

Breastfeeding and Cognitive Development in 8 year old Gibraltarians

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The Gibraltar Study

- Study to examine predictors of selected infant outcomes (LBW, premature delivery) & child development
- Examine pregnancy-related factors



The Gibraltar Study

- Advantages:
 - Small-scale urban community (reduce sampling bias)
 - One local hospital and government-funded healthcare (reducing variation in health-care)
 - Largely a 'cradle-to-grave' community (lowers loss-to-observation in longitudinal study)
 - Educational system very homogenous (British comprehensive school system)



The Gibraltar Study

- Information on parity, infant feeding, social class (evaluated indirectly through occupation)
- Educational Psychology (F. Trinidad): standardized reading tests at 8 and 12 years of age
- Removed from study: low birthweight infants (<2500 g), multiple births (e.g., twins)

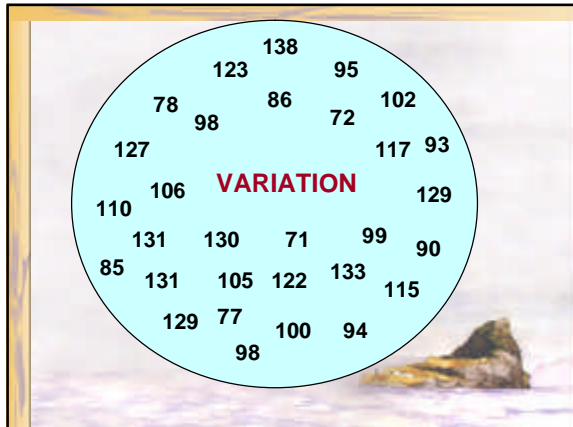


Independent Variables	Coded as
Sex of Child	0= Male 1= Female
Class	1=Professional 2. White Collar 3. Labourers Husband's occupation
Wife working at Time of Marriage	1 = Yes 2 = No
Type of Feeding	0= Artificial -fed 1= Breast feed in full or part
Mother's Age Young Mom	0= under 20, 1=20 or higher
Includes	
Parity Normal birth weight Term Singleton births	Only first Born More than 2499 Full No twins

Research Strategy

- Regression – a statistical approach
 - Y - Dependent Variable – Reading Score of assessed at 8 years of age
 - X - Independent Variables – potential factors that can help us explain the variation we observe in Y

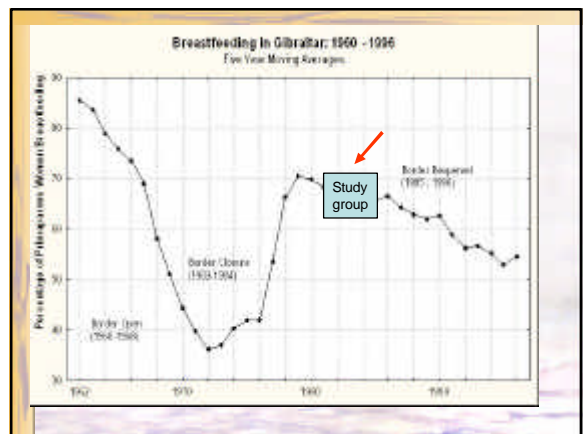




Measuring Cognitive Development

- We will use regression to quantify the relationship between Cognitive Development (assessed through reading scores) and a series of factors that we think may influence or predict cognition scores

EXPLANATORY POWER OF THE MODEL CAN BE MEASURED BY
 =
ADJUSTED R2 VALUE
 (the HIGHER the R2, the greater the explanatory power of the variables included in our model)



Limitations

- Retrospective Research Design
- Problems inherent in Estimating Cognitive Development from “reading scores alone” in a bilingual society
- Limited number of independent variables included in the model
- No information on the length of Breastfeeding

Model Summary^d

Class	Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	1	.306 ^a	.093	.024	9.502
2	1	.224 ^b	.050	.040	10.506
3	1	.332 ^c	.111	.078	8.957
4	1	1.000 ^d	1.000	.	.

a. Predictors: (Constant), Wocccd1, Feedcode, Sex
 b. Predictors: (Constant), Wocccd1, Sex, Feedcode, youngmom
 c. Predictors: (Constant), Wocccd1
 d. There are no valid cases in one or more split files. Statistics cannot be computed.

ANOVA ^{a, c}						
Class	Model		Sum of Squares	df	Mean Square	F Sig.
1	1	Regression	362.864	3	120.955	1.340 .275 ^a
		Residual	3521.182	39	90.287	
		Total	3884.047	42		
2	1	Regression	2080.890	4	520.223	4.713 .001 ^b
		Residual	39293.720	366	110.376	
		Total	41374.611	360		
3	1	Regression	1086.607	4	271.652	3.386 .012 ^c
		Residual	8744.473	109	80.225	
		Total	9831.081	113		
4	1	Regression	338.000	1	338.000	.5
		Residual	.000	0		
		Total	338.000	1		

a. Predictors: (Constant), Wocccd1, Feedcode, Sex
b. Predictors: (Constant), Wocccd1, Sex, Feedcode, youngmom
c. Predictors: (Constant), Wocccd1
d. There are no valid cases in one or more split files. Statistics cannot be computed.
e. Dependent Variable: SCORE

Coefficients ^{a, b}							
Class	Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
			B	Std. Error	Beta		
1	1	(Constant)	101.830	4.690		21.711	.000
		Feedcode	4.215	3.348	.197	1.259	.216
		Sex	5.662	3.162	.298	1.790	.081
		Wocccd1	-.699	1.846	-.061	-.379	.707
2	1	(Constant)	90.375	2.702		33.449	.000
		Feedcode	2.702	1.111	.126	2.431	.016
		Sex	1.277	1.110	.060	1.150	.251
		Wocccd1	.584	.591	.052	.988	.324
3	1	youngmom	3.745	1.389	.143	2.696	.007
		(Constant)	89.025	3.321		26.806	.000
		Feedcode	4.623	1.736	.242	2.664	.009
		Sex	1.042	1.693	.056	.616	.539
4	1	Wocccd1	.988	.691	.131	1.429	.156
		youngmom	2.942	1.729	.156	1.702	.092
		(Constant)	85.000	.000			
		Wocccd1	8.667	.000	1.000		

a. There are no valid cases in one or more split files. Statistics cannot be computed.
b. Dependent Variable: SCORE

Breastfeeding

- Chemical Differences between Breastfed and Artificial
- Psychological Differences
- A marker for Behaviour
 - Mothers who breast feed and more likely to invest in care giving?
 - Breastfeeding mothers are more highly educated?

New Direction

- Timing of Birth
 - Before marriage – stress
 - After marriage – no stresses

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