

Parental HIV

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2024-02-29

```
parHIV <- read.delim("/Users/thuthitsarthaunghtay/Desktop/math130/data/Parhiv.txt", header=TRUE, sep="\
```

In this project, the data set of Parental HIV will be used which contains information of 252 adolescent children whose parents have HIV. The analyses that follow will determine how sociable those children can be or if they belong to a community outside their homes such as their relationship with friends (FRNDS), if they attend school (SCHOOL) or if they attend religious services in the past three months (ATTSERV). My hypothesis that they attend school regularly and have lots of friends while attending religious services.

School Attendance

First, a table of the data of children attending or not attending school is obtained.

1=NO SCHOOL

2=ATTEND SCHOOL

```
parHIV$SCHOOL <- factor(parHIV$SCHOOL, labels=c("Not Attend", "Attend"))  
table(parHIV$SCHOOL, useNA="always")
```

```
##  
## Not Attend      Attend      <NA>  
##           33          218          0
```

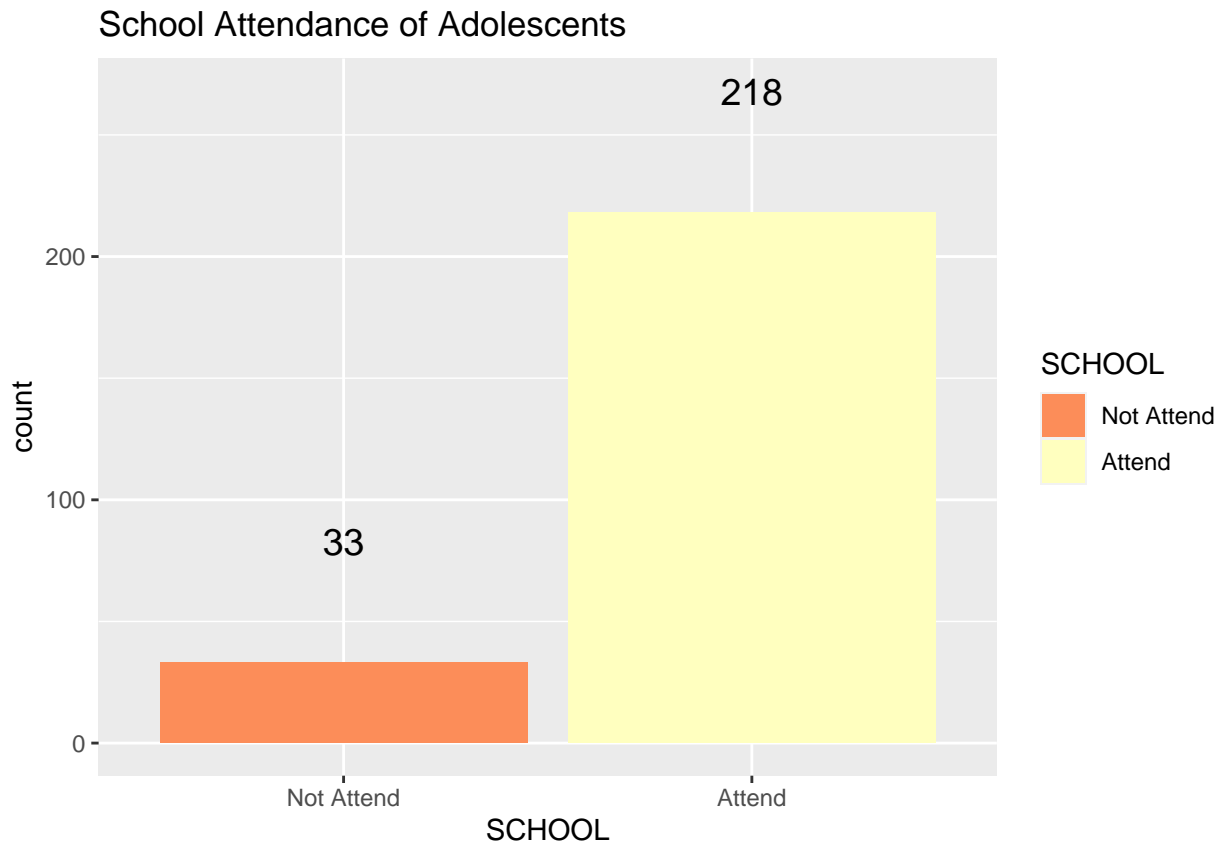
From this table, we can see that 218 adolescents attend school whereas 33 adolescents do not attend school. This suggests that the adolescents prioritize school and form a community with their peers.

```
library(ggplot2)  
library(dplyr)
```

```
##  
## Attaching package: 'dplyr'  
  
## The following objects are masked from 'package:stats':  
##  
##   filter, lag  
  
## The following objects are masked from 'package:base':  
##  
##   intersect, setdiff, setequal, union
```

```
library(RColorBrewer)
ggplot(parHIV, aes(x=SCHOOL, fill=SCHOOL)) + geom_bar() +
  scale_fill_brewer(palette="Spectral") + geom_bar(aes(y = ..count..)) + ggtitle("School Attendance of Adolescents")
```

```
## Warning: The dot-dot notation ('..count..') was deprecated in ggplot2 3.4.0.
## i Please use 'after_stat(count)' instead.
## This warning is displayed once every 8 hours.
## Call 'lifecycle::last_lifecycle_warnings()' to see where this warning was
## generated.
```



From this bar chart, we can see that my hypothesis was accepted. There is a comparable high number of children who attend school compared to those who do not. Therefore, this suggests that living with HIV positive parents do not affect their education and belong to a community in school.

Overall Friendships

Second, a table for data of describing overall friendships is obtained.

For the FRNDS portion,

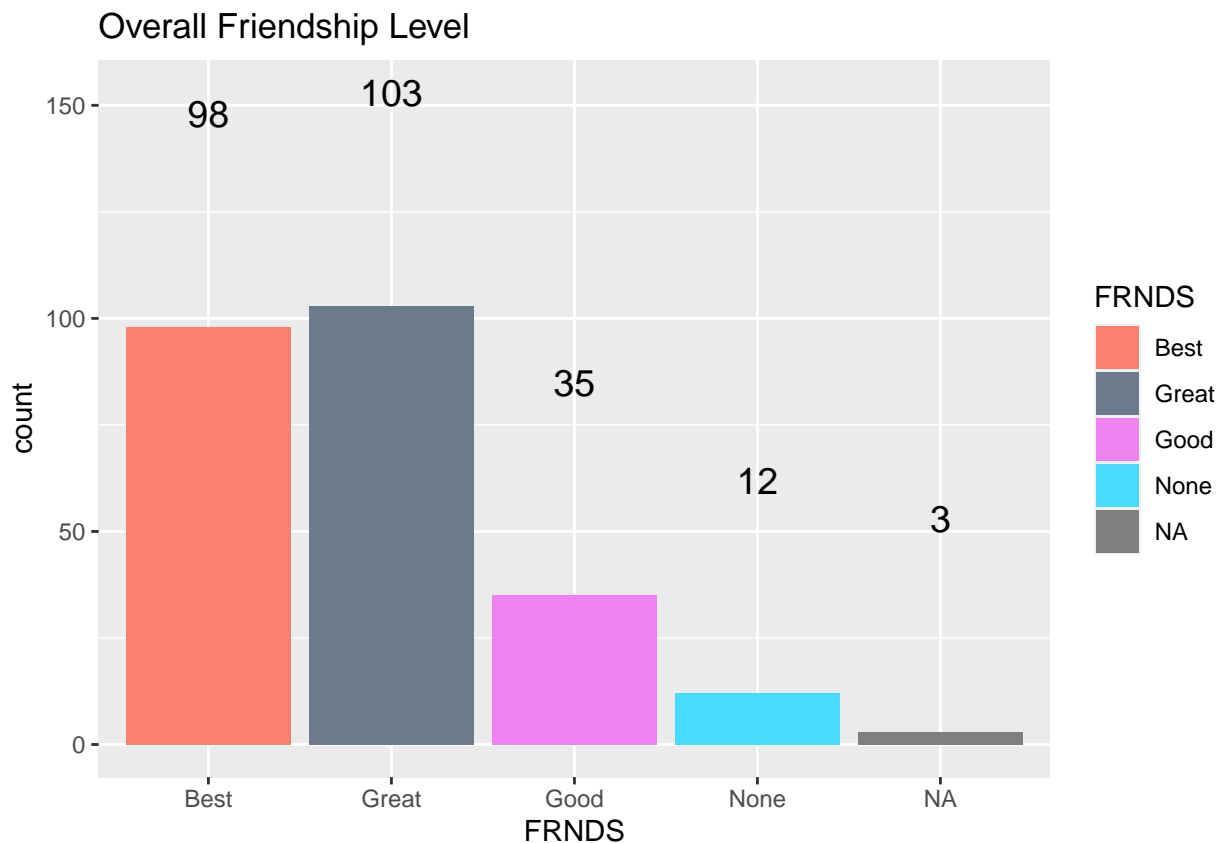
- 1 = A group of good friends “Best”
- 2 = 1 or 2 good friends, lots acquaintances “Great”
- 3 = 1 or 2 good friends, less acquaintances “Good”
- 4 = Not close to anyone “None”

```
parHIV$FRNDS <- factor(parHIV$FRNDS, labels=c("Best", "Great", "Good", "None"))
table(parHIV$FRNDS, useNA="always")
```

```
##
## Best Great Good None <NA>
## 98 103 35 12 3
```

From this data, we can observe that the majority of adolescents had 1 or 2 good friends and lots of acquaintances. The fewest number of adolescents fall into the category where they are not close to anyone. This suggests that adolescents living with HIV positive parent(s) do not have difficulty in being sociable and are able to form relationship with others.

```
ggplot(parHIV, aes(x=FRNDS, fill=FRNDS)) + geom_bar() +
  scale_fill_manual(values=c("salmon", "slategray4", "violet", "#47dbff", "#b3b3cc" )) + geom_bar(a
```



From this bar chart, we can visually compare the different levels of friendship obtained by those adolescents. The majority of them have a group of good friends and lots of acquaintances.

Attending Religious Events

Third, a table of the data of children attending or not attending religious services in the past three months is recorded.

1=NEVER ATEND

2=SOMETIMES ATTEND

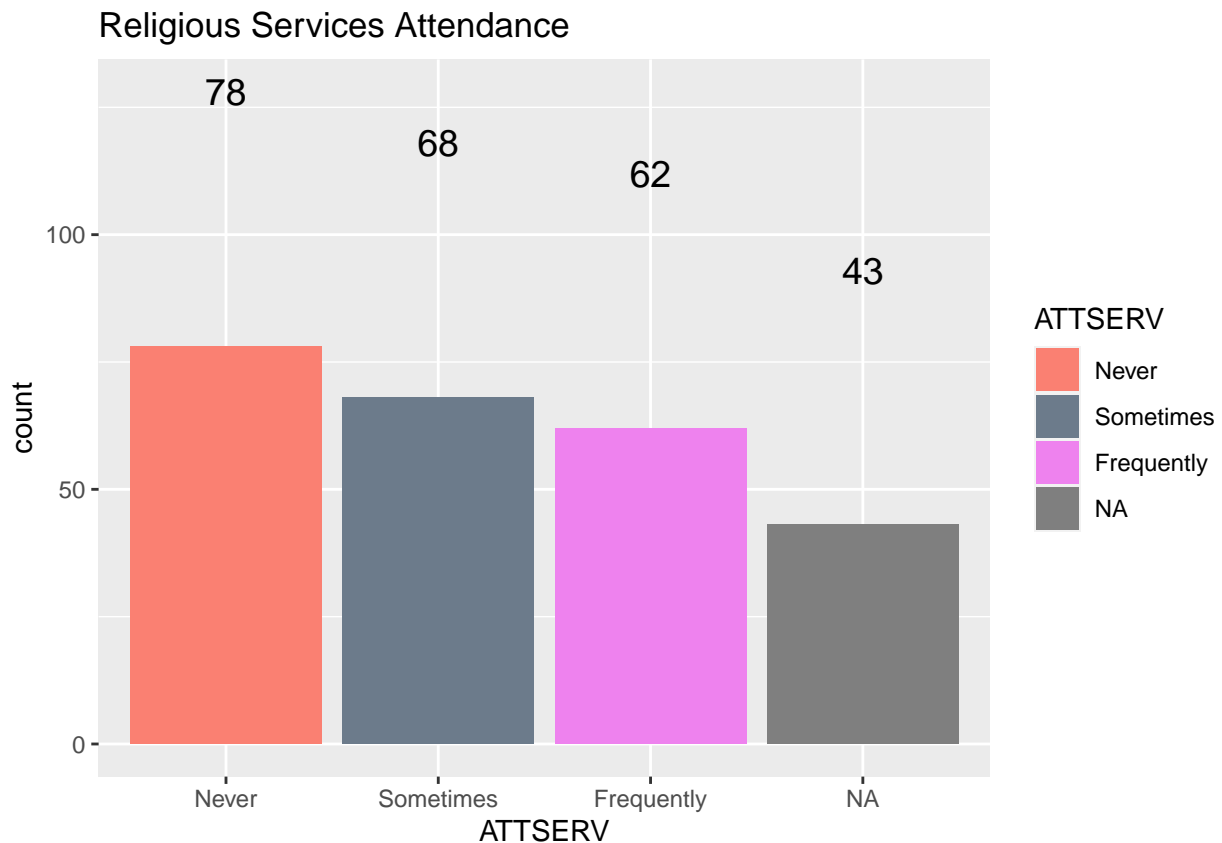
3=FREQUENTLY ATTEND

```
parHIV$ATTSERV <- factor(parHIV$ATTSERV, labels=c("Never", "Sometimes", "Frequently"))  
table(parHIV$ATTSERV, useNA="always")
```

```
##  
##      Never  Sometimes  Frequently    <NA>  
##       78      68         62        43
```

From this data, we can see that the majority of adolescents do not attend religious services. This suggests that the adolescents do not form a community in the aspect of religion.

```
ggplot(parHIV, aes(x=ATTSERV, fill=ATTSERV)) + geom_bar() +  
  scale_fill_manual(values=c("salmon", "slategray4", "violet", "#b3b3cc" )) + geom_bar(aes(y = ..count))
```



This bar chart gives us a visual representation of the adolescents attending religious services or not. We can observe that the majority of adolescents have never attended religious services. This suggests that they do not form a community in the religious aspect.

Comparing School Attendance and Having Good Friendships

In this section, I will be exploring if attending school and having good friendships are interrelated. Although this does not mean that attending school helps them make friends, we will be able to see a dependence or relationship between the two variables.

For the FRNDS portion,

1 = A group of good friends “Best”

2 = 1 or 2 good friends,lots acquaintances “Great”

3 = 1 or 2 good friends,less acquaintances “Good”

4 = Not close to anyone “None”

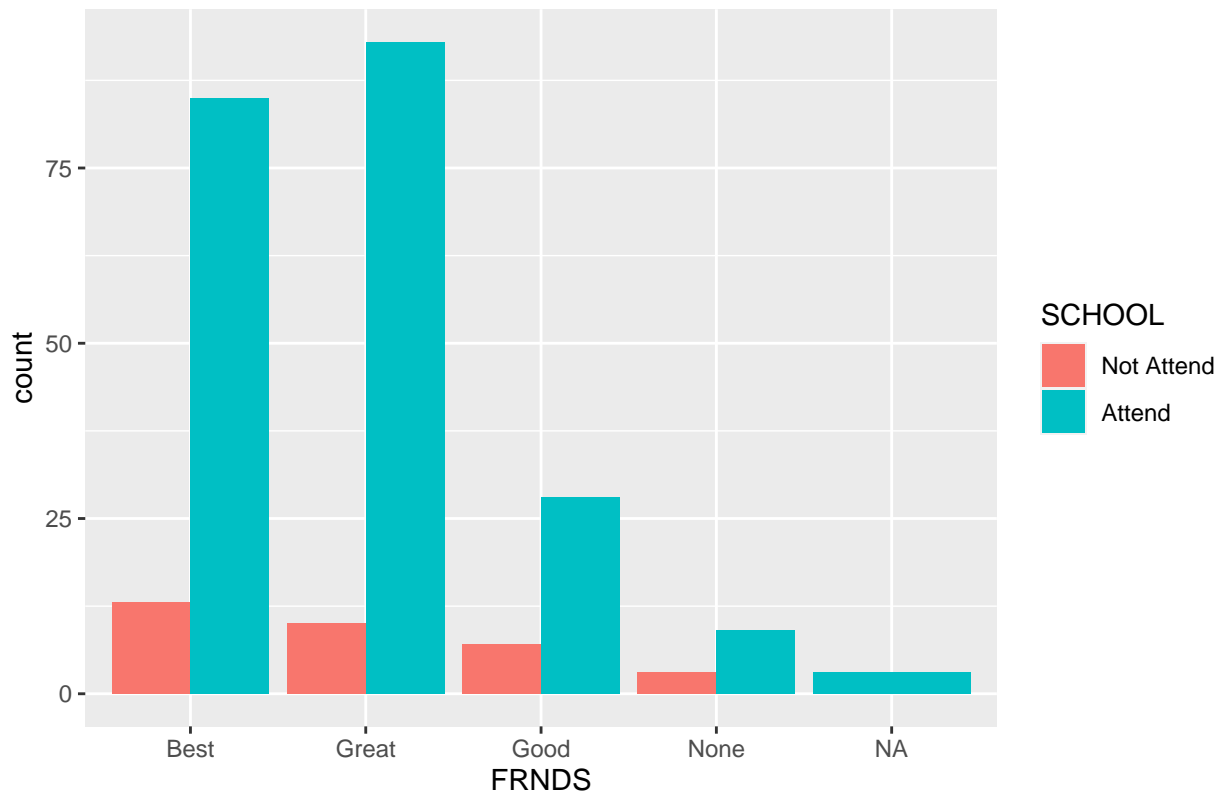
```
parHIV$FRNDS <- factor(parHIV$FRNDS, labels=c("Best", "Great", "Good", "None"))  
table(parHIV$SCHOOL, parHIV$FRNDS, useNA="always")
```

```
##  
##           Best Great Good None <NA>  
## Not Attend  13   10   7   3   0  
## Attend     85   93  28   9   3  
## <NA>        0    0   0   0   0
```

From the table, we can observe that the highest proportional of adolescents attend school and have a group of food friends. This suggests that there is a relationship between going to school and having friends.

```
ggplot(parHIV, aes(x=FRNDS, fill=SCHOOL)) + geom_bar(position = "dodge") + ggtitle("Relationship between
```

Relationship between Friendship Level and School Attendance



As we can see above from the grouped bar chart and the table, adolescents who attend school have a greater number of friends where they have a group of good friends rather than acquaintances. However, there is also a greater proportion of those who is not close to anyone within those who attend school. Compared to the other numbers, this data is quite insignificant.

Conclusion: From these analyses, we can observe that adolescents whose parents have HIV do not experience fallbacks in the aspect of forming relationships. A comparably higher number of children go to school and make good friends rather than acquaintances. However, looking at their attendance for religious services, we can observe that the majority does not attend those services. Although this can affect their involvement in community outside of home, we can visualize the strong relationship between attending school and making friends. Since statistical analyses are not carried out, we can still say that going to school brings a sense of community for them and help them make good friends and thus, their social skills are not affected by living with HIV positive patients.