

Children Living with HIV Positive Parents

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```
HIV <- read.table("C:/Users/tarah/OneDrive/Documents/MATH130/data/PARHIV_081217.txt", header=TRUE, sep=
```

```
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(knitr)  
library(ggplot2)  
library(forcats)
```

The Variables that I will be looking into from this data are:

Mother's Job status- People with chronic health conditions often have a harder time finding work, and if they do find work, sometimes their ability to maintain that job is hard. Household responsibilities often fall on the mother, and if that mother is dealing with chronic health issues, it can be difficult to find employment that is accommodating.

Money for food- Food insecurity affects many households across the globe. But it can be especially difficult in a home that has a chronically ill parent. I would also like to see if there is a connection between job status and if the household struggles with food insecurities.

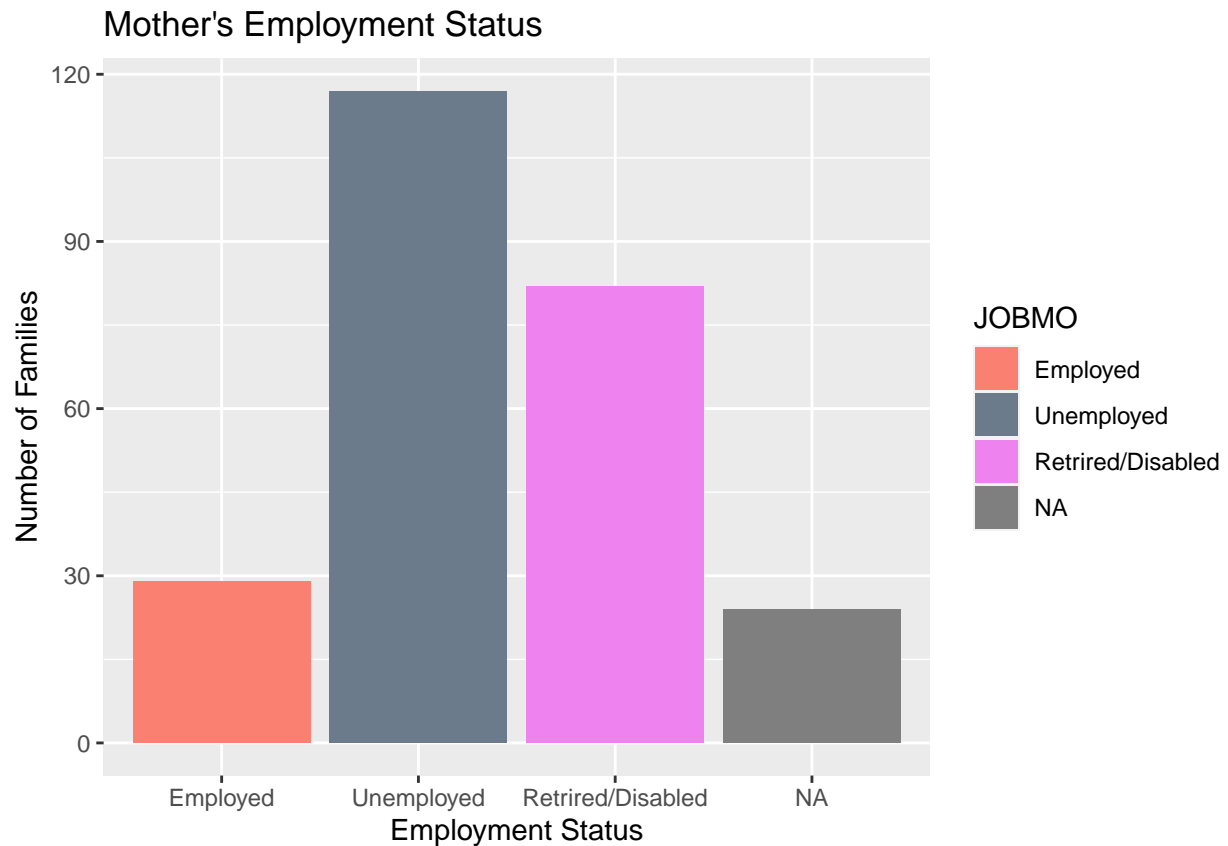
Living Situation- After looking at the first two variables, I would like to examine if these children are living in single parent homes, or do they live with two parents. This will allow us to see if head of household size has an correlation with the other two variables.

```
HIV$JOBMO<- factor(HIV$JOBMO, labels = c("Employed", "Unemployed", "Retired/Disabled"))
```

```
summary(HIV$JOBMO)
```

```
##           Employed           Unemployed Retired/Disabled           NA's  
##           29             117             82             24
```

```
ggplot(HIV, aes(x=JOBMO, fill=JOBMO)) + geom_bar() +
  scale_fill_manual(values=c("salmon", "slategray4", "violet")) + ggtitle("Mother's Employment Status")
```



From this graph we can see that the majority of mother's are either unemployed or retired/disabled. Out of the 252 families that were studied, 117 stated that they were unemployed, and 82 said to be retired or disabled. That means that 79% of these families have at the most, a fixed income.

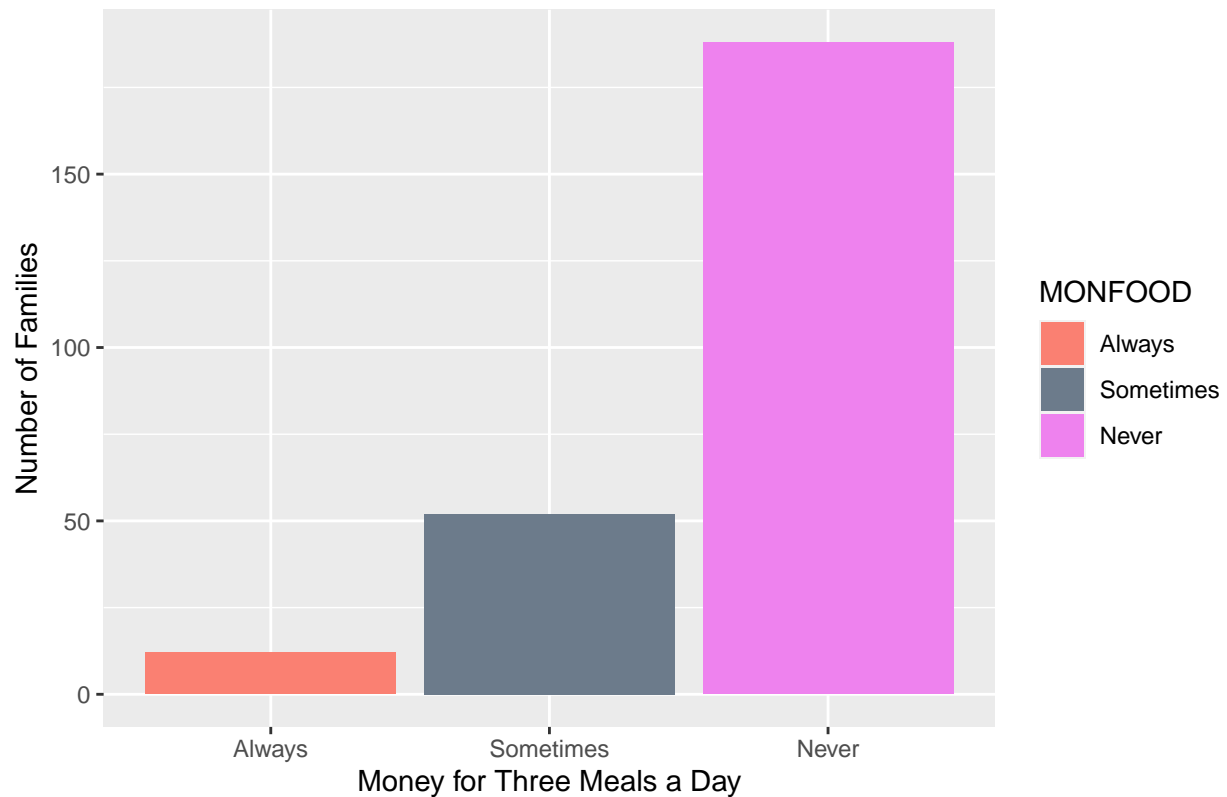
```
HIV$MONFOOD <- factor(HIV$MONFOOD, labels = c("Always", "Sometimes", "Never"))
```

```
summary(HIV$MONFOOD)
```

```
##    Always Sometimes    Never
##      12         52     188
```

```
ggplot(HIV, aes(x=MONFOOD, fill=MONFOOD)) + geom_bar() +
  scale_fill_manual(values=c("salmon", "slategray4", "violet")) + ggtitle("Level Of Food Security (Mo")
```

Level Of Food Security (Money for 3 Meals a Day)



This graph shows us that the majority of these families are facing food insecurity. Less than 5% of families have money for 3 meals a day at all times. When a member of your household has a compromised immune system due to a virus like HIV, it is imperative to have adequate nutrition. Now let's see if there is any overlap between the households with food insecurities and those which are not currently working.

```
library(gridExtra)
```

```
##
```

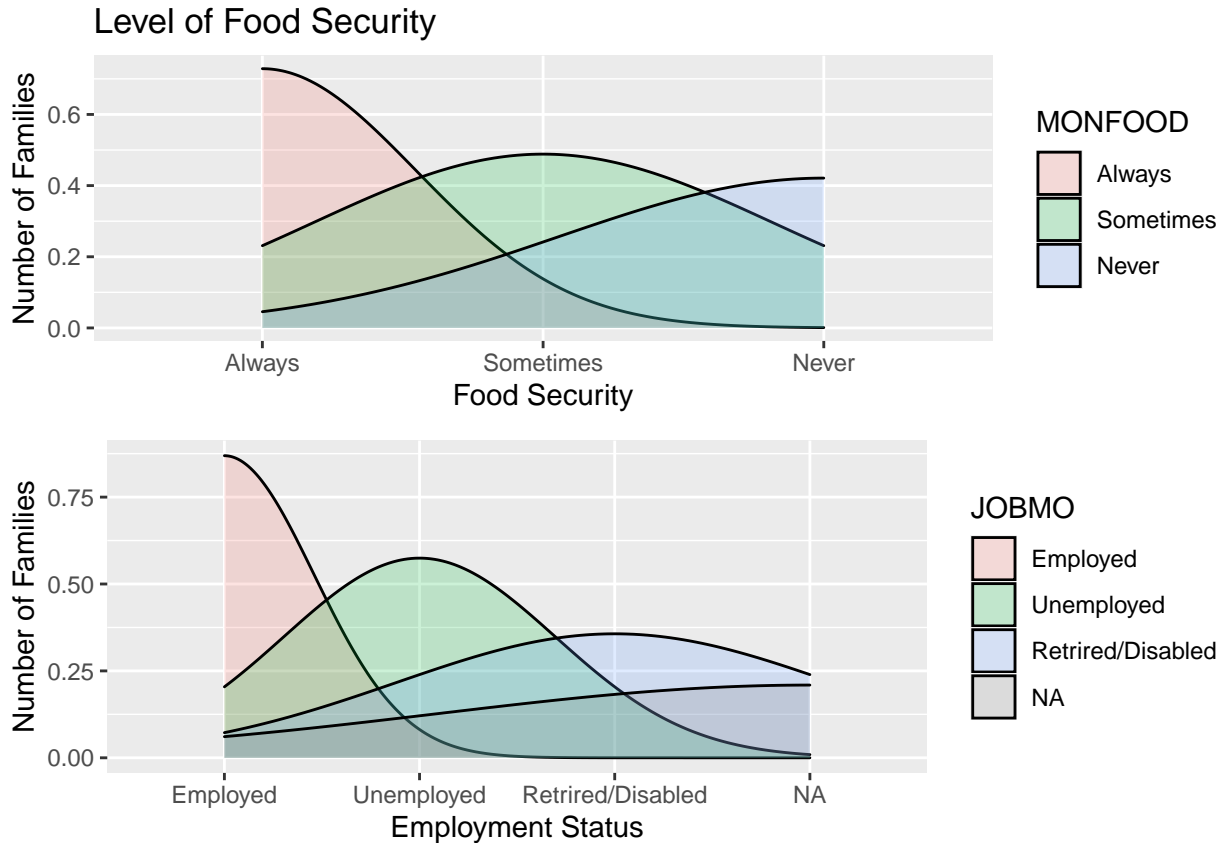
```
## Attaching package: 'gridExtra'
```

```
## The following object is masked from 'package:dplyr':
```

```
##
```

```
## combine
```

```
plot1 <- ggplot(HIV, aes(x=MONFOOD, fill=MONFOOD)) + geom_density(alpha=.2) + xlab("Food Security") + ylab("Density")
plot2 <- ggplot(HIV, aes(x=JOBMO, fill=JOBMO)) + geom_density(alpha=.2) + xlab("Employment Status") + ylab("Density")
grid.arrange(plot1,plot2, ncol=1)
```



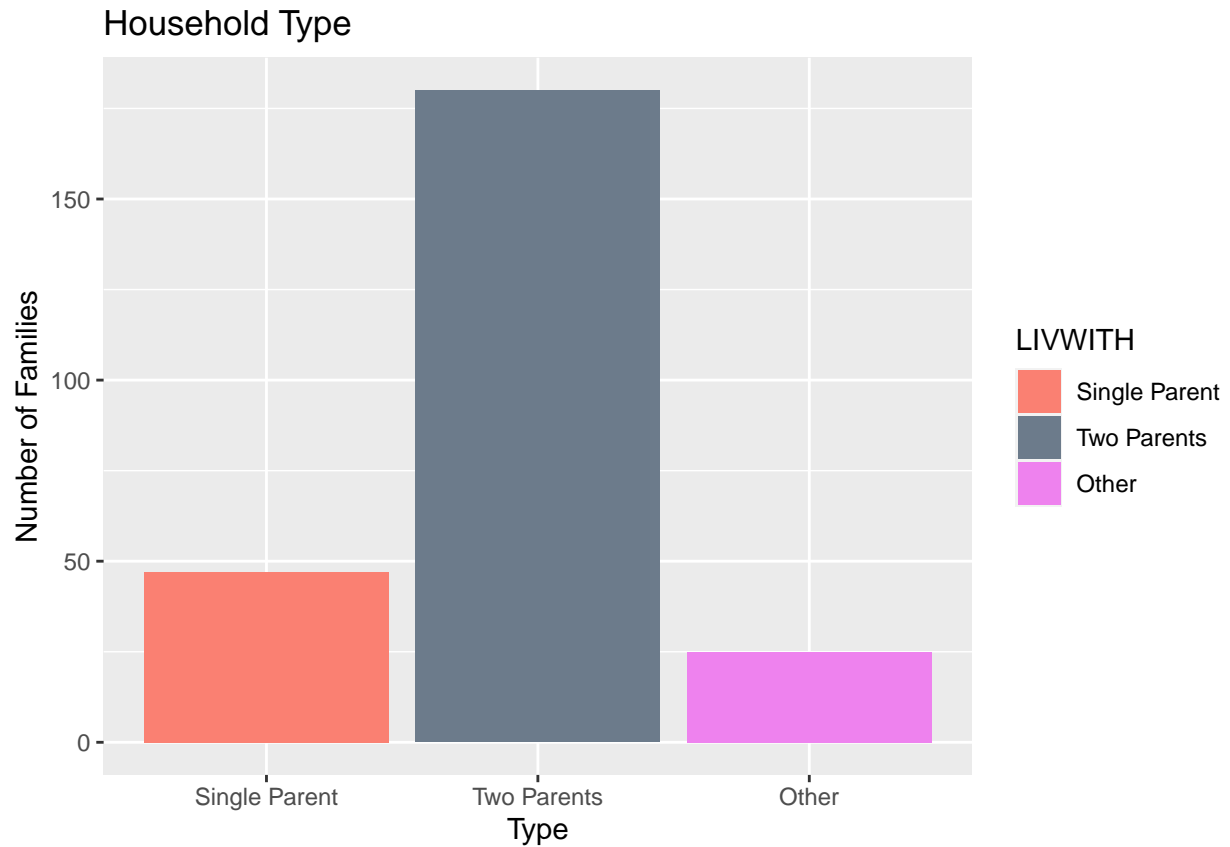
As we can see in the above graphs, there are very similar trends. The families who stated to always have money for 3 meals a day has a similar peak as those who are employed. Likewise, the families who did not have working mother's, also exhibited a similar curve with those who only sometimes had money for 3 meals a day.

```
HIV$LIVWITH <- factor(HIV$LIVWITH, labels = c("Single Parent", "Two Parents", "Other"))
```

```
summary(HIV$LIVWITH)
```

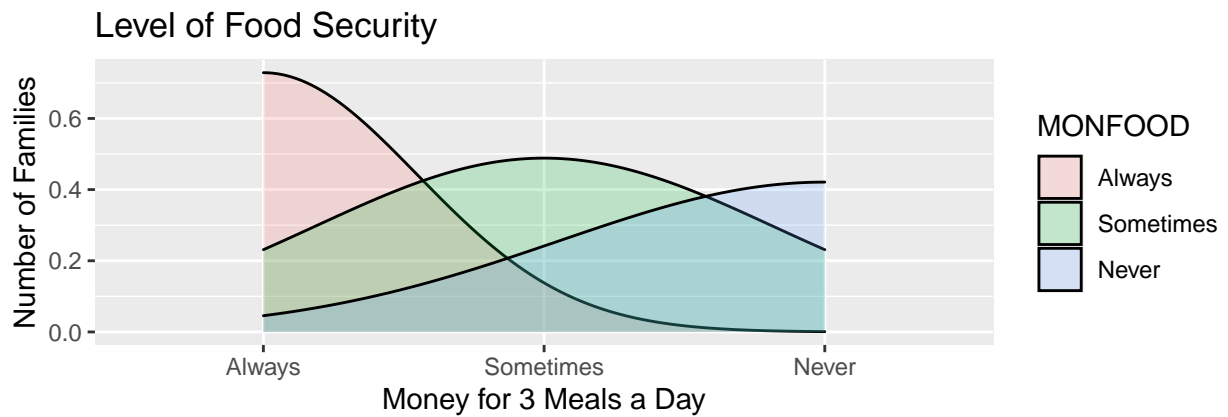
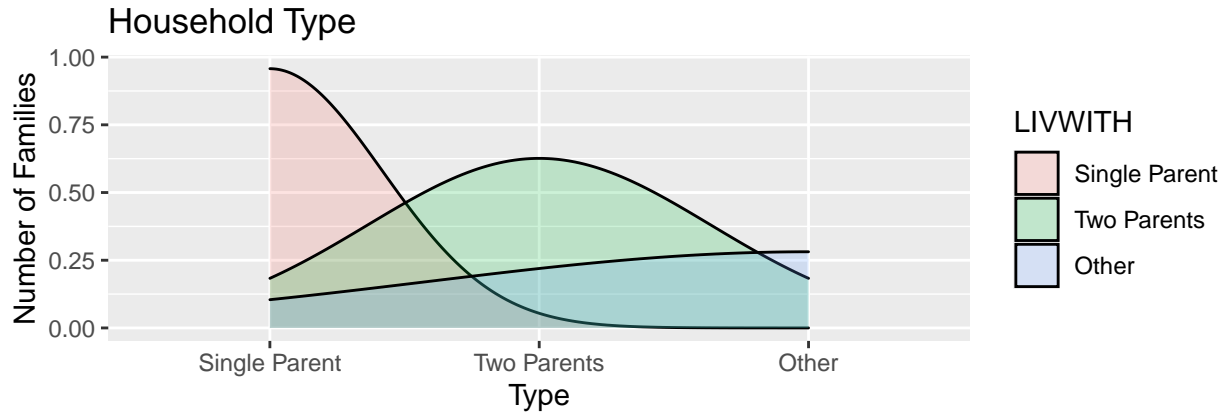
```
## Single Parent  Two Parents  Other
##           47           180           25
```

```
ggplot(HIV, aes(x=LIVWITH, fill=LIVWITH)) +geom_bar()+ scale_fill_manual(values=c("salmon", "slategray", "slategray", "slategray"))
```



This graph shows us that the majority of the families in this study are two parent households. Let's examine this data with the data involving food insecurity and see if there are any similar trends.

```
library(gridExtra)
plot1 <- ggplot(HIV, aes(x=LIVWITH, fill=LIVWITH)) + geom_density(alpha=.2) + ggtitle("Household Type")
plot2 <- ggplot(HIV, aes(x=MONFOOD, fill=MONFOOD)) + geom_density(alpha=.2) + ggtitle("Level of Food Se")
grid.arrange(plot1,plot2, ncol=1)
```



What is interesting about these graphs is that one might hypothesize that homes with two parents would have higher levels of food security than those of single parent households. What this also tells us, is that more needs to be done for these families. If this data was given to those in charge of social programs targeted at helping these families, it would tell them what homes need help the most, and what type of help they need.