BST 222 : Analysis of Factors Affecting Observed Breastfeeding Durations

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1 Introduction

1.1 Background

For newborns, current recommendations by the CDC are to primarily breastfeed a child for the first 6 months of their life and then move to gradually introduce solid foods into their diet. Previous studies have reported the mean and median breastfeeding times to be about 5.7 and 6 months respectively (Wasie Kasahun et al.). However, breastfeeding can continue for as long as the mother and child feel like they can continue for. In general, there are few drawbacks to breastfeeding for longer times, with some recommendations suggesting continuing breastfeeding for as long as 2 years ("Breastfeeding FAQs: How Much and How Often (for Parents) - Nemours KidsHealth"). Breastfeeding is considered beneficial for children, protecting them from certain diseases and past studies have shown that breastfed babies have lower risks of asthma, obesity, and sudden infant death syndrome (SIDS) ("Breastfeeding Benefits Both Baby and Mom | DNPAO | CDC"). While there are certainly multiple benefits to breastfeeding newborns, there's a lot of variability in the time until a mother chooses to wean her child. In some cases, mothers will only breastfeed their children for approximately a week before weaning them. The primary purpose of this analysis is to identify trends in the duration of the breastfeeding period as well as identify variables that appear to be associated with these trends.

1.2 Data Description

The data was sourced from the `KMsurv` package in R. The original data is from the National Longitudinal Survey of Youth (a survey which began in 1979 and ended in 1988). The package data is a cleaned and subsetted version of the original data.

Beginning in 1983, the women in the study population were asked about any pregnancies they had and various data about them were collected. For this dataset, only first-born children born after 1978 at a gestational age of 20 to 45 weeks were included. Then, the data was further narrowed down to only include responses from mothers who chose to breastfeed their children. After taking all of these factors into account, we end up with 927 total observations. For this analysis, the response (survival) is generated using the breastfeeding duration (weeks) and an indicator for whether or not the child was weaned.

The variables included in this dataset are:

2 Exploratory Data Analysis

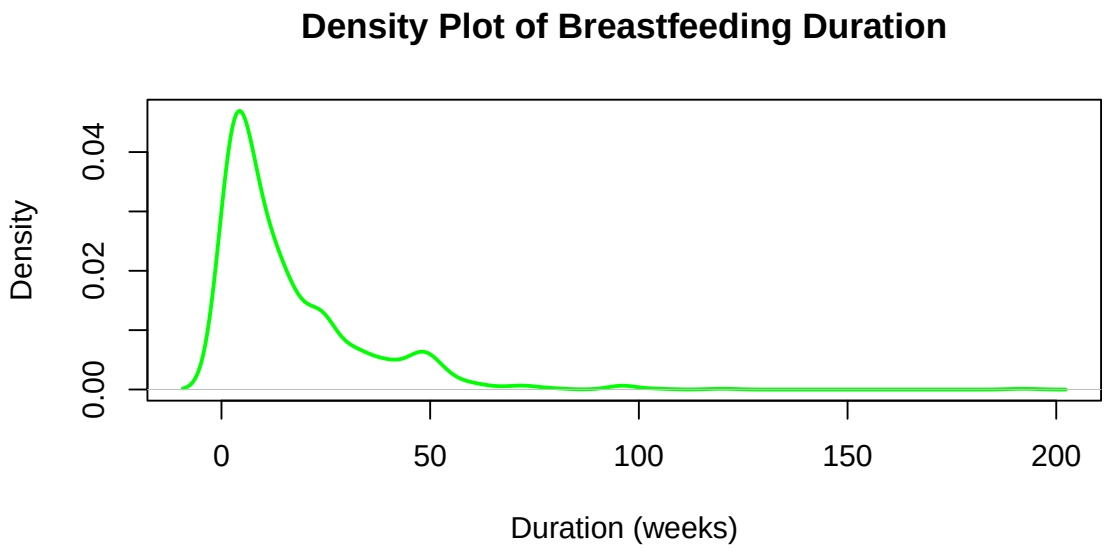

Figure 1: Density Plot of Breastfeeding Duration

Figure 1 is a density plot shows that almost all of the mothers in the study only breastfeed for no more than about 50 weeks, which is about a year. On the graph there is a spike at around 10-12 weeks indicating that the majority of mothers only breastfeed for about a few months.

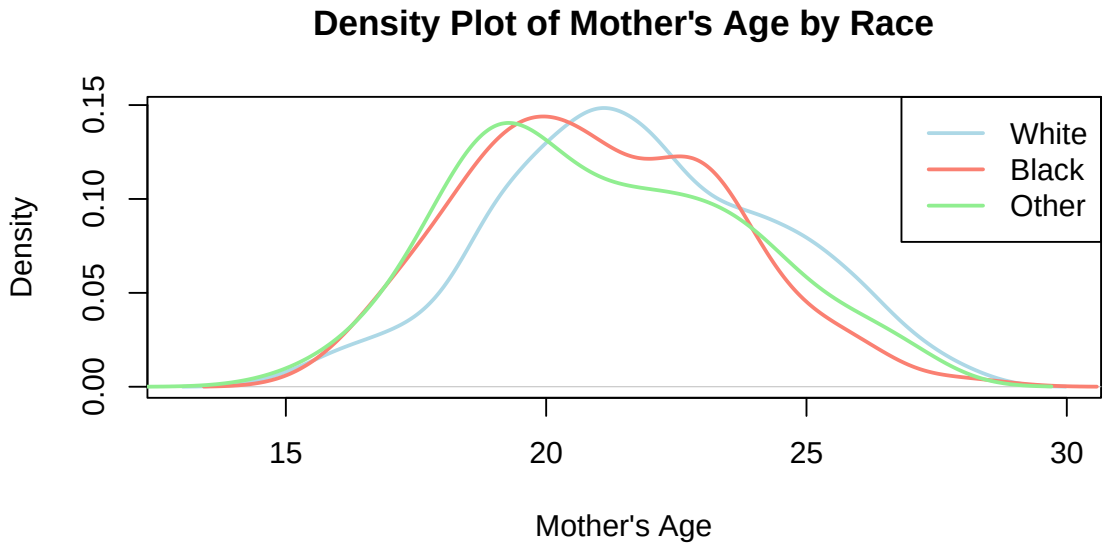

Figure 2: Density Plots Mother's Age by Race

Figure 2 shows the density of the mothers' age by race demonstrates that black mothers and mothers of other races tend to have their first kids younger than white mothers.

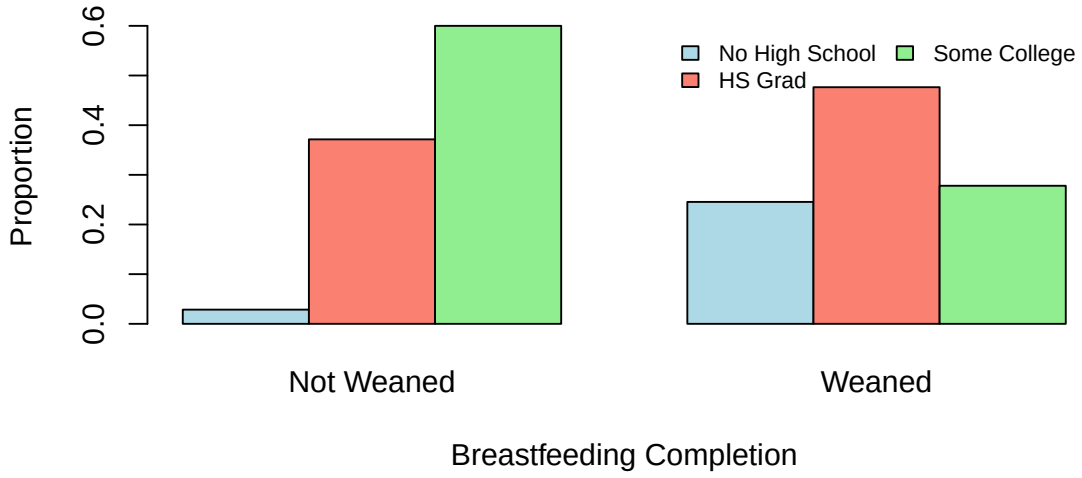

Figure 3: Bar Plot on Education proportion By Breastfeeding Status

Figure 3 compares the group of mothers who weaned their babies versus those who did not wean their babies. Those who didnn't wean their children had higher propportion of mothers who went some college in their education background. Mothers who weaned their babies had a higher proportion of those who did not finish high school.

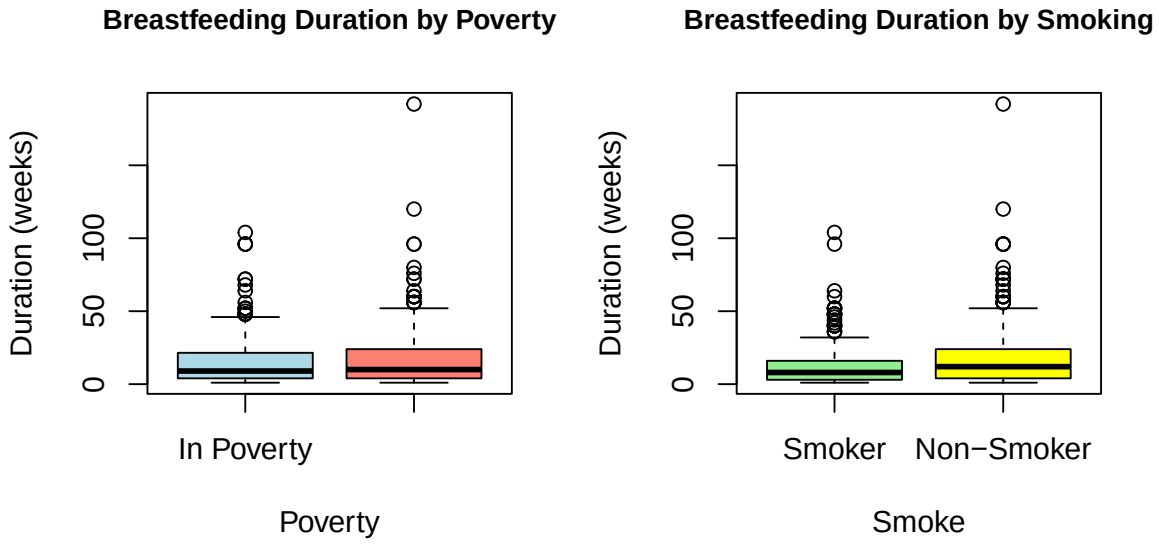

Figure 4: Box Plot for Categorical Variables

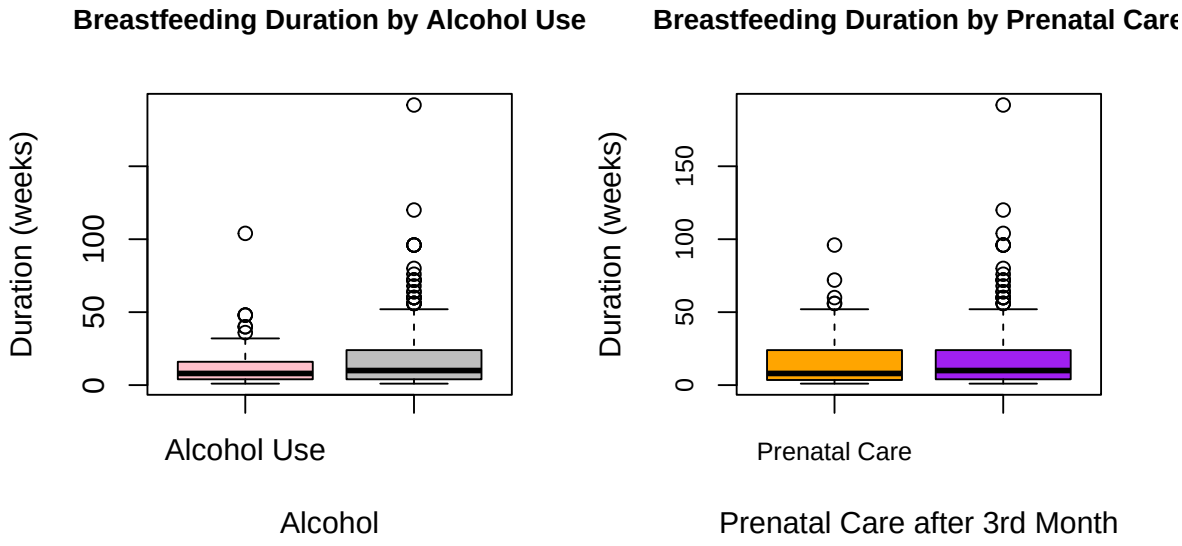

Figure 5: Box Plot for Categorical Variables

The first box plot shows that the breastfeeding duration for those in poverty compared to those who are not in poverty are similar but those in poverty have a slightly lower and narrower breastfeeding duration range. The second box plot shows that mothers who smoked had a sligtly shorter breastfeeding duration and that the range for breastfeeding duration is also narrower compared to mothers who did not smoke.

The third box plot, demonstrates that mothers who use alcohol have a narrower breastfeeding distribution with most mothers breastfeeding betwween 0 and under 50 weeks. Mothers who did not consume alcohol tend to breastfeed between 0 and 52 weeks. Those mothers who consumed alcohol tend breastfeed for a shorter amount of time compared to those who did not. The fourth box plot showed that the breastfeeding duration distribution of mothers who had prenatal care compared to those are very similar, with majority of both groups mainly brestfeeding for 0 weeks to 50 weeks.

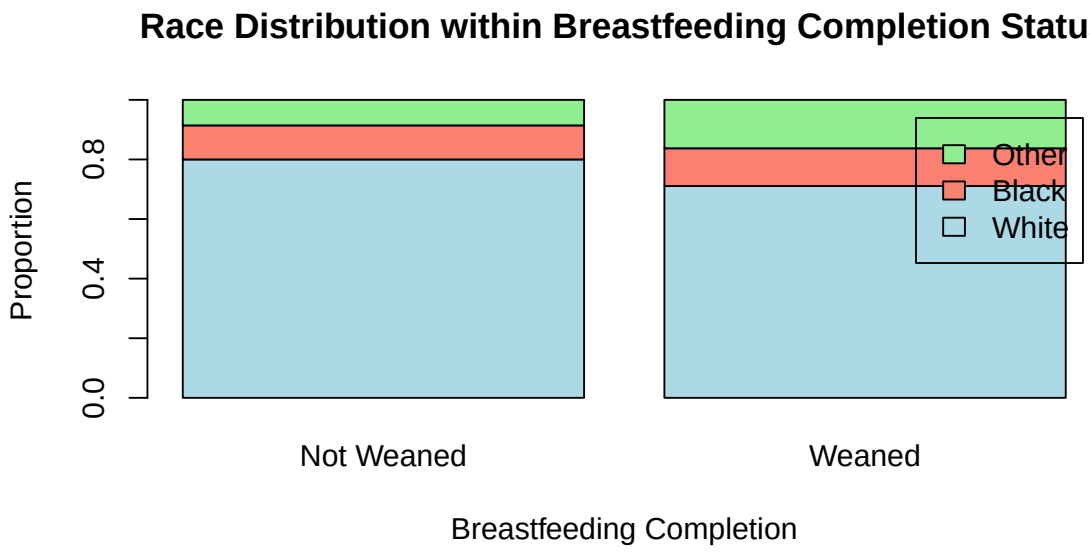

Figure 6: Box Plot of Race Distribution by Breastfeedin Status

Figure 6 compares the proportion of each race by breastfeeding status. The group of mothers who were able to wean have a high proportion of mothers of other race and black mothers compared to the group that did not wean.

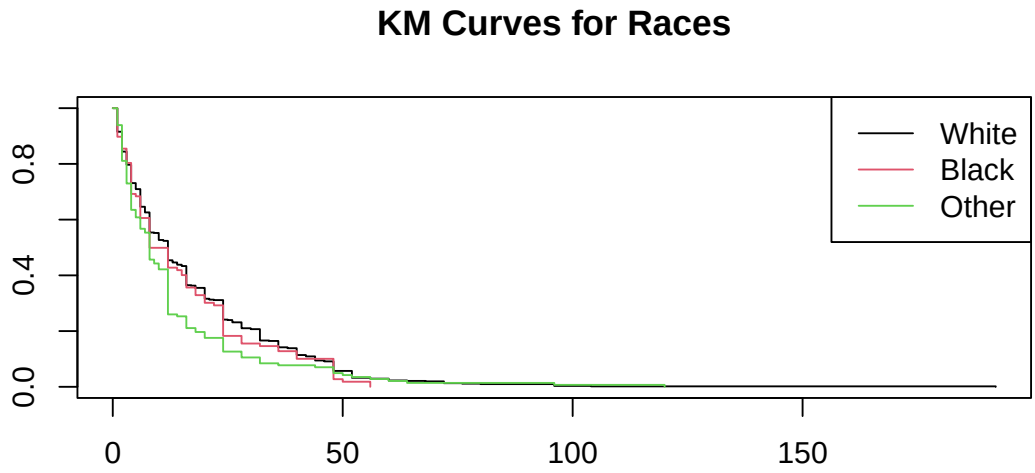

Figure 7: KM Curve - Race

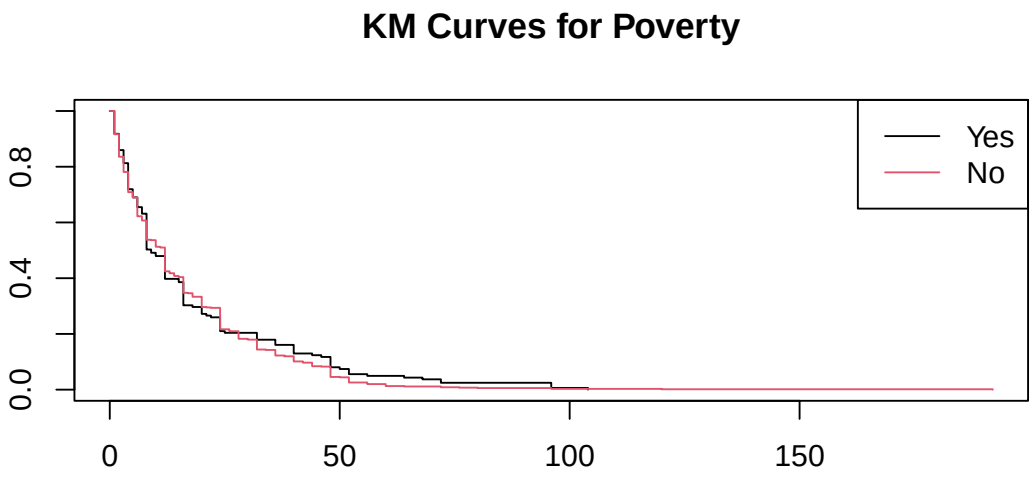

Figure 8: KM Curve - Poverty

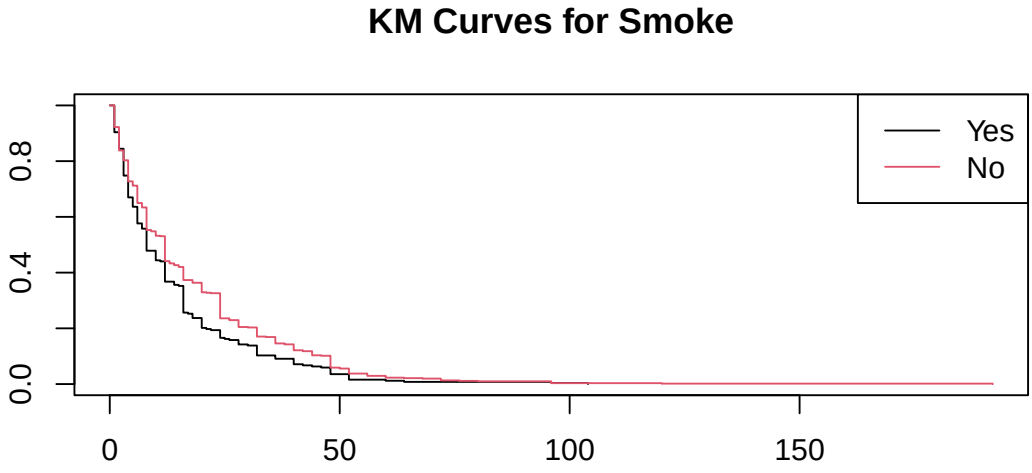

Figure 9: KM Curve - Smoke

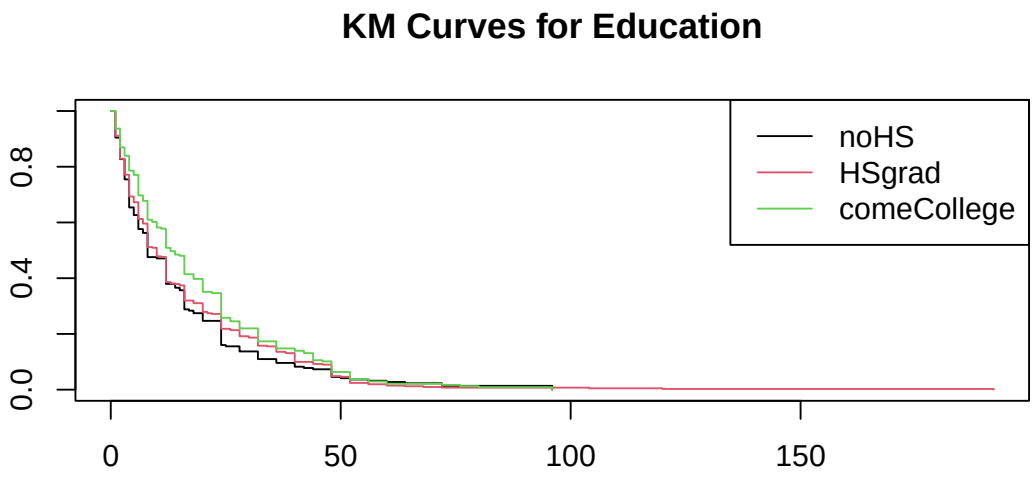

Figure 10: KM Curve - Education

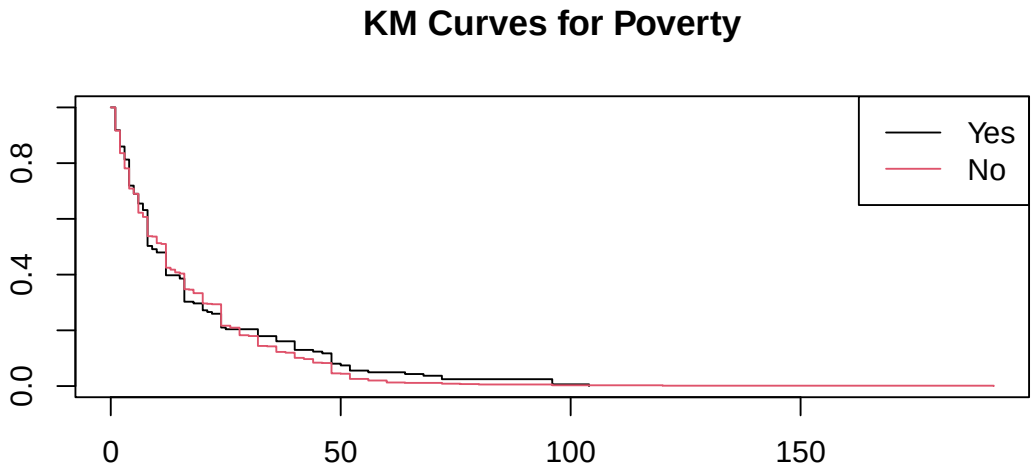

Figure 11: KM Curve - Poverty

3 Model Building

4 Conclusion

4.1 Discussion

5 Bibliography

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6 Appendix