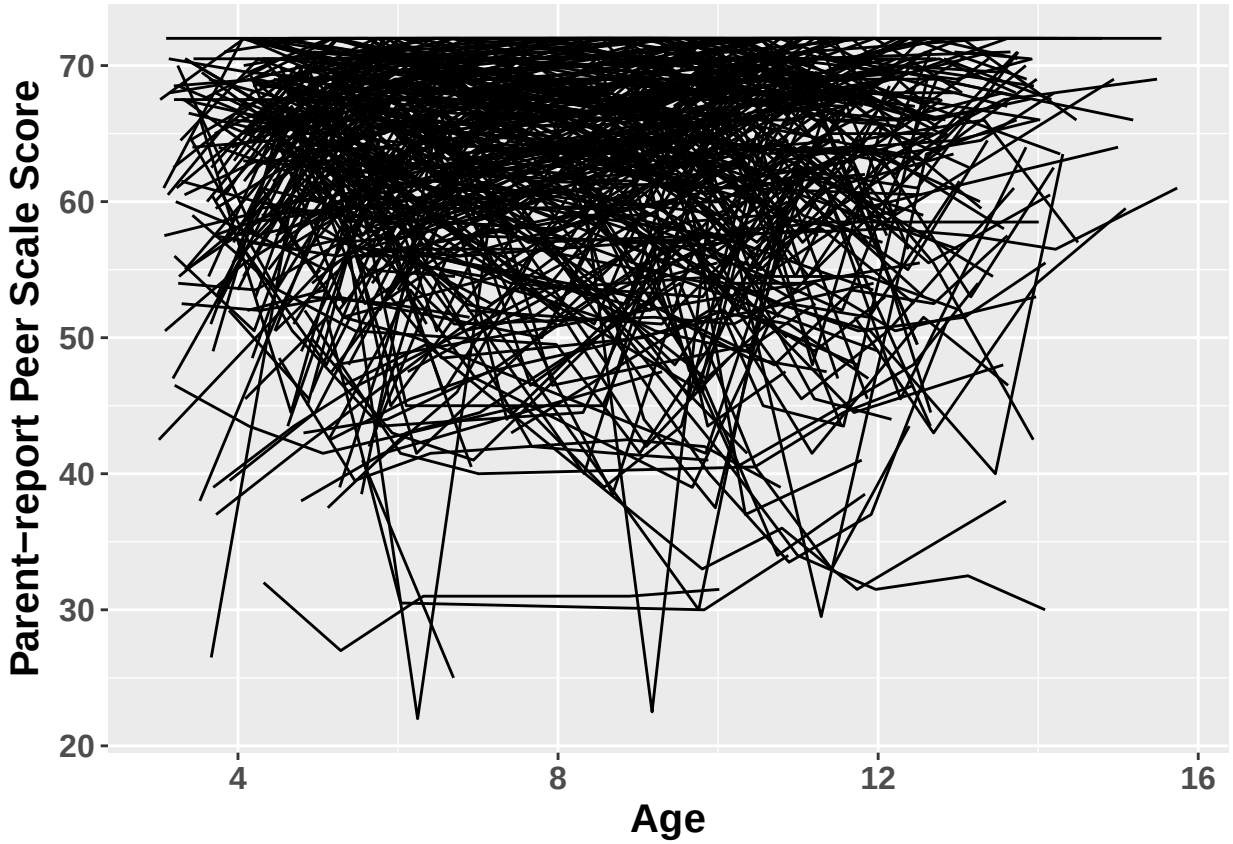
```
data_long$age_days <- data_long$age*365
```

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

Question 5

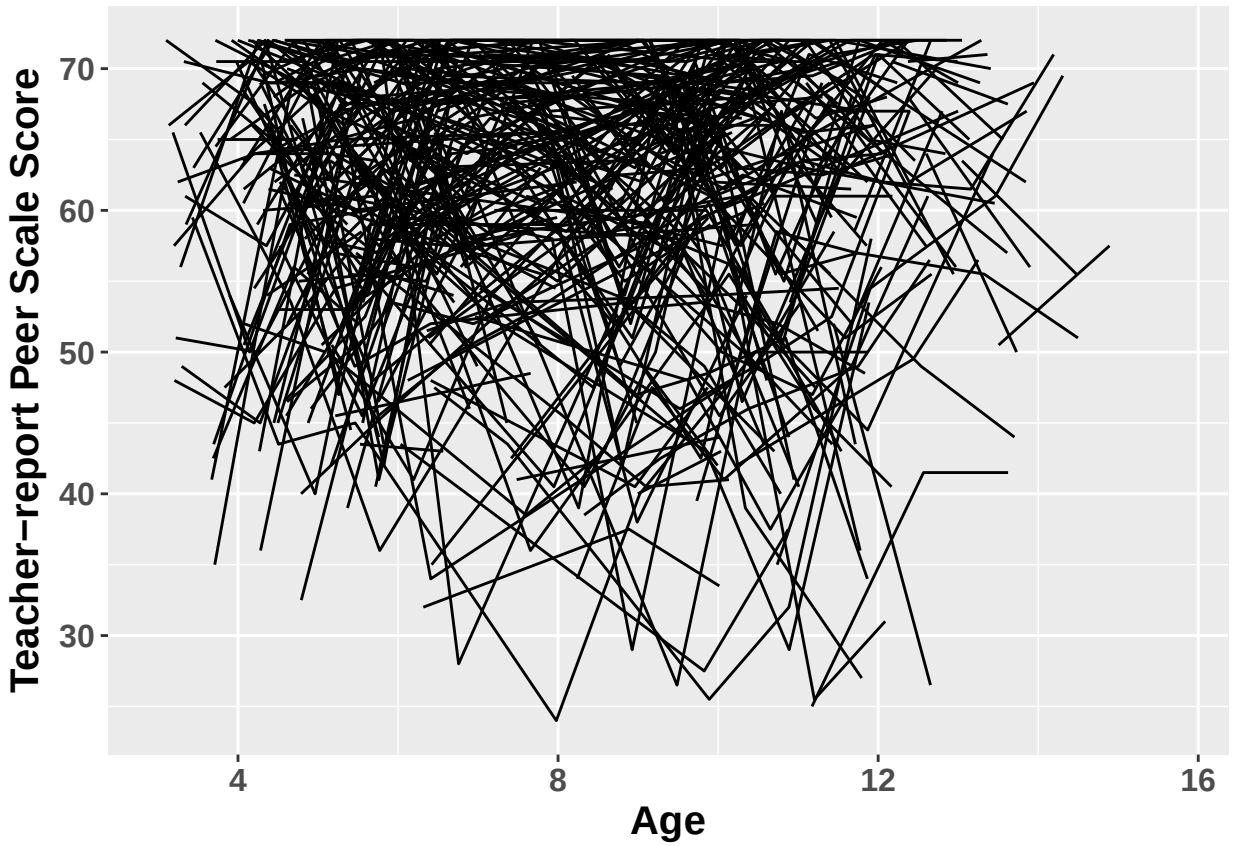
```
ggplot(data_long,aes(age,PPeerScale,group=ID)) +
  geom_line(alpha=1) +
  labs(x="Age",y="Parent-report Peer Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="none")
```

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



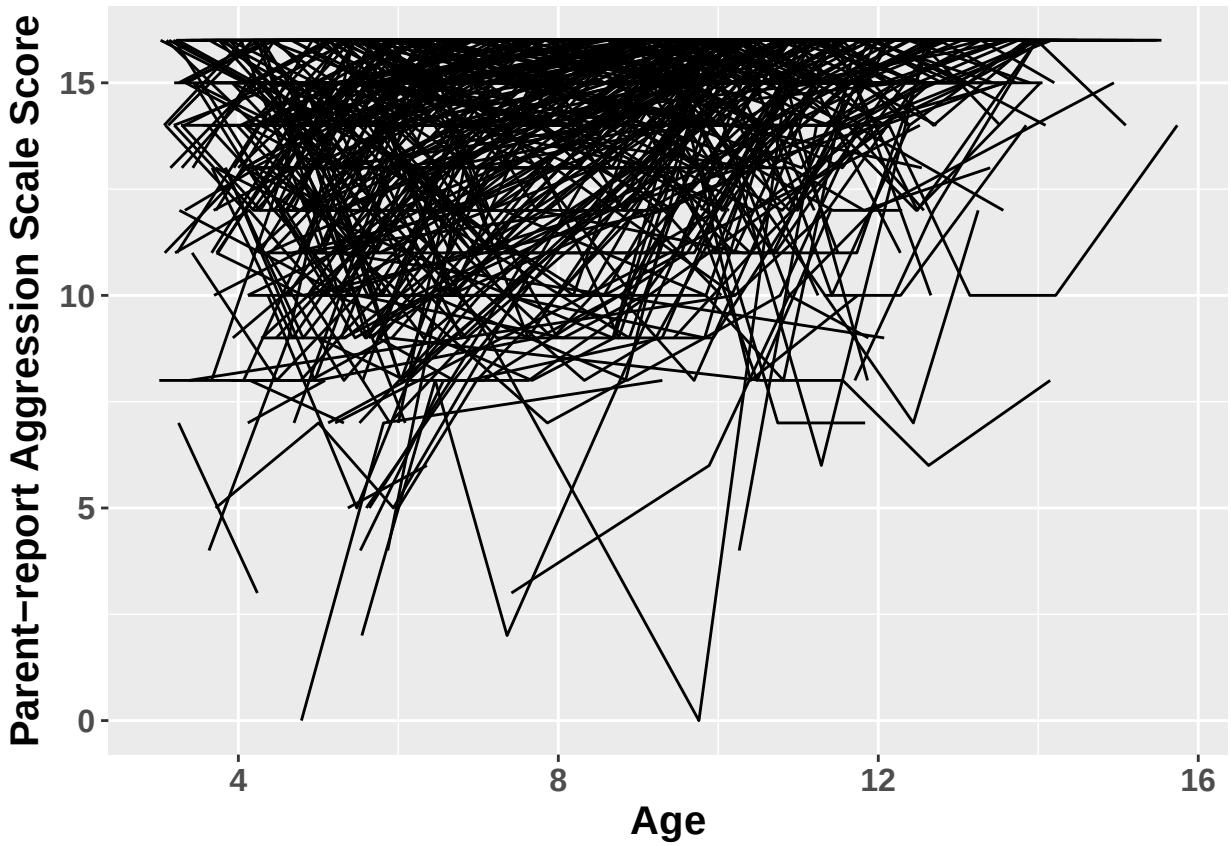

```
ggplot(data_long,aes(age,TPeerScale,group=ID)) +
  geom_line(alpha=1) +
  labs(x="Age",y="Teacher-report Peer Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="none")
```

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



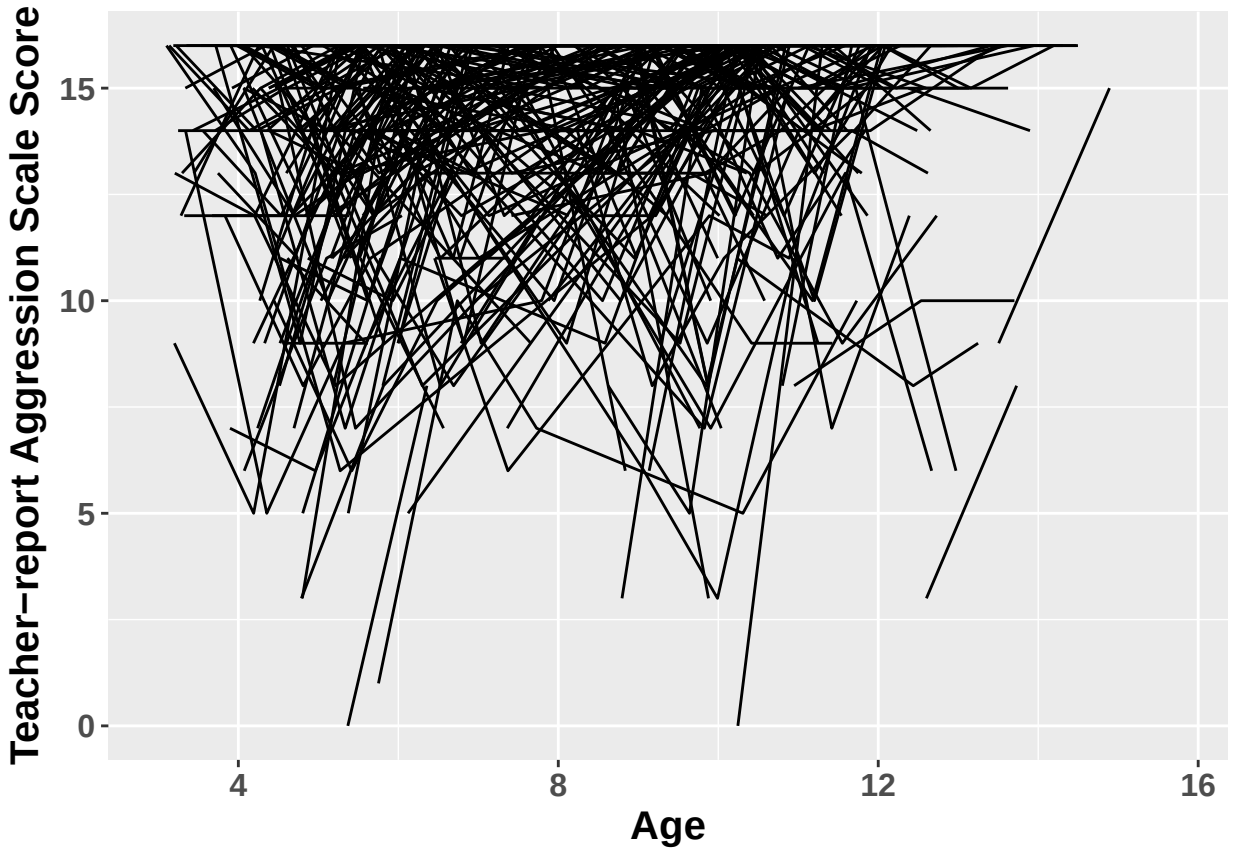

```
ggplot(data_long,aes(age,PAggScale,group=ID)) +
  geom_line(alpha=1) +
  labs(x="Age",y="Parent-report Aggression Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="none")
```

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



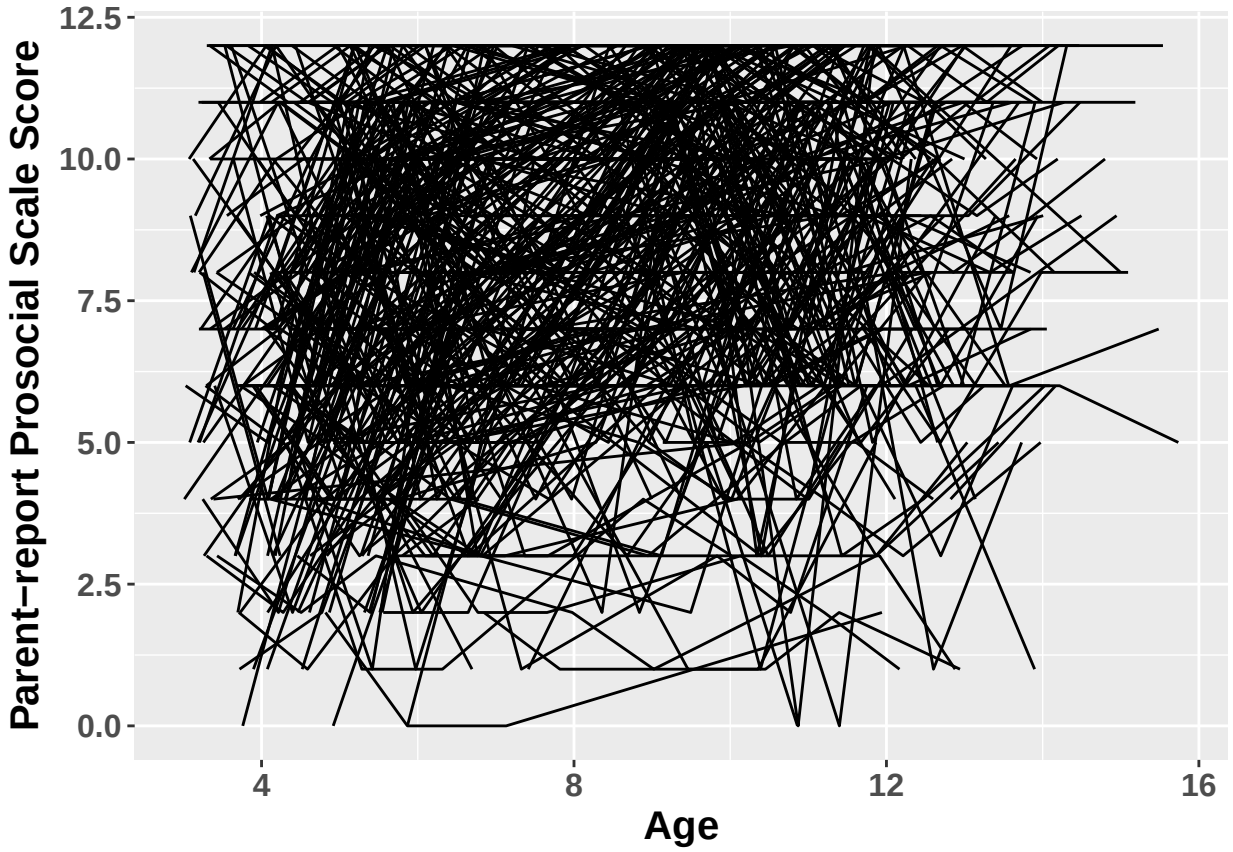

```
ggplot(data_long,aes(age,TAggScale,group=ID)) +
  geom_line(alpha=1) +
  labs(x="Age",y="Teacher-report Aggression Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="none")
```

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



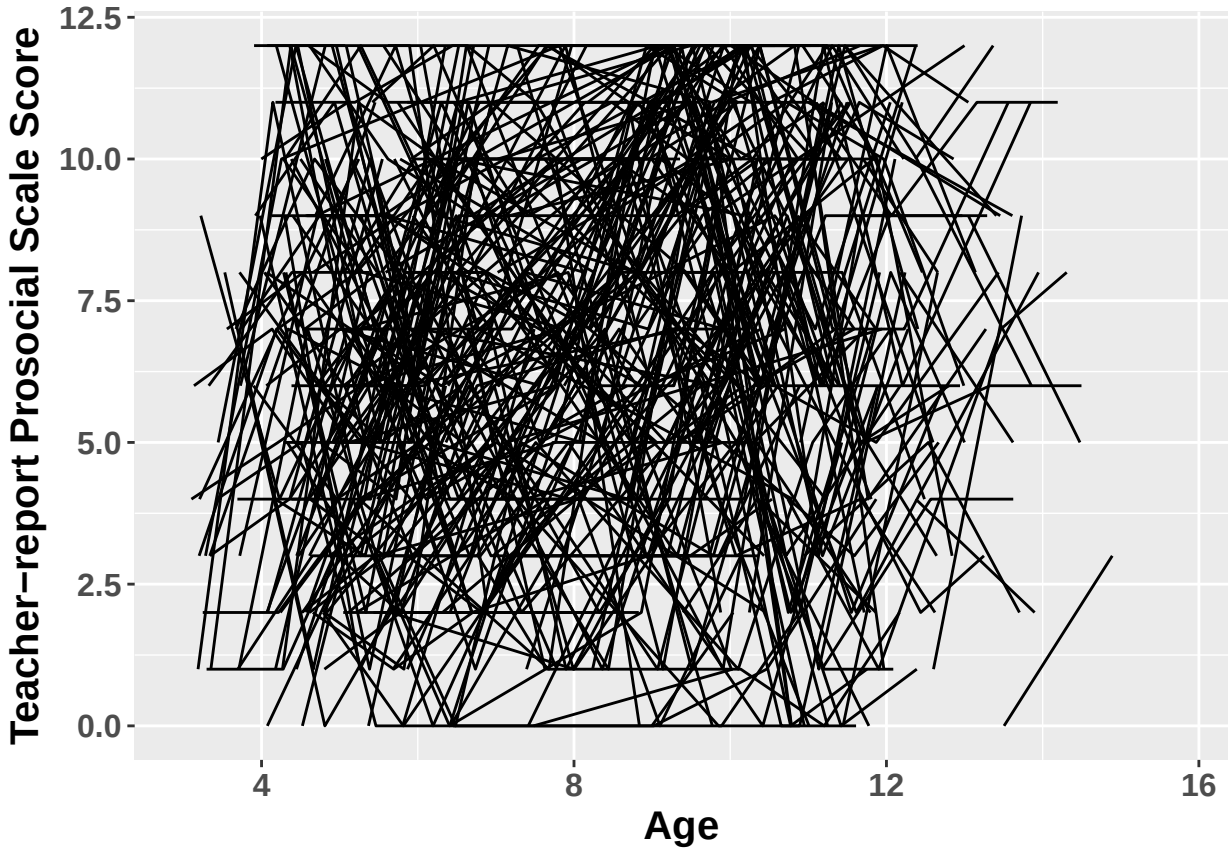

```
ggplot(data_long,aes(age,PProScale,group=ID)) +
  geom_line(alpha=1) +
  labs(x="Age",y="Parent-report Prosocial Scale Score") +
  theme(text=element_text(lineheight=1, face="bold", size=15),
        legend.position="none")
```

```
## 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).
```

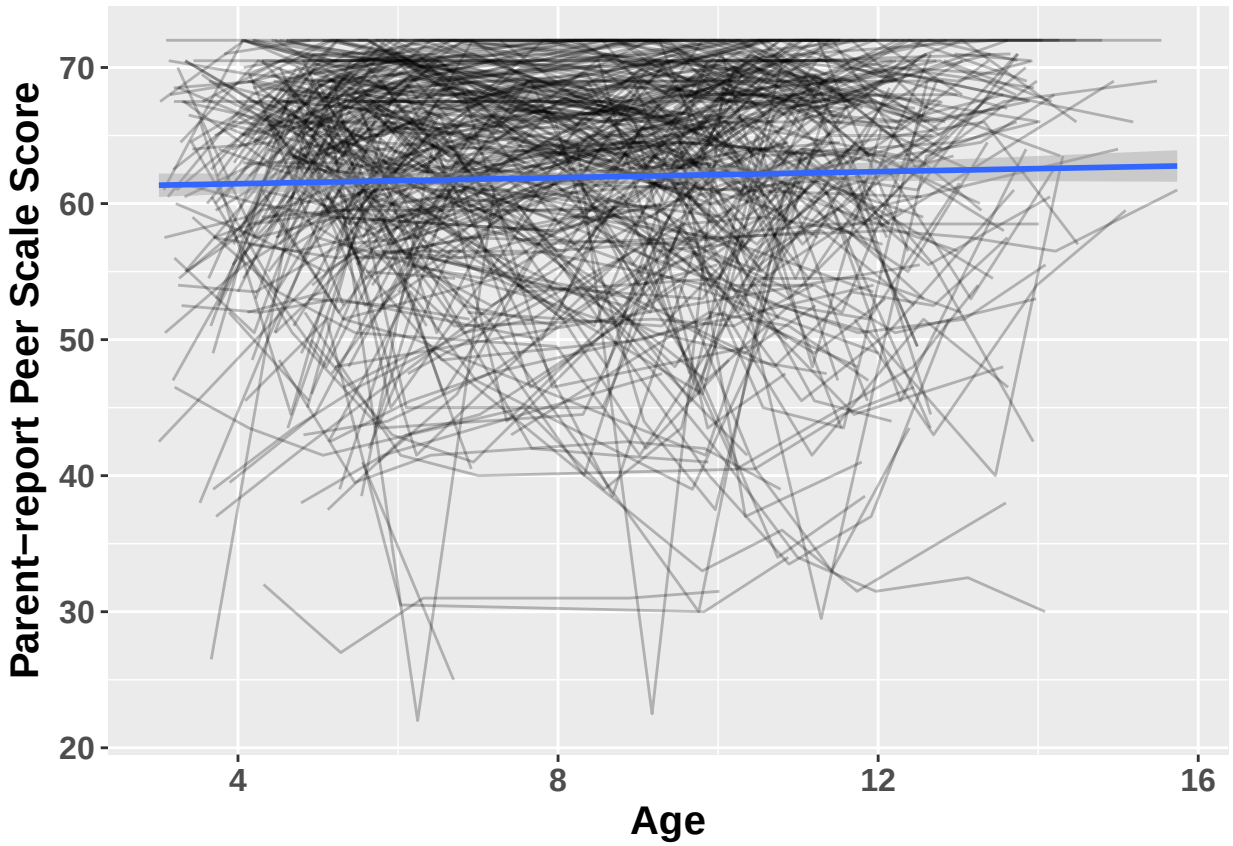


Question 6

```
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).
```



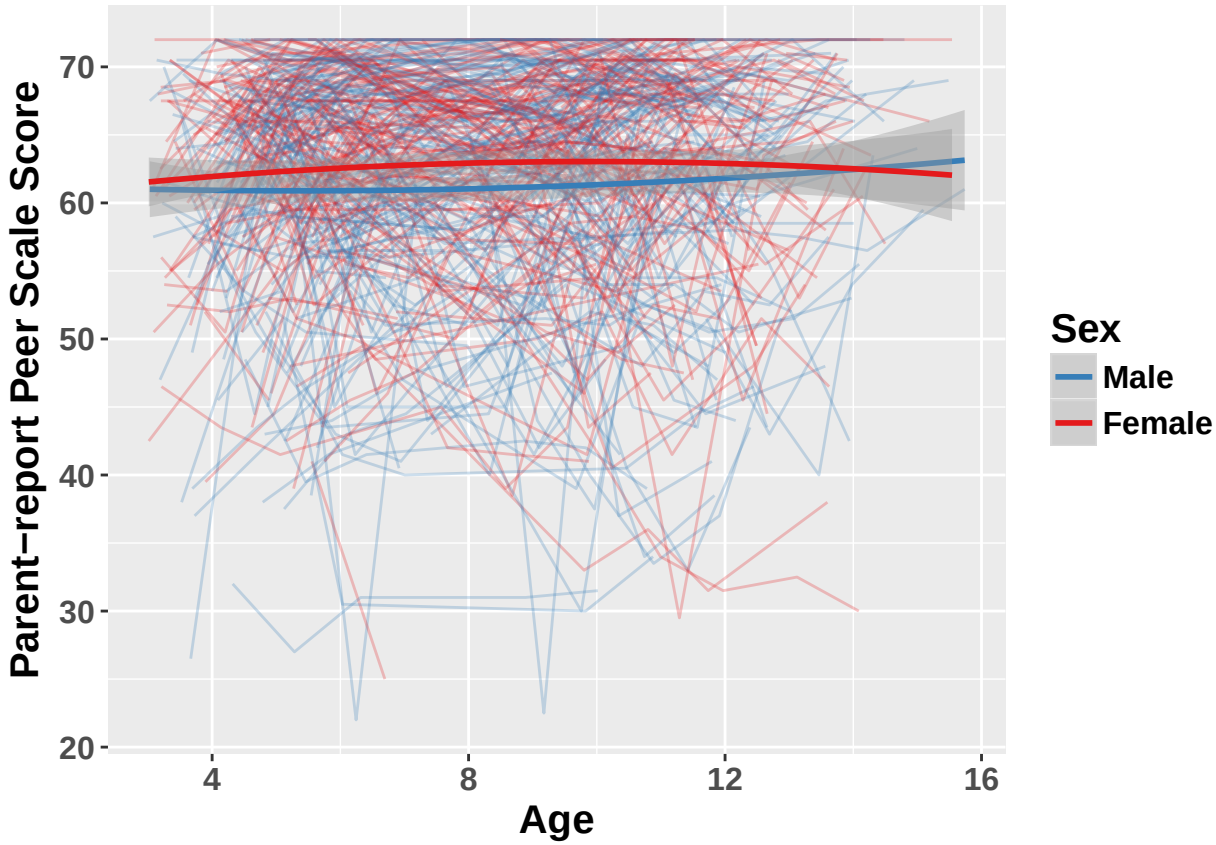

```
ggplot(data_long,aes(age,PPeerScale,group=ID,color=factor(sex))) +
  geom_line(alpha=.25) +
  scale_color_manual(values=c("#377EB8","#E41A1C"),
                     name ="Sex", breaks=c(1,2),
                         labels=c("Male","Female")) +
  stat_smooth(aes(group=factor(sex)),method="lm",
              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