

Public Health

Title = practical one

Lec no = 11

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Practical in Validity

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بالامتحان الدكتورة ما رح تحكيلنا مين screening و مين standard احنا لازم نعرف لحالنا و رح يكونو الأمثلة من الاشياء الي بتعطينا اياها و اشياء احنا familiar معها

معناتو ال surgeon هون شو؟screening test





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.

ability of the test to measure what is intended or supposed to measure

- a. What is the validity of surgeons in the diagnosis of acute appendicitis?
- b. Calculate the misclassification rates --- Ralse positive + Ralse negative
- c. Calculate the <u>repeatability</u> of the surgeons in the diagnosis of acute appendicitis.
- d. Calculate the predictive values of the surgeons in the diagnosis of acute appendicitis.

 what is the probability of the individuals to be having the disease among who are positive from the screening test **Description Screening **Description** Screening** Screening** Screening** Screening** Created with Notes**

 Note The diagnosis of acute the diagnosis of acute appendicitis.**

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as public health and other fields we always evaluate adults..in labs ما بطلع اى تحليل و يشوفو و يطبقو غير لما يعملو validity of the test

as doctors alot of cases of acute abdominal pain come and there is Alot of differential diagnosis so as doctors we need to recognize if it's acute appendicitis or not

the patient comes with acute abdominal pain in the right iliac fosa, tenderness so they evaluate the Ability of the doctor by clinical examination to say diagnos the patient with acute appendicitis then compare it with the surgical results and histological tests

132 ~> positive by screening test, 120 ~> totally positive by standards
48 ~> Palse negative by screening
they are positive according to the standard.

اهم اشي نعمل الجدول(هيو بالصفحه التحت)بالامتحان رح يعطونا ورقة و قلم و احنا لحالنا نعمل الtable المين نعمل العمل العمل العمل المعمل ال





screening test	Disc		
Positive	Positive	Negative	Total
Vegative	95	70	165
otal	5	730	735
	100	800	200
			The same

مو شرط تحکیلنا شو الsensitivity test وشو الspecificity ممکن تجبلنا السؤال indirect ..کم من المرضی ملکن تجبلنا السؤال deprived from the treatment المرضی اخدو laccossary treatment

Validity: False negative rates ------ x 100= 40 % 100- Sensitivity= 100-60= 40 % Sensitivity =---- x 100= 60 % 120 False positive rate = ____ x 100= 33.3 % 100-specificity= 100-66.7 = 33.3 % Ell ser surry A 9 th of the beauty

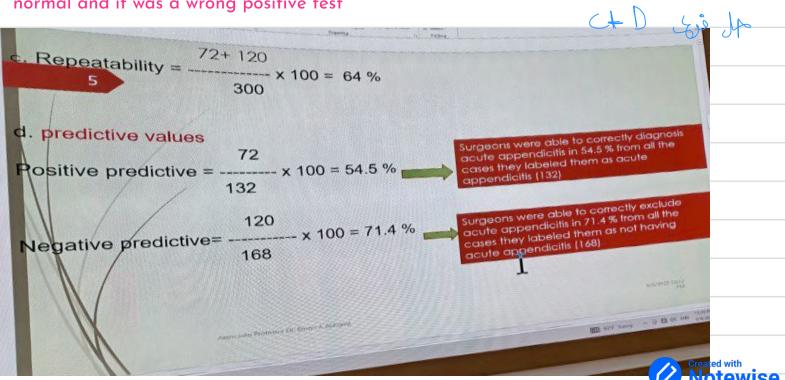


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these 40% are wrongly told that they are normal soooo what are the consequences? they will be deprived from the treatment and this will cauz alot of consequences like rupture of the appendix or appendicular mass ...



in false positive tests it's difficult to **de-label** the patient that he is normal and it was a wrong positive test



interpretation: ability of the surgeon to correctly diagnose or correctly exclude the individual

Interpretation of the results: Surgeons were sensitive in the diagnosis of 60% of cases of acute appendicitis, and missed 40%, with all the implications of missing acute appendicitis, such as all the complications of acute appendicitis by delaying appropriate treatment. Surgeons were specific in excluding acute appendicitis in 66.7% and incorrectly labelled normal individuals as acute appendicitis with all the implications of false positive such as the introduction unnecessary treatment and etc....



Q2. To assess the validity of a screening test in detecting cases of disease (X), the test was performed on 100 patients with the disease (X) and on 800 normal persons. Positive results were obtained in 95 out of the 100 diseased and in 70 out of the 800 normal

Calculate the sensitivity, specificity and overall misclassification rate of this test.

Is this test useful in screening of fatal disease? Explain.

screening test	Disc	Total	
	Positive	Negative	
Positive	95	70	165
Negative	5	730	735
	100	800	2900
Total	100		13

Associate Protestor Dr. Eman A Al Komil



1000 50°F Supray on 15 4% 50 mass

(a) 100 ~> they have the disease according to the standard test.

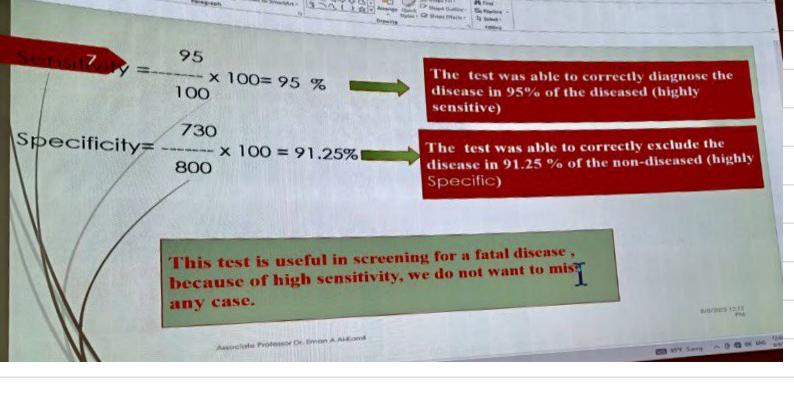
out of the 100 only 95 the screening test was able to detect.

and out of the 800 negative according to the standard ~> screening test detected 70 false positive test (b)

و رجعت الدكتورة حكت اهم اشي نعرف نكتب الجدول صح

this means that the sensitivity is 95% so the test is highly sensitive and **can be used for fatal diseases**..we already said that in fatal diseases we need sensitive test cauz we don't want to miss and case







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.

he was able to diagnose hypertension for %75 of the stand 75 person فهمتو علي؟يعني هو عرف 75%من عدد الحالاات الي اصلا معروف انو معهم ضغط **مو من ال 800**

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

- 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 prevalence rate is calculated by two ways:

 the results of the medical student? 1-either already existing cases from the population 75 from the 800 (

 the results of the medical student (

 The prevalence of hypertension in these workers according to prevalence ways:

 The results of the medical student (

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 The results of the results (

 The result

 \sim 2-or true positive+false positive: (56+102)/800*1000



75% of 75= nearly 4/8 56	Construct 2x	Disease		Total	Calculate: Lacrification
162 4% of the normotensive = nearly 10% الدكتورة مخريطة و كاتبه 105	(medical student)	Positive	Negative	and the second	1, overall misclassified rate
	The state of the s	56	102	158	AGREEMEN Positive predictive Positive predictive
56 x 100= 74.7 nearly 75 %	hypertensive	19	623	642	Positive predictive Negative predictive
75	Non		725	800	
	Total	75			wase hypertension in
					And Others with the second little of
623 100= 85.9% nearly 86%	6 Toldi	ainal studen	t was able to	to cor	rectly exclude hypertension
spacificity= x100= 85.9% Hearly	1. Me	dical studen	t was able to nd he was al	orrectly to cor	diagnose hypertension in rectly exclude hypertension is
725	1. Me- nea 25 % 86°	dical studen rly 75 %, a	t was able to nd he was al ectly labelled	to con	diagnose hypertension in rectly exclude hypertension in a non-hypertensive, and 14 statements of mischassification.
725 19 100= nearly	25 % 86°	dical studen rly 75 %. a %.	t was able to nd he was al ectly labelled we, with all th	orrectly he to con 125 % Of e consequences	s non-199 mences of misclassification.
725 19 100= nearly	25 % 86°	dical studen rly 75 %. a %. e was incorr hypertensi	t was able to not he was al ectly labelled ye, with all th	e consequences	s non-hypertensive, and 14.5 mences of mischissification.
725 19 100= nearly	25 % 86°	dical studen rly 75 %, a %. e was incorr hypertensiv	I was able to nd he was al ectly labelled ve; with all th	orrectly the to con 25 % G e consequ	s non-199 mences of misclassification.
725 19 100 nearly	25 % 86°	dical studen rly 75 %, a %. e was incorr hypertensi	t was able to nd he was al- ectly labelled ve, with all th	e to conseque	s non-199 mences of misclassification.



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:

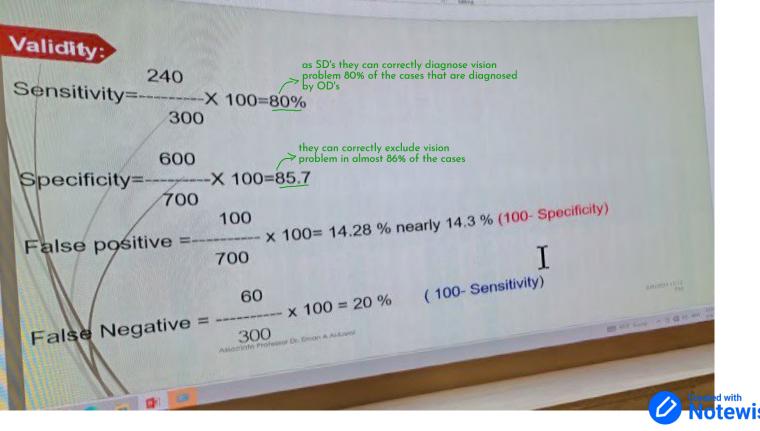
- a. Validity of SDs in vision examination.
- b. Misclassification rates
- c. Agreement rate.

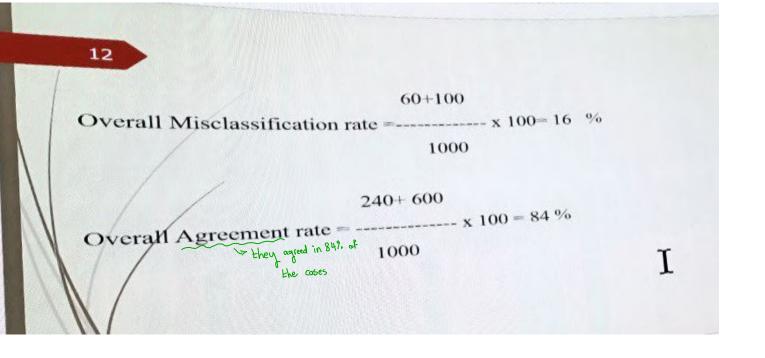


school doctors	ophthalmol	Total	
	visual problem	No visual problem	
visual problem	240	100 Palse positive	340
No visual problem	60	600	660 T
Total	300	700	1,000

Assertiate Profussor Dr. Eman A Al-Kamil









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

we want to know which test is better to be used for diagnosis

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 prefer for the screening of a relatively severe disease? test A

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? (False negative)

2. Assess the validity of the new glucose screening test?

new	glucose toleran		
test	diabitic	not diabitic	total
diabitic	50	20	70
not diabitic	100 Rabe	100	200
107al	150	120	270



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?





Thank you

