ASSESSING THE RELATIONSHIP OF MATERNAL AGE ON CHILD'S HEIGHT

Vaibhavi Gaekwad - Zechen Li
Northeastern University, IE 6200 - Engineering Probability and Statistics

1. INTRODUCTION

Many reports and studies are found around the relationship between the child-bearing age of the mother and its effect on the child's overall physical development. According to The National Institutes of Health , kids born to older mothers are taller than their mothers[1]. In real life a lot of factors can affect the child's height like the consumption of milk and whether or not the child exercised during puberty. We will also discuss if the other factors are correlated and what influence they have on a child's height.

Lot of research is being done in medical sciences to find out what excels a child's growth (height majorly) and what are the primary factors that affect the child's height. Getting an inference about the effect of a mother's child-bearing age on the height of her child is an exciting finding.

1.1. MAIN IDEA

Our primary assessment is the effect of maternal age on the height of a child. We want to find if there is a difference between the mean height of children born to mothers aged 20 to 25 and mean height of children born to mothers aged 26 to 30. Although, this can be biased as some mothers are taller or shorter compared to others. So we consider the height difference of the mother's height and the child's height to partly prevent mother's height from affecting the results. Our secondary assessment is to find the effect of milk consumption and exercise on the height difference.

1.2. SHORTCOMINGS OF PROJECT

The shortcomings we faced while collecting the data was to find varied people representing our population and getting the survey results, many people were not sure about their mother's height, and other explanatory variables. We don't have enough data to help us analyze whether drink milk and exercise will interfere with our results.

1.3. STUDY DESIGN AND SAMPLING STRATEGY

We created a survey form that would answer basic questions. We noted down the variables that could best give us an insight about our main idea. After collecting the data

and further research we could clearly differentiate what variables were confounding, explanatory, categorical and numerical. In order to avoid sampling bias we made sure that while collecting data we do not leave certain subgroups and tried to have a proportionate number in sub-groups like the number of chinese, indians, female, male. Made it a controlled situation; but did not strongly demarcate these with strict boundaries.

The objects or the cases that we are using in our dataset are Asians friends and colleagues aged between 20 to 30 from India, China and the USA. Our sample size is a set of 30 people approximately representing the two major groups each (having mothers with maternal age 20 to 25 and 25 to 30). We collected the data from people living in India, China and the US to form the two samples for an unbiased representation of Asians and to introduce randomization.

The mother's age is the primary categorical variable, which is divided into two groups 20-25 and 26-30, based on the distribution of ages we observed from the data collected. The height difference of mother's height and the child's height is our numerical, quantitative, continuous variable measured in 'feet'. We have other categorical explanatory variables like Milk, Exercise, and Gender. All other variables that we included in our initial survey are confounding to our idea.

2. EXPLANATORY ANALYSIS

The multiple graphs give a brief idea about the relationship between our main variables (height and maternal age) and other explanatory variables.

2.1. GRAPH 1

Figure 1 briefly describes the entire idea of our analysis. We collected a wide variety of data. The boxplot gives us a clear understanding of the significant groups so we chose not to include the groups >35 years and 31-35 years as there is less concentrated data for these groups. So, for the purposes of the statistical test we consider groups 20-25 and 26-30.

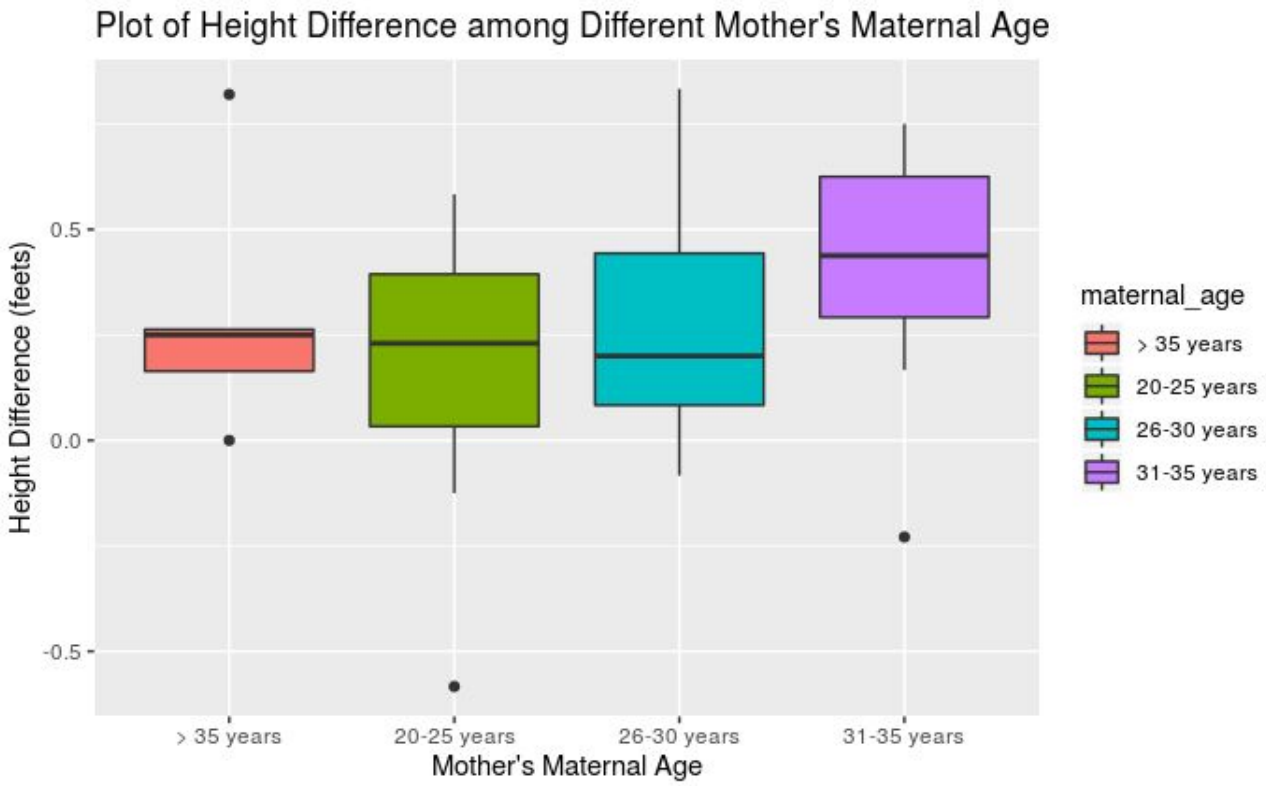


Figure 1: Box plot of maternal age vs. height difference

Descriptive Statistics of Height Difference

Group	Size	Min	1st Quartile	Median	Mean	3rd Quartile	Max
20 to 25	32	-0.58337	0.04223	0.24002	0.20710	0.39968	0.58334
25 to 30	33	-0.08334	0.08334	0.20000	0.29194	0.44070	0.83334

2.2. GRAPH 2

Figure 2 significantly depicts that male children have a greater height difference to their mothers as compared to the female children.

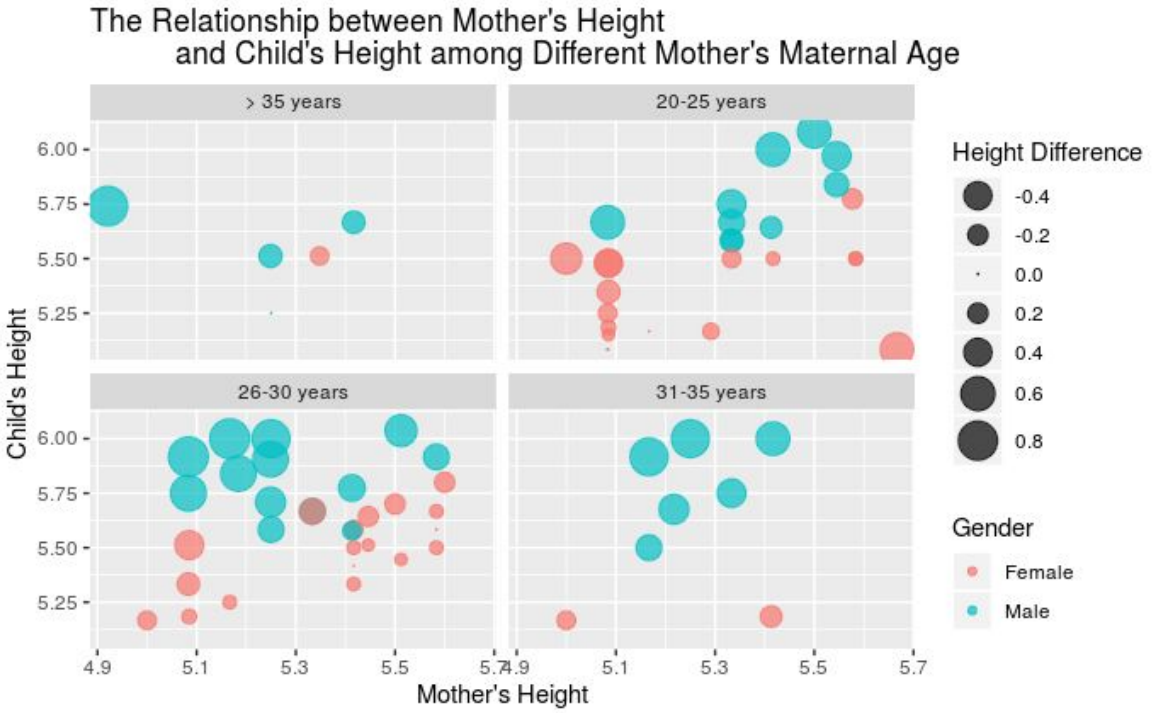


Figure 2: Plots showing relationships between mother's and child's height against all factors

2.3. GRAPH 3

The following distribution displays the participants with different height differences who like or don't like to drink milk and exercise during adolescence. *Figure 3* shows positive effects of drinking milk and exercise on the height difference between mother and child and the effects are greater for group of mothers aged 26 to 30 than the group mothers aged 20 to 25.

Figure 3: Plots showing relationships between height difference vs. milk consumption and exercise for both age groups of mothers.

3. STATISTICAL ANALYSIS

3.1. QUESTION OF INTEREST

We want to assess the effect of a mother's child-bearing age on the height of her child. For the difference between the mean height difference (Mother's height and child's height) with mothers aged 20 to 25 and mean height difference with mothers aged 26 to 30.

3.2. STATISTICAL METHODOLOGY/ STATISTICAL TEST.

Considering that our height is a quantitative variable, we will be finding the inference for means. Taking the standard deviation from the sample, we will use the T- Test for difference in means.

We perform the following checks for confirming that the requirements to use the statistical method have been met.

- *The sample is representative of the population* - Since all data is from the people we know and does not necessarily represent the entire population of Asians. So, we consider to make an inference about Asian friends and colleagues.
- *One quantitative variable of interest* - YES. (Height)
- *Question of interest has to do with the difference of means between two populations.* YES (Two samples and the difference in the mean is considered)
- *2 independent samples from 2 populations* - YES, From our data we picked up two samples from the 2 groups. Sample1: Mothers aged 20 to 25, Sample 2: Mothers aged 26 to 20
- *The population data must be normally distributed*, YES (Condition checked by seeing the Q-Q plot of data. *Figure 4* shows it is quite normally distributed)

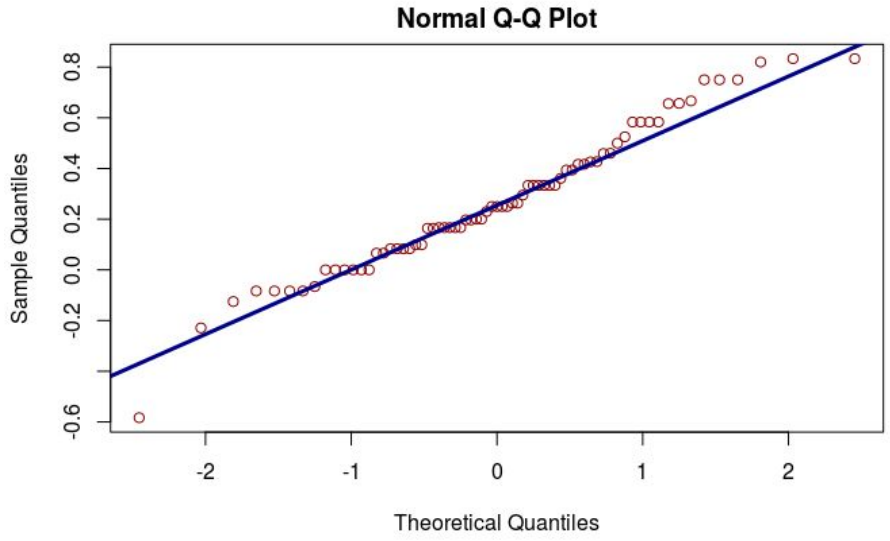


Figure 4: QQ plot of the sample data

3.3. PARAMETER

We are interested in the true population mean difference in height differences between the two samples the two groups $\mu_1 - \mu_2$

3.4. HYPOTHESIS

- Null hypothesis

$H_0 : \mu_1 - \mu_2 = 0$ *or* $H_0 : \mu_1 = \mu_2$

The mean height difference for the true population is equal for two samples representing the two age groups of mothers (20~25, 26~30).

- Alternative hypothesis

$H_A : \mu_1 - \mu_2 \neq 0$ *or* $H_A : \mu_1 \neq \mu_2$

The true population mean height difference for mother's of age group 20~25 is different than the true population mean height difference for mothers of age group 26~30.

3.5. SAMPLE STATISTIC

$\overline{x_1}$ - $\overline{x_2}$

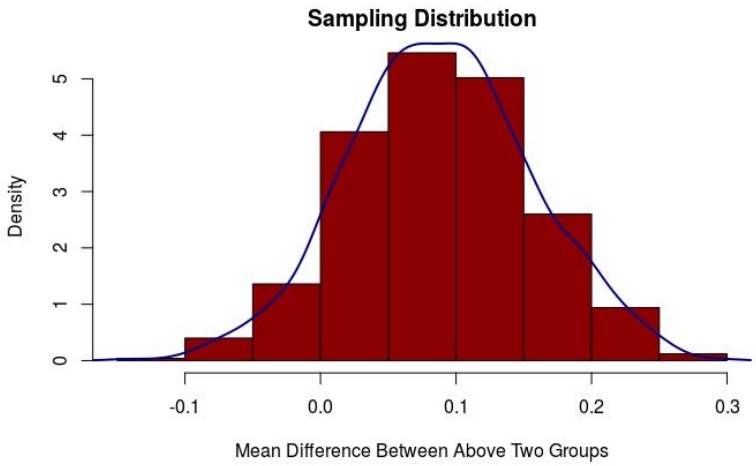


Figure 5: Sampling Distribution

3.6. TEST STATISTIC

$$t_{min(n_1-1,n_2-1)} = \frac{(\bar{x}_1 - \bar{x}_2) - (\mu_1 - \mu_2)}{\sqrt{\frac{s_1^2}{n_1} + \frac{s_2^2}{n_2}}}$$

3.7. Q-Q PLOTS

The Q-Q Plots help us assess if our data is normally distributed. The quantiles from the theoretical normal distribution represent the horizontal line at 45 degrees. The data points collected are put in their own quantile and the plotted points give a rough

idea how closely our data fits to the ideal normal distribution. We used qnorm() function in R to plot this.

Comparing both *Figure 6(a)* and *Figure 6(b),* we can say that the quantile of height difference for age group (20~25) sample is more normal than the age group (26~30) sample.

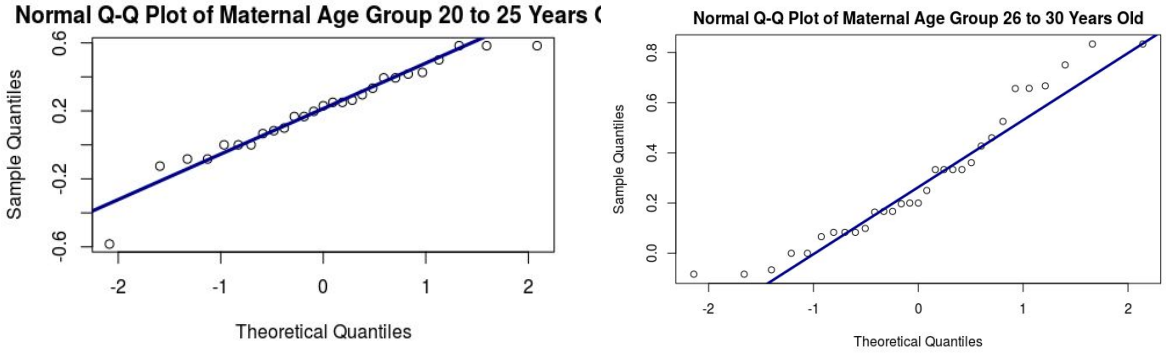


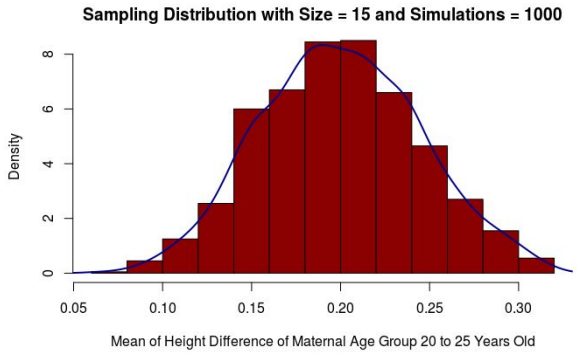
Figure 6(a) **Figure 6(b)**

Figure 6: Q-Q Plots.

Figure 6(a): Q-Q Plot for age group (20~25)
Figure 6(b): Q-Q Plot for age group (26~30)

3.8. HISTOGRAM OF SAMPLING DISTRIBUTION

To draw conclusions regarding the population, we need a lot of data. As the sample size increases, the sampling distribution mean approaches the population mean. According to the Central Limit Theorem, if this experiment was repeated a 1000 times which we computed through R with a sample size of 15 then the resulting sampling distribution of means will be very near to normal as shown in *Figure 7* below.



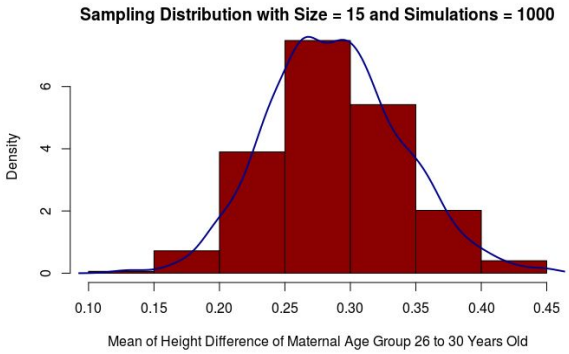


Figure 7(a) **Figure 7(b)**

Figure 7: Q-Q Plots.

Figure 7(a): Histogram for age group (20~25)
Figure 7(b): Histogram for age group (26~30)

3.9. p-Value

The 2 sample T Test gives us the p-value = 0.1986. This means that the true difference in means is not equal to 0.

3.10. CONFIDENCE INTERVAL

The confidence interval of 95% gives that the range of values that certainly contain the population mean.

Upper Bound: 0.04915517
Lower Bound: -0.23126590

3.11. INTERPRETATION

After performing our statistical analysis, we have p-value as 0.1986 that is greater than the significance level of 0.05. This clearly indicates that the null hypothesis cannot be rejected. We cannot conclude that a significant difference exists in the two groups. With 95% confidence, the difference between the two true population means is between the upper limit of 0.04915517 and lower limit of 0.23126590 . The null hypothesized difference is 0 and falls in the confidence interval, therefore it is consistent with the failure to reject the null hypothesis.

4. DISCUSSION/ CONCLUSION

4.1. SUMMARY OF YOUR FINDINGS.

As the p value is greater than 0.05, we cannot say that the child-bearing age of the mother have a significant bearing on the height of the child at a confidence level of 95%.

4.2. IMPLICATIONS OF YOUR FINDINGS.

This study helps us identify the relationship between maternal age, consumption of milk and exercising by child on the child's height. The research also showed that children born to mothers aged 26 to 30 (child-bearing age) have an increased effect on height on consumption of milk and exercising compared to the other group.

4.3. EXTENSIONS AND LIMITATIONS.

The size of the sample was quite small to make a generalized statement about a large population as in our study. The sampling techniques could include a bias because it might not have covered sufficient varied participants of the population representing all subgroups.. A lot of variables and other factors contribute to the height of the child, which were not considered as it was beyond the scope of our study.

4.4. FURTHER QUESTIONS, NEXT STEPS

For a more refined result and judgement of our analysis, the future studies, could introduce more randomization in sampling data, without any bias. Also a larger sample size, strategically selected to represent our population more precisely could give a significant result. Effects of other factors like, milk consumption, exercise, mother's working on height difference can be deeply assed for clear findings.

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5. APPENDIX

5.1. REFERENCES

[1]Tim Savage, José G. B. Derraik, Harriet L. Miles, Fran Mouat,Paul L. Hofman, and Wayne S. Cutfield. (2013). *Increasing Maternal Age Is Associated with Taller Stature and*

Reduced Abdominal Fat in Their Children. The National Institutes of Health. 8(3): e58869, doi: 10.1371/journal.pone.0058869

5.2. R SCRIPT

```
# Survey Data

data <- data.frame(read.csv(file = './data.csv', header = T))
summary(data)
head(data)

# Dataset Graphs

## Graph 1: Relationship between Mother's height & Child's height among different Maternal Age

library(dplyr)
useful_data <- data %>%
  mutate(height_difference = child_height - mother_height) %>%
  filter(milk == 'Yes' | milk == 'No',
         exercise == 'Yes' | exercise == 'No',
         maternal_age != "I don't know")
summary(useful_data)

library(ggplot2)
ggplot(useful_data, aes(x= mother_height ,
                        y=child_height,
                        color = gender,
                        size = height_difference)) +
  facet_wrap(~maternal_age) +
  geom_point(alpha = 0.7) +
  scale_size_area(breaks = c(-0.6, -0.4, -0.2, 0, 0.2, 0.4, 0.6, 0.8),
                  max_size = 8) +
  labs(x = "Mother's Height",
       y = "Child's Height",
       size = "Height Difference",
       color = 'Gender') +
  ggtitle("The Relationship between Mother's Height
          and Child's Height among Different Mother's Maternal Age")
```

Graph 2: Differences of Milk and Exercise on height difference based on maternal age

```
explanatoryData <- useful_data %>%
  filter(maternal_age == '20-25 years' | maternal_age == '26-30 years')
ggplot(explanatoryData,  aes(height_difference))+
  facet_grid(exercise~milk,labeller = label_both) +
  geom_histogram(aes(fill = maternal_age), bins=30) +
  xlab('The Height Difference Between The Child and Mother') +
  ggtitle("Representation of height difference &
        effect of milk and exercise on two groups")
```

 # Box-plot

```
  ggplot(useful_data, aes(x=maternal_age, y=height_difference)) +
  geom_boxplot(aes(fill= maternal_age))  +
  labs(title="Plot of Height Difference among Different Mother's Maternal Age",
      x="Mother's Maternal Age",
      y = "Height Difference (feets)")
```

 # Whole Population Q-Q Plot

#This graph gives the entire distribution of data against the normal theoretical distribution

```
qqnorm(useful_data$height_difference, col = "darkred", main = "Normal Q-Q Plot")
qqline(useful_data$height_difference, col = "darkblue", lwd = 3)
```

 # Histogram of Sampling Distribution

```
require(mosaic)
set.seed(1)
group20to25 <- useful_data %>%
  filter(maternal_age == '20-25 years')
group20to25_1000 <- do(1000) * mean(sample(group20to25$height_difference,15))
hist(group20to25_1000$mean,
    main = "Sampling Distribution with Size = 15 and Simulations = 1000",
    xlab = "Mean of Height Difference of Maternal Age Group 20 to 25 Years Old",
    prob = T,
    col = "darkred")
lines(density(group20to25_1000$mean),
     col = "darkblue",
```

```
      lwd = 2)

group26to30 <- useful_data %>%
  filter(maternal_age == '26-30 years')
group26to30_1000 <- do(1000) * mean(sample(group26to30$height_difference,15))
hist(group26to30_1000$mean,
     main = "Sampling Distribution with Size = 15 and Simulations = 1000",
     xlab = "Mean of Height Difference of Maternal Age Group 26 to 30 Years Old",
     prob = T,
     col = "darkred")
lines(density(group26to30_1000$mean),
      col = "darkblue",
      lwd = 2)

twoGroup_1000 <- do(1000) *mean(sample(group26to30$height_difference,15) -
                          sample(group20to25$height_difference,15))
hist(twoGroup_1000$mean,
     main = "Sampling Distribution",
     xlab = "Mean Difference Between Above Two Groups",
     prob = T,
     col = "darkred")
lines(density(twoGroup_1000$mean),
      col = "darkblue",
      lwd = 2)
```

 # Two Samples Q-Q Plot Graphs

```
group20to25 <- useful_data %>%
  filter(maternal_age == '20-25 years')
qqnorm(group20to25$height_difference,
       main = "Normal Q-Q Plot of Maternal Age Group 20 to 25 Years Old")
qqline(group20to25$height_difference,
       col = "darkblue",
       lwd = 3)
summary(group20to25)

group26to30 <- useful_data %>%
  filter(maternal_age == '26-30 years')
qqnorm(group26to30$height_difference,
```

```
    main = "Normal Q-Q Plot of Maternal Age Group 26 to 30 Years Old")
qqline(group26to30$height_difference,
    col = "darkblue",
    lwd = 3)
summary(group26to30)
```

We carried out 2 approaches for calculating the p-value, the 't-test statistical method' in R and R Built In t-test function, 't.test ( )'. We consider the p value from the T-Test function

 # Two Samples T-Test

```
t.test(group20to25$height_difference, group26to30$height_difference, var.equal = F)
```

 # sample means

```
x_bar_20to25 <- mean(group20to25$height_difference)
x_bar_26to30 <- mean(group26to30$height_difference)
```

 # null hypothesized population mean difference between the two groups

```
mu_0 <- 0
```

 # sample variances

```
s_20to25_sq <- sd(group20to25$height_difference) ** 2
s_26to30_sq <- sd(group26to30$height_difference) ** 2
```

 # sample size

```
n_20to25 <- length(group20to25$height_difference)
n_26to30 <- length(group26to30$height_difference)
```

 # t-test test statistic

```
t <- (x_bar_20to25 - x_bar_26to30 - mu_0)/sqrt((s_20to25_sq/n_20to25) +
                                    (s_26to30_sq/n_26to30))
```

 # one sided upper p-value

```
two_sided_diff_t_pval <- pt(q = t, df = min(n_20to25, n_26to30)-1, lower.tail =
TRUE)*2
```

two_sided_diff_t_pval

5.3. DATASET

Timestamp	gender	nationality	country_now	child_age	child_height	exercise	milk	maternal_age	mother_height	Is your mother working?
2019/11/17 3:40:51 PM PST	Male	Chinese	USA	Greater than 20 years	5.66667	Yes	Yes	26-30 years	5.3333	Yes
2019/11/17 3:41:45 PM PST	Female	Chinese	USA	Greater than 20 years	5.16667	No	No	31-35 years	5	No
2019/11/17 3:51:30 PM PST	Male	Chinese	USA	Greater than 20 years	5.75	Yes	No	20-25 years	5.3333	Yes
2019/11/17 3:58:14 PM PST	Male	Indian	India	Greater than 20 years	5.5	Yes	Yes	31-35 years	5.16667	No
2019/11/17 4:06:05 PM PST	Female	Chinese	USA	Greater than 20 years	5.58333	Yes	I don't know	20-25 years	5.58333	No
2019/11/17 4:08:45 PM PST	Male	Indian	USA	Greater than 20 years	5.58333	Yes	Yes	20-25 years	5.3333	Yes
2019/11/17 4:16:28 PM PST	Male	Chinese	USA	Greater than 20 years	6	No	Yes	20-25 years	5.41667	Yes
2019/11/17 4:18:34 PM PST	Male	Indian	India	Greater than 20 years	5.66667	Yes	Yes	20-25 years	5.3333	No
2019/11/17 4:25:38 PM PST	Female	Indian	USA	Greater than 20 years	5.16667	No	No	26-30 years	5	Yes
2019/11/17 4:59:53 PM PST	Male	Indian	USA	Greater than 20 years	6	Yes	Yes	26-30 years	5.16667	No
2019/11/17 5:19:19 PM PST	Female	Indian	India	Greater than 20 years	5.08333	Yes	Yes	20-25 years	5.0833	Yes
2019/11/17 5:31:41 PM PST	Female	Indian	India	Greater than 20 years	5.25	No	Yes	20-25 years	5.0833	No
2019/11/17 5:34:52 PM PST	Male	Indian	India	Greater than 20 years	5.75	Yes	Yes	31-35 years	5.3333	Yes
2019/11/17 5:36:10 PM PST	Female	Indian	USA	Greater than 20 years	5.33333	No	Yes	26-30 years	5.41667	No

2019/11/17 5:38:31 PM PST	Male	Indian	USA	Greater than 20 years	5.25	No	Yes	> 35 years	5.25	Yes
2019/11/17 6:19:51 PM PST	Female	Indian	USA	Greater than 20 years	5.25	Yes	Yes	26-30 years	5.16667	No
2019/11/17 7:01:20 PM PST	Male	Indian	India	Greater than 20 years	6	Yes	Yes	26-30 years	5.25	Yes
2019/11/17 7:15:09 PM PST	Male	Indian	USA	Greater than 20 years	5.91667	Yes	No	26-30 years	5.58333	Yes
2019/11/17 7:44:53 PM PST	Female	Chinese	USA	Greater than 20 years	5.8	Yes	Yes	26-30 years	5.6	Yes
2019/11/17 7:51:38 PM PST	Male	Indian	India	Greater than 20 years	5.91667	Yes	Yes	26-30 years	5.08333	No
2019/11/17 7:52:11 PM PST	Male	Chinese	USA	Greater than 20 years	5.75	Yes	Yes	26-30 years	5.08333	Yes
2019/11/17 8:26:28 PM PST	Male	Indian	India	Greater than 20 years	6.08333	Yes	Yes	20-25 years	5.5	Yes
2019/11/17 10:29:33 PM PST	Female	Chinese	China	Greater than 20 years	5.7	Yes	Yes	26-30 years	5.5	Yes
2019/11/17 10:53:47 PM PST	Female	Indian	USA	Greater than 20 years	5.16667	Yes	Yes	20-25 years	5.2917	Yes
2019/11/17 10:55:22 PM PST	Male	Indian	India	Greater than 20 years	6	Yes	Yes	31-35 years	5.41667	No
2019/11/17 11:19:24 PM PST	Male	Indian	USA	Greater than 20 years	5.58333	Yes	Yes	20-25 years	5.3333	No
2019/11/17 11:19:35 PM PST	Male	Indian	USA	Greater than 20 years	5.75	No	Yes	I don't know	5.6667	Yes
2019/11/17 11:20:45 PM PST	Male	Indian	USA	Greater than 20 years	5.91667	Yes	Yes	31-35 years	5.16667	Yes
2019/11/17 11:20:57 PM PST	Female	Indian	India	Greater than 20 years	5.08333	Yes	Yes	20-25 years	5.6667	Yes
2019/11/17 11:29:39 PM PST	Male	Indian	USA	Greater than 20 years	5.33333	Attended a sports class	Yes	31-35 years	5	No

2019/11/18 12:17:42 AM PST	Female	Indian	USA	Greater than 20 years	5.5	Yes	Yes	26-30 years	5.41667	Yes
2019/11/18 12:47:22 AM PST	Female	Chinese	USA	Greater than 20 years	5.5	Yes	No	20-25 years	5.41667	No
2019/11/18 8:04:50 AM PST	Male	Indian	USA	Greater than 20 years	5.66667	Yes	I don't know	26-30 years	5.41667	No
2019/11/18 6:32:18 PM PST	Female	Indian	India	Greater than 20 years	5.41667	No	No	26-30 years	5.41667	No
2019/11/18 8:45:32 PM PST	Female	Indian	India	Greater than 20 years	5.5	Yes	Yes	20-25 years	5.3333	No
2019/11/18 9:10:01 PM PST	Male	Indian	India	Greater than 20 years	6	Yes	Yes	I don't know	5.41667	No
2019/11/18 9:32:25 PM PST	Female	Indian	India	Greater than 20 years	5.5	Yes	Yes	20-25 years	5.58333	Yes
2019/11/19 2:26:03 AM PST	Female	Indian	India	Greater than 20 years	5.33333	No	Yes	26-30 years	5.08333	No
2019/11/19 4:30:40 AM PST	Female	Chinese	USA	Greater than 20 years	5.16667	Yes	No	20-25 years	5.16667	Yes
2019/11/19 8:27:57 AM PST	Female	Indian	India	Greater than 20 years	5.5	Yes	Yes	20-25 years	5.58333	Yes
2019/11/19 12:35:43 PM PST	Male	Chinese	USA	Greater than 20 years	5.58333	Yes	No	26-30 years	5.25	Yes
2019/11/19 12:39:58 PM PST	Female	Chinese	USA	Greater than 20 years	5.66667	No	No	26-30 years	5.58333	No
2019/11/19 12:41:47 PM PST	Male	Chinese	China	Greater than 20 years	6	No	No	31-35 years	5.25	Yes
2019/11/19 12:43:06 PM PST	Female	Chinese	USA	Greater than 20 years	5.58333	No	Yes	26-30 years	5.41667	Yes
2019/11/19 12:45:00 PM PST	Female	Chinese	USA	Greater than 20 years	5.08333	No	No	20-25 years	5.08333	Yes
2019/11/19 12:46:51 PM PST	Male	Chinese	USA	Greater than 20 years	5.66667	Yes	No	> 35 years	5.41667	Yes

2019/11/19 12:48:31 PM PST	Male	Chinese	USA	Greater than 20 years	5.66667	Yes	Yes	20-25 years	5.08333	Yes
2019/11/19 12:49:33 PM PST	Female	Chinese	USA	Greater than 20 years	5.66667	No	No	26-30 years	5.3333	Yes
2019/11/19 12:51:10 PM PST	Female	Chinese	USA	Greater than 20 years	5.58333	No	No	26-30 years	5.58333	Yes
2019/11/19 8:33:54 PM PST	Female	Chinese	China	Greater than 20 years	5.643	No	Yes	26-30 years	5.446	Yes
2019/11/19 8:40:56 PM PST	Female	Chinese	China	Greater than 20 years	5.512	Yes	Yes	26-30 years	5.446	Yes
2019/11/19 8:42:27 PM PST	Male	Chinese	China	Greater than 20 years	5.84	Yes	No	26-30 years	5.184	Yes
2019/11/19 8:43:32 PM PST	Female	Chinese	China	Greater than 20 years	5.446	Yes	No	26-30 years	5.512	No
2019/11/19 8:44:35 PM PST	Female	Chinese	China	Greater than 20 years	5.479	Yes	Yes	20-25 years	5.085	No
2019/11/19 8:45:31 PM PST	Female	Chinese	China	Greater than 20 years	5.479	Yes	Yes	20-25 years	5.085	No
2019/11/19 8:46:17 PM PST	Female	Indian	India	Greater than 20 years	5.5	No	Yes	26-30 years	5.58333	No
2019/11/19 8:46:44 PM PST	Female	Chinese	China	Greater than 20 years	5.348	Yes	No	20-25 years	5.085	Yes
2019/11/19 8:47:47 PM PST	Female	Chinese	China	Greater than 20 years	5.184	No	No	31-35 years	5.413	Yes
2019/11/19 8:48:46 PM PST	Female	Chinese	China	Greater than 20 years	5.184	No	No	20-25 years	5.085	Yes
2019/11/19 8:49:40 PM PST	Male	Chinese	China	Greater than 20 years	5.741	Yes	No	> 35 years	4.921	Yes
2019/11/19 8:51:03 PM PST	Female	Chinese	China	Greater than 20 years	5.184	No	No	26-30 years	5.085	Yes
2019/11/19 8:51:55 PM PST	Male	Chinese	China	Greater than 20 years	5.676	Yes	No	31-35 years	5.217	No

2019/11/19 8:52:49 PM PST	Male	Chinese	China	Greater than 20 years	5.577	No	No	26-30 years	5.413	Yes
2019/11/19 8:53:44 PM PST	Male	Chinese	China	Greater than 20 years	5.643	No	No	20-25 years	5.413	Yes
2019/11/19 8:54:50 PM PST	Male	Chinese	China	Greater than 20 years	5.906	Yes	Yes	26-30 years	5.249	Yes
2019/11/19 8:55:38 PM PST	Male	Chinese	China	Greater than 20 years	6.037	No	No	26-30 years	5.512	No
2019/11/19 8:56:45 PM PST	Female	Chinese	China	Greater than 20 years	5.512	No	Yes	> 35 years	5.348	Yes
2019/11/19 8:57:34 PM PST	Male	Chinese	China	Greater than 20 years	5.512	No	No	> 35 years	5.249	No
2019/11/19 8:58:58 PM PST	Male	Chinese	China	Greater than 20 years	5.971	No	No	20-25 years	5.545	Yes
2019/11/19 8:59:47 PM PST	Female	Chinese	China	Greater than 20 years	5.774	No	Yes	20-25 years	5.577	Yes
2019/11/19 9:00:37 PM PST	Female	Chinese	China	Greater than 20 years	5.512	No	Yes	26-30 years	5.085	Yes
2019/11/19 9:01:25 PM PST	Male	Chinese	China	Greater than 20 years	5.709	Yes	No	26-30 years	5.249	Yes
2019/11/19 9:02:32 PM PST	Female	Chinese	China	Greater than 20 years	5.151	No	No	20-25 years	5.085	Yes
2019/11/19 9:04:14 PM PST	Male	Chinese	China	Greater than 20 years	5.84	Yes	Yes	20-25 years	5.545	Yes
2019/11/19 9:04:56 PM PST	Male	Chinese	China	Greater than 20 years	5.774	Yes	No	26-30 years	5.413	Yes
2019/11/19 9:21:41 PM PST	Female	Indian	India	Greater than 20 years	5.5	No	Yes	20-25 years	5	No
2019/11/19 9:21:41 PM PST	Male	Chinese	China	Greater than 20 years	5.75	Yes	Yes	20-25 years	5.3333	Yes
2019/11/19 9:21:41 PM PST	Male	Chinese	China	Greater than 20 years	5.676	No	Yes	20-25 years	5.348	Yes

2019/11/19 9:21:41 PM PST	Female	Indian	USA	Greater than 20 years	5.33333	Yes	Yes	20-25 years	5.446	No
2019/11/19 9:21:41 PM PST	Female	Chinese	USA	Greater than 20 years	5.577	No	No	26-30 years	5.413	Yes
2019/11/19 9:21:41 PM PST	Male	Indian	USA	Greater than 20 years	5.75	No	Yes	20-25 years	5.217	Yes
2019/11/19 9:21:41 PM PST	Female	Indian	USA	Greater than 20 years	5.348	No	No	20-25 years	5.2917	Yes
2019/11/19 9:21:41 PM PST	Male	Chinese	China	Greater than 20 years	5.774	Yes	Yes	26-30 years	5.3333	Yes