

# **Effect of an Educational Meeting on the Understanding by Patients of the Results of Laboratory Test**

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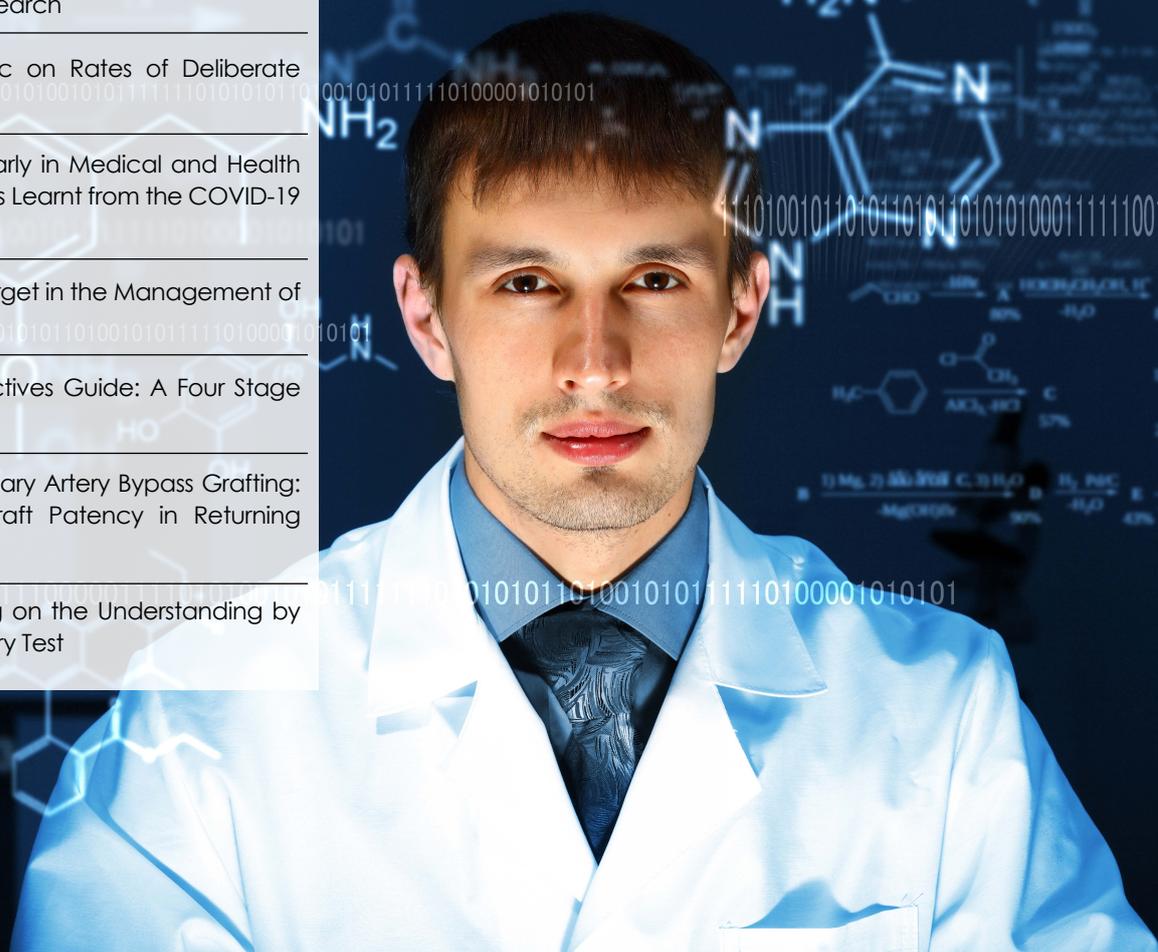
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## Effect of an Educational Meeting on the Understanding by Patients of the Results of Laboratory Test

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### Abstract

**Aim:** To evaluate the effect of educational meetings on the awareness of elderly subjects to understand the results of some laboratory tests.

**Methods:** Participants at two educational meetings, carried out at recreative centres for the elderly, filled out two identical anonymous questionnaires, at the beginning and at the end of the meeting. The items concerned the understanding of the results and the normal values of some common laboratory tests.

**Results:** Before the meeting, 80.8% of participants declared to have a good understanding of the results of the most common laboratory tests, however the real correct understanding varied from 65% (HDL cholesterol) to 22.3% (blood glucose). A total of 69.2% declared they quickly contact a doctor in the presence of an "abnormal" (flagged) test, and, after the meeting, this percentage decreased to 56.0%.

After the meeting, the subjects showed a better understanding of normal values of blood glucose, haemoglobin and HDL cholesterol.

**Conclusions:** Elderly subjects overestimate abnormality of the results of the most common laboratory tests. Simple community-based educational interventions can improve the understanding of the results of these tests.

### Key Words

Laboratory Tests; Primary Care; Patient Empowerment; Health Education

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### Introduction

Communication and understanding of the results of laboratory tests represent frequent activities in primary care, mainly aimed at the management of chronic diseases and therefore involving a mostly elderly population.<sup>1</sup> These processes are influenced by the physician's communication characteristics, by the type of results to be communicated, by the organisational model of communication, as well as by numerous factors of the patient such as age, literacy, expectations and emotional state.<sup>2,5</sup> Factors belonging to the patient's sphere affect the timing of the request for evaluation.<sup>5</sup> Among these factors, an important role can be played by the patient's awareness to understand the results of the tests.<sup>1</sup>

### Objective

To evaluate the effect of simple educational meetings on the awareness of elderly subjects to understand the results of some laboratory tests.

### Methods

Participants at two educational meetings on the importance of the periodic monitoring of chronic diseases, carried out at recreative centres for the

elderly, were invited to fill out two identical anonymous questionnaires at the beginning and at the end of the meeting. The forms were numbered to allow pre-post matching. Personal data were reduced to a minimum (age, sex) to ensure anonymity and an acceptable number of responses. The items concerned the understanding of the results and the normal values of some common laboratory tests. Results were expressed as mean (standard deviation) and percentage. The analysis was carried out by non-parametric and chi-square tests. A  $p$  value  $< 0.05$  was chosen as statistical significance. The study was conducted according to the indications of the Helsinki Declaration. Since this study consisted of a totally anonymous survey without the use of clinical data, it was not necessary to request explicit consent from the participants, according to national legislation.

### Results

Seventy-eight subjects (36 males, 42 females) filled out the two questionnaires (80% of the audience). The median age was 70.5 years (standard deviation = 8.5 years) without significant difference between males (72.2 years; standard deviation = 9.3 years)

and females (68.9 years; standard deviation = 7.5 years).

Table I shows the results of the questionnaires. Before the meeting, a high percentage of participants (80.8%) declared to have an overall good understanding of the results of the most common laboratory tests, with differences according to single tests (cholesterol test = 80.0%; urine test = 70.8%; glucose test = 59.0%, blood count = 45.8%).

A total of 69.2% of participants declared to contact a doctor in the presence of an “abnormal” (flagged) test. Regarding the evaluation of simulated results, 77.3% said they consider blood glucose = 100 mg / dL always as alarming, compared to 70.6% for a normal value of haemoglobin, 60.0% for a normal value of total cholesterol and 35.0% for a normal value of HDL cholesterol. No differences were found in the responses to the pre-meeting test

according to sex or age.

The answers after the meeting did not show significant differences with respect to the percentage of participants who said they had a good ability to understand the results of the laboratory tests, but there was an increased frequency of positive response to understanding single tests. The percentage of those who said they quickly contact a doctor in the presence of an “abnormal” result decreased from 69.2% to 56.0%, without significant statistical difference. Regarding the evaluation of simulated results, blood glucose = 100 mg / dL was considered alarming by 34.8% of the participants (p = 0.001 compared to pre-meeting), haemoglobin = 14.6 g / dL by 25.0% (p = 0.001 compared to pre-meeting), HDL cholesterol = 60 mg / dL by 17.4% (p = 0.037 compared to pre-meeting) and total cholesterol = 190 mg / dL by 45.3% (p = ns compared to pre-meeting) of the participants.

**Table I:** Results of the questionnaires before and after the intervention (educational meeting)

Item	Before the meeting		After the meeting		P value
	Yes (%)	No (%)	Yes (%)	No (%)	
Do you think you can understand the results of the common laboratory tests?	63 (80.8)	15 (19.2)	66 (84.6)	12 (15.4)	>0.05
Do you think you can understand a blood count result?	33 (45.8)	39 (54.2)	63 (84.0)	12 (16.0)	0.001
Do you think you can understand a urine test result?	51 (70.8)	21 (29.2)	75 (96.1)	3 (3.9)	0.001
Do you think you can understand a cholesterol test result?	60 (80.0)	15 (20.0)	78 (100.0)	0 (0.0)	0.001
Do you think you can understand a glucose test result?	39 (59.0)	27 (31.0)	66 (88.0)	9 (12.0)	0.001
If tests are "abnormal*" do you always contact a doctor immediately?	54 (69.2)	24 (30.8)	42 (56.0)	33 (44.0)	>0.05
Blood glucose = 100 mg/dL is always an alarming result?	51 (77.3)	15 (22.7)	24 (34.8)	45 (65.2)	0.001
Blood total cholesterol = 180 mg/dL is always an alarming result?	45 (60.0)	30 (40.0)	33 (45.3)	39 (54.7)	>0.05
Blood HDL cholesterol = 60 mg/dL is always an alarming result?	21 (35.0)	39 (65.0)	12 (17.4)	57 (82.6)	0.037
Blood hemoglobin = 14.6 g/dL is is always an alarming result?	36 (70.6)	15 (29.4)	15 (25.0)	45 (75.0)	0.001

\* “Abnormality” = presence of a flag on the results

## Discussion

The clinical management of the results of laboratory tests represents a relevant workload in primary care that is further aggravated in the case of misinterpretation or anxiety caused by understanding difficulties.<sup>2,6</sup> This study was carried out among the participants of health educational meetings in two recreative centres for the elderly. Although the participants chose to complete the questionnaire themselves, we think that the data may reflect a large portion of subjects who weigh on primary care clinics as ambulant patients.

The results of the study show that these subjects, while declaring a good ability to understand the results of laboratory tests, overestimate the abnormality and often consult their doctor quickly. These results do not differ according to the gender and age of the participants. Previous studies showed that the understanding of the results of laboratory tests is around 50%, slightly higher than the comprehension of radiological reports, and in about 60% of cases the citizen turned to a healthcare professional to obtain an explanation.<sup>2,7</sup>

Given the simple design of the study, it was not possible to consider the health literacy skills of the participants. Limited health literacy and numeracy skills are demonstrated to be significant barriers to basic use of laboratory test result data.<sup>2,7,8</sup>

The results of the study also showed that a simple community-based educational intervention can improve the understanding of the results of laboratory tests. Moreover, the percentage of participants who declared that they always contact a doctor quickly in the event of an "abnormal" laboratory result decreased after the meeting, without reaching levels of significance. This can be explained not only by residual uncertainty by the subjects about the correct meaning of the results of the laboratory tests but also in the contest of the close relationship established between patient and family doctor in the Italian Health System.

## Conclusions

Elderly subjects overestimate abnormality of the results of the most common laboratory tests. Simple community-based educational interventions can improve the understanding of the results of these tests.

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