Universidade de Brasília
IE - Departamento de Estatística
Análise de Dados Categorizados – 1/2024

Lista Exercícios 1b

*Estude os tópicos **2.5 e 2.6** do **capítulo 2** do livro –texto e as notas de aula e resolva os seguintes exercícios:*

2.27 A study on educational aspirations of high school students (S. Crysdale, *Int. J. Comp. Sociol.*, **16**: 19–36, 1975) measured aspirations using the scale (some high school, high school graduate, some college, college graduate). For students whose family income was low, the counts in these categories were (9, 44, 13, 10); when family income was middle, the counts were (11, 52, 23, 22); when family income was high, the counts were (9, 41, 12, 27).

a. Test independence of aspirations and family income using X^2 or G^2. Interpret, and explain the deficiency of this test for these data.

b. Find the standardized residuals. Do they suggest any association pattern?

c. Conduct a more powerful test. Interpret results.

2.29 A study (B. Kristensen et al., *J. Intern. Med.*, **232**: 237–245, 1992) considered the effect of prednisolone on severe hypercalcaemia in women with metastatic breast cancer. Of 30 patients, 15 were randomly selected to receive prednisolone, and the other 15 formed a control group. Normalization in their level of serum-ionized calcium was achieved by seven of the 15 prednisolone-treated patients and by 0 of the 15 patients in the control group. Use Fisher's exact test to find a P-value for testing whether results were significantly better for treatment than control. Interpret.

2.30 Table 2.17 contains results of a study comparing radiation therapy with surgery in treating cancer of the larynx. Use Fisher's exact test to test $H_0: \theta = 1$ against $H_a: \theta > 1$. Interpret results.

Table 2.17. Data for Problem 2.30

	Cancer Controlled	Cancer Not Controlled
Surgery	21	2
Radiation therapy	15	3

Source: W. Mendenhall et al., *Int. J. Radiat. Oncol. Biol. Phys.*, **10**: 357–363, 1984. Reprinted with permission from Elsevier Science Ltd.

2.31 Refer to the previous exercise.

a. Obtain and interpret a two-sided exact P-value.

b. Obtain and interpret the one-sided mid P-value. Give advantages of this type of P-value, compared with the ordinary one.

Bom Estudo!!!!