PATAN MULTIPLE CAMPUS

Practical – 5 Correlation and Regression

Roll No.: 23
Program: BIT
Subject: Basic Statistics

Date: 2081-05-30
Semester: 2nd
Section: A

Question: The following observations of nutrition and child mortality are as follows:

Nutrition	12.1	9.1	26	6.4	9.5	18.5	22.8	17.4	13.9	3.2
Child mortality	9.5	9.2	11.8	6.4	7.3	20.3	24.4	21.1	10.7	3.5

(i) Calculate Karl Pearson's correlation coefficient and test its significance and find the limits of population correlation coefficient. Find coefficient of determination and interpret it.

(ii) Find the regression equation of child mortality on nutrition. Estimate the child mortality when nutrition is 20.5. Interpret the slope. Find coefficients of determination.

Working Expressions:

Calculation:

i. Data

Nutrition	12.1	9.1	26	6.4	9.5	18.5	22.8	17.4	13.9	3.2
Child mortality	9.5	9.2	11.8	6.4	7.3	20.3	24.4	21.1	10.7	3.5

ii. Syntax

i. DATASET ACTIVATE DataSet0.
CORRELATIONS
/VARIABLES=nutrition child_mortality
/PRINT=TWOTAIL NOSIG FULL
/MISSING=PAIRWISE.

ii. REGRESSION
/MISSING LISTWISE
/STATISTICS COEFF OUTS R ANOVA CHANGE
/CRITERIA=PIN(.05) POUT(.10)
/NOORIGIN
/DEPENDENT child_mortality
/METHOD=ENTER nutrition.

iii. Output

Correlations

		nutrition	child_mortality
nutrition	Pearson Correlation	1	.760*
	Sig. (2-tailed)		.011
	N	10	10
child_mortality	Pearson Correlation	.760*	1
	Sig. (2-tailed)	.011	
	N	10	10

*. Correlation is significant at the 0.05 level (2-tailed).

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.760[a]	.577	.525	4.84972	.577	10.929	1	8	.011

a. Predictors: (Constant), nutrition

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	257.058	1	257.058	10.929	.011[b]
	Residual	188.158	8	23.520		
	Total	445.216	9			

a. Dependent Variable: child_mortality

b. Predictors: (Constant), nutrition

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	2.206	3.449		.640	.540
	nutrition	.735	.222	.760	3.306	.011

a. Dependent Variable: child_mortality