

# STA20006 Analysis of Variance & Regression Due on 10th of Nov

## Brief Description

In 2002, the World Health Organization recommended that the age for starting complementary feeding (in babies) should be changed. It has been proposed that by 6 months of age most infants will have developed sufficient motor skills to be able to feed themselves rather than needing to be spoon-fed (SF) by an adult. This has the potential to predispose infants to better growth by fostering better energy self-regulation. This is of particular interest given the widespread use of “Baby-Led Weaning” (BLW) by parents internationally. Consider a study in which researchers were interested in examining the motor coordination of 120 children (aged approx. 24 months). Each child had a variety of physical and cognitive variables measured. In addition, the children’s parents were interviewed to ascertain the feeding method utilised when the child was between 6 months and 18 months

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## Introduction

The objective of this assignment is for you to understand research scenarios that concern analysis of variance (ANOVA). In particular, it is important that you master the different types of ANOVA, such as single factor and factorial. It is highly recommended that you attempt the assignment questions on a weekly basis where possible (after completing each module) so that the information is still fresh and does not become overwhelming if you leave it to the last minute. Recommended timeline of assignment tasks:

Task A | after completing module 6 & 7: Introduction to ANOVA & Multiple Comparisons

Task B | after completing module 8: Factorial ANOVA Part I

Task C | after completing module 9: Factorial ANOVA Part II

### **SPSS Output:**

Unless specifically asked for in the question, all SPSS output should be placed as an Appendix **at the back** of your assignment submission (see Answer Sheet).

## Assessment Task

In 2002, the World Health Organization recommended that the age for starting complementary feeding (in babies) should be changed. It has been proposed that by 6 months of age most infants will have developed sufficient motor skills to be able to feed themselves rather than needing to be spoon-fed (SF) by an adult. This has the potential to predispose infants to better growth by fostering better energy self-regulation. This is of particular interest given the widespread use of “Baby-Led Weaning” (BLW) by parents internationally.

Consider a study in which researchers were interested in examining the motor coordination of 120 children (aged approx. 24 months). Each child had a variety of physical and cognitive variables measured (see table below). In addition, the children’s parents were interviewed to ascertain the feeding method utilised when the child was between 6 months and 18 months.

- This assignment relates to the SPSS data file **Assignment2.sav**.
- The variables in the data file are described below:

### Information on the data collected

Variable	Variable coding	Variable description
ID	NA	The identification number allocated to each child participant
Sex	1 = Male 2 = Female	Child’s Sex
Cultural Background [Culture]	1 = Western 2 = Asian	Child’s background / culture (as identified by the parents)
Early Motor Functioning [EMF]	NA	A measure of motor function, where higher scores represent higher levels of motor functioning
Body Mass Index [BMI]	NA	A measure of total body fat based upon a person’s height and weight
BMI Classification [BMI_Class]	1 = Underweight 2 = Normal range 3 = Overweight	The BMI category based upon the calculated BMI
Feeding Method [Method]	1 = Spoon Fed [SF] 2 = Baby Led Weaning [BLW] 3 = Mix of SF and BLW [MIX]	Feeding method (as recalled by parent) used when the child was between 6 and 18 months
Age	NA	The age (measured in months) of each child participant
Mother’s Work Status [MWS]	0 = Not working 1 = Currently working	Whether the child’s mother is currently working
Father’s Work Status [FWS]	0 = Not working 1 = Currently working	Whether the child’s father is currently working
Household income [INC]	NA	The combined annual work income of all household members
Number of Siblings [NS]	0 = No siblings 1 = Has one sibling 2 = Has two or more siblings	Whether the child has a sibling(s)

### **TASK A**

The researchers of this study investigated potential differences in early motor functioning [EMF] for different levels of feeding method. Specifically, they hypothesised that: (1) Children fed with Baby led weaning (BLW) methods will have higher EMF compared to children fed using Spoon fed (SF) methods, and (2) Children fed with SF methods will have higher EMF compared to children fed using a mix of SF and BLW (MIX) methods

Using the data in the file **Assignment2.sav**, carry out the appropriate analyses to address these hypotheses AND write a report of your findings. For this task, use a FIGURE when reporting the descriptive statistics

Note 1: Assume all assumptions have been met

Note 2: Check the marking rubric to see how this question is graded

Note 3: See the Module 6 AND 7 content for sample reports

### **TASK B**

After examining their results (from Task A) the researchers were interested in including an additional variable into their model: Child's Sex. This new study consists of the following hypotheses: (1) Children fed with BLW methods will have higher EMF compared to children fed using SF (2) Children fed with BLW method will also have higher EMF than those fed with MIX method, and (3) this difference in EMF is affected by child's sex.

Using the data in the file **Assignment2.sav**, carry out the appropriate analyses to address these hypotheses AND write a report of your findings. For this task, use a TABLE when reporting the descriptive statistics

Note 1: Assume all assumptions have been met

Note 2: Check the marking rubric to see how this question is graded

Note 3: See the Module 8 AND 9 content for sample reports

### **TASK C**

In a new study, the researchers are interested in investigating the differences in body mass index [BMI] for different levels of feeding method. Further, they would like to include child's cultural background as an additional factor. This new study consists of the following hypotheses: (1) Children fed with BLW methods will have higher BMI compared to children fed using SF (2) Children fed with BLW method will also have higher BMI than those fed with MIX method (3) this difference in BMI will be lower for children from western cultural backgrounds compared to children from Asian cultural backgrounds.

Using the data in the file **Assignment2.sav**, carry out the appropriate analyses to address these hypotheses AND write a report of your findings. For this task, use a FIGURE when reporting the descriptive statistics

Note 1: Assume all assumptions have been met

Note 2: Check the marking rubric to see how this question is graded

Note 3: See the Module 8 AND 9 content for sample reports