

Practical in Validity

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Community Medicine

Q1. To assess the validity of surgeons in the diagnosis of acute appendicitis, by comparing the findings from histology with the clinical diagnosis, 300 patients were involved in the study . The surgeons were able to diagnose acute appendicitis in 132 cases, histology confirms the diagnose in 120 cases, the surgeons were incorrectly excluded acute appendicitis in 48 patients and correctly exclude acute appendicitis in 120.

- a. What is the validity of surgeons in the diagnosis of acute appendicitis?
- b. Calculate the misclassification rates.
- c. Calculate the repeatability of the surgeons in the diagnosis of acute appendicitis.
- d. Calculate the predictive values of the surgeons in the diagnosis of acute appendicitis.

Q2. A medical student was asked to check the blood pressure of 800 factory workers. It is known that 75 of the workers are hypertensive.

The student was able to identify 75% of the hypertensive but also labeled 14% of the normotensive as hypertensive.

- a. Prepare a 2x2 table to display the data
- b. How valid are the results of the medical student ?
- c. What is the prevalence of hypertension in these workers according to the results of the medical student?

Q3. To assess the ability of school doctors (SDs) to identify children with visual problem by visual examination compared to ophthalmologist doctor(ODs) visual examination, out of 1000 pupils involved in the study, SDs was able to identify 240 pupils with visual problems out of 300 pupils diagnosed by ODs, and SDs were able to exclude visual problems in 600 out of 700 labeled as normal vision by ODs. Calculate :

- a. Validity of SDs in vision examination.
- b. Misclassification rates
- c. Agreement rate.

Q4. Two tests, **test –A** and **test –B** are available to diagnose a certain disease, these tests have the following characteristic:

Test-A was positive in **25%** of individuals who are **disease free** and was **negative** in **2%** of patients who are **diseased**.

Test-B was positive in **2%** of individuals who are **disease free** and was **negative** in **25%** of patients who are diseased.

What are the sensitivity and specificity of each test? Which one do you prefer for the screening of a relatively severe disease?

Q5. You have a new glucose screening test. To see if it is effective, you compare its results to the gold standard of oral glucose tolerance test, out of 150 diabetic, 50 test positive with your new screening test. Out of 120 non-diabetics, 20 have a positive results by the screening test.

1. What is the percentage of patients deprived from necessary treatment?
2. Assess the validity of the new glucose screening test?

Q6. In a population of 4000, it is known that 20% of them are hypertensive. An investigator was asked to check the blood pressure of all individuals in the population, and he was able to correctly identify 20% of the hypertensive. Assume that false -ve are equal to false +ve.

- a. Display the data in a 2 x 2 table.
- b. Calculate the sensitivity, specificity and over all misclassification rates according to the investigator findings. What is the observed prevalence rate of hypertension?



Good Luck