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School of Community and Environmental Health
MPH Program

Research Methods in Public Health: MPH 616

Data Analysis Project

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For this assessment exercise, you are asked to analyze data comprise of 641 records on mothers who had births. The data is called MPH 616_Data_Analysis_Project.sav. You are asked to analyze the data with the aim to find out whether or not birth weight as an outcome is significantly higher in the intervention group compared to no-intervention group. You need also to investigate whether birth weight is significantly related to each maternal age, hypertension, sex of the infant, and gestational age. You may like to categorize a certain variable during this analysis.

Comment on whether birth weight is higher in intervention group. (Max. 3 point)

The statistical test that was used is an unpaired T-test. The assumptions include that the variables were normally distributed and independent. The analysis results include that the difference between mean-level birth weight between the intervention and non-intervention groups is not statistically significant since the p-value .539 is greater than .05. The birth weight was not higher in the intervention group since the non-interventional group's mean is higher.

Refer to Figure (1) and Table (1)

Association between the birth weight and sex of the infant (Max. 2 point)

The statistical test that was used was an unpaired T-test. Assumptions include that the variables were normally distributive and independent. The analysis results include that the difference between mean level birth weight between males and females is statistically significant since the p-value .001 is less than 1 per thousand.

Refer to figure (2) and Table (2)

Association between the birth weight and hypertension (Max. 3 points)

The statistical test that was used was an unpaired T-test. Assumptions include that the variables were normally distributive and independent. The analysis results include that the difference between mean level birth weight between people who had hypertension and people who did not have hypertension is statistically significant since the p-value .001 is less than 1 per thousand.

Refer to Figure (3) and Table (3)

Association between the birth weight and gestational age (Max. 3 points)

The statistical method used was the Pearson correlation test and a scatter plot (determines if there was a linear association). The assumption includes two continuous values with no outliers. Results of analysis include a strong correlation which was .738 and a p-value of .001. In conclusion, there is an association between birth weight and gestational age since the p-value is less than 1 per 1,000. The Scatter plot also showed a positive linear association.

Refer to Figure (4) and Table (4)

Association between the birth weight and maternal age (Max. 3 points)



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MPH Program

The statistical method used was a scatter plot to see if there was an association between birth weight and maternal age. The Pearson correlation test was also conducted to see if there was a linear association. The assumptions included two continuous values and no outliers. Results of analysis include no linear association between birth weight and maternal age based on the scatter plot. The Pearson correlation showed a correlation of .034 and a p-value of .394.

Refer to Figure (5) and Table (5)

Summary of the findings from all analysis (Max. 2 points)

In the analysis conclusion, the intervention group did not increase birth weight since the mean in the intervention group was lower than the non-intervention group. However, there was an association between birth weight and sex and hypertension and gestational age because all p values were statistically significant. However, there was no association between birth weight and maternal age since the p-value was not statistically significant.

Table(s) (Max. 2 point)

Table 1.

Unpaired T-test between birth weight and interventional and non interventional				
Birthweight		Equal Variances assumed	Equal Variances not assumed	
	F	2.871		
	Sig	0.91		
	t	0.623	0.623	
	df	639	633.28	
	Sig (2-tailed)	0.534	0.533	
	Mean Difference	32.138	32.138	
	Std. Error Difference	51.591	51.584	
95% Confidence interval of difference				
	lower	-69.172	-69.158	
	upper	133.447	133.433	

Table 2.

Unpaired T-test between birthweight and sex



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Birthweight	Equal Variances	Equal Variances not assumed			
F	1.479				
Sig	0.224				
t	3.265	3.269			
df	639	638.654			
Sig (2-tailed)	0.001	0.001			
Mean Difference	167.152	167.152			
Std. Error Difference	51.189	51.139			
95% Confidence interval of difference					
lower	66.632	66.732			

Table 3.

Unpaired T-test between birthweight and hypertension					
Birthweight					
F		18.319			
Sig		0.001			
t		6.2	4.999		
df		639	104.069		
Sig(2-tailed)		0.001	0.001		
Mean Difference		449.373	449.373		
Std. Error Difference		72.475	89.89		
95% Confidence interval of difference					
Lower		307.056	271.12		

Table 4.

<p>Pearson Correlation test between birthweight and Gestational age in weeks</p>



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		Birthweight	Gestational age in weeks
Birthweight	Pearson Correlation	1	0.738
	Sig. (2-tailed)		0.001
	N	641	641
Gestational age in weeks	Pearson Correlation	0.738	1
	Sig. (2-tailed)	0.001	
	N	641	641

Table 5.

Pearson Correlation test between birthweight and Maternal age

		Birthweight	Maternal age			
Birthweight	Pearson Correlation	1	0.034			
	Sig (2-tailed)		0.394			
	N	641	641			
Maternal age	Pearson Correlation	0.034	1			
	Sig (2-tailed)	0.394				
	N	641	641			

Figures (Max. 2 point)

Figure 1.

Association between Birthweight and intervention and non interventional group



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→ Graph

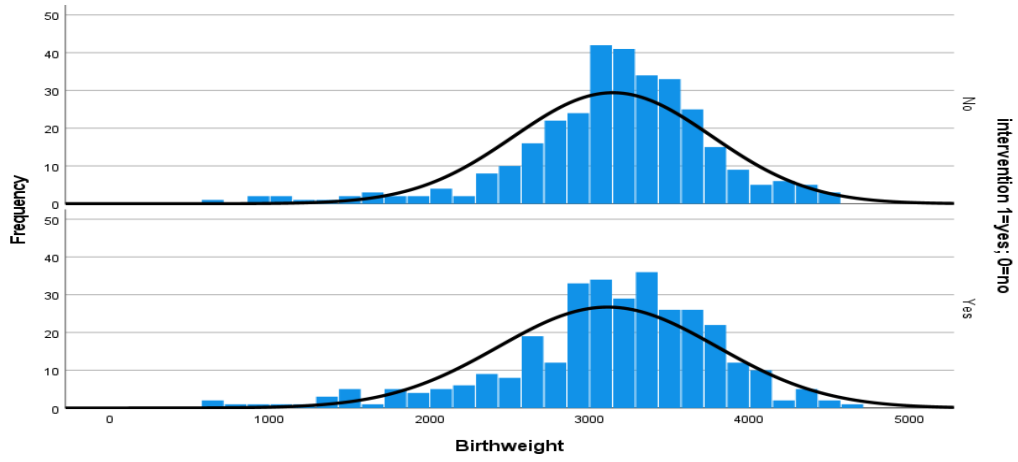


Figure 2.

Association between birthweight and sex

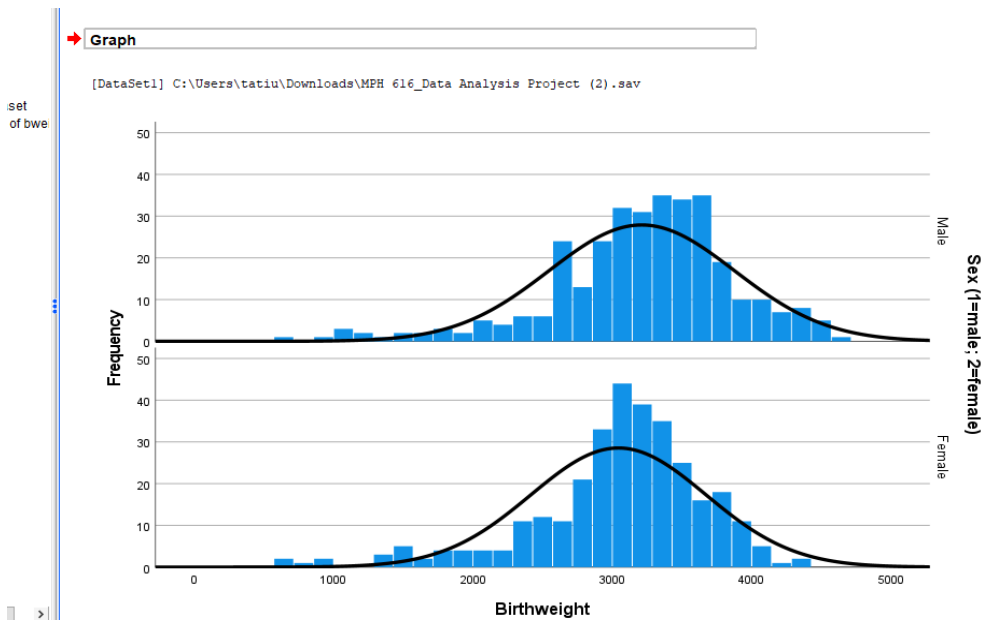
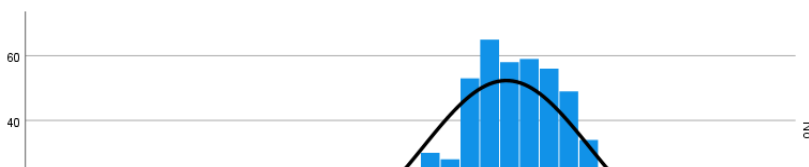


Figure 3.

Association between birthweight and hypertension

Graph





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Figure 4.

**Association between birthweight and gestational
weeks**



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Graph

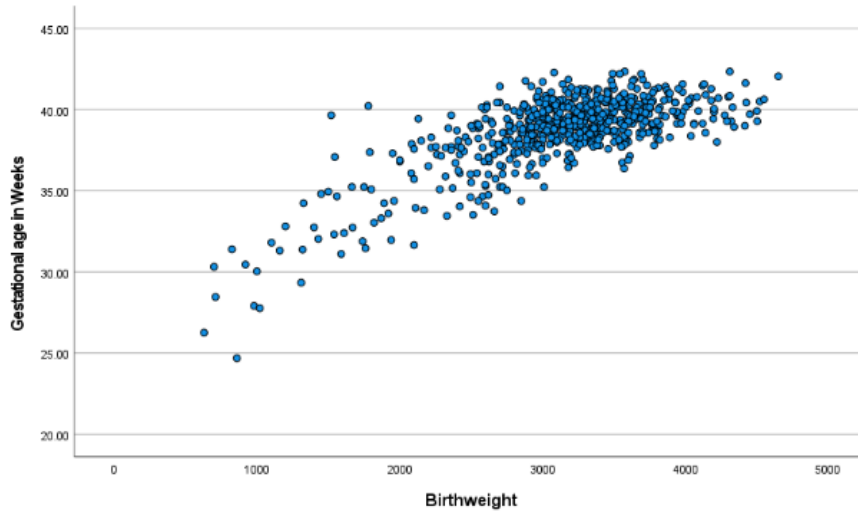


Figure 5.

Association between birthweight and maternal age

Graph

