

Lay Understanding of Medical Terminology

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One hundred sixty-six adult patients of a community family practice program were questioned about their understanding of the terms *hypertension*, *virus*, *strep throat*, *herpes*, *tumor*, *Pap smear*, and *uterus*. Significant misconceptions were common among patients of all ages and educational backgrounds, although a positive association of education and knowledge was demonstrated. In using these and similar terms, clinicians must be cautious to ensure that the patient is receiving the intended message.

The growth of medical terminology in the last century has been as rapid as the advances in the field itself. For example, *Stedman's Medical Dictionary*¹ lists 8,152 new entries in its 24th edition. Although this terminology provides the needed precision in the medical setting, it has also created an elite language in which only a small portion of society is fluent. Medical practitioners are fluent in a world that is frankly foreign to many of their patients.

Blumhagen² reported a wide variety of patients' concepts of hypertension, many of them quite different from the way the word is used medically. Wile³ found that phrases commonly used in both medical and nonmedical settings are understood differently by physicians and patients. Bryant and Norman⁴ reported that even among physicians there is wide variation in how common words are understood. The importance of good patient-physician communication is borne out in a study showing that 57 percent of all in-hospital complaints were made concerning the lack of or dissatisfaction with information provided by physicians and nurses.⁵ Laskin⁶ noted that most malpractice suits arose out of the perception that

the physician was not providing adequate time and care in communication rather than dissatisfaction with treatment.

Patient compliance has been shown to increase as a result of a clearer understanding of the disease and the diagnosis and treatment process.^{7,8} All too frequently patients are told little or nothing about their illness. Kleinman et al⁹ cite numerous instances in which a lack of mutual understanding between patients and health care providers led to difficulties in the delivery of care. Surveys have shown 20 to 60 percent of hospitalized patients are dissatisfied with the information they are receiving about their disease.^{10,11}

The goal of this project was to elucidate the potential communication gap that exists with even the most common medical terms by studying the lay perceptions of their meaning.

Methods

Questionnaires were distributed by the clinic receptionists to patients of the Group Health Family Practice Residency in inner-city Seattle upon the patient's entry to the waiting area. Patients who were acutely ill and those with minimal anticipated waiting time were not given the questionnaires. A total of 166 patients completed the survey over a two-week period. Four additional patients returned incomplete forms and were eliminated from the study. Patients were asked to indicate their age group, educational training, sex, and medical background. A previous patient interview process identified eight common medical terms

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that are often used in clinical encounters without further explanation. The terms chosen were *hypertension*, *virus*, *strep throat*, *herpes*, *hematocrit*, *tumor*, *Pap smear*, and *uterus*. Subjects were asked to identify which of the words they had heard within the medical setting and to identify as true or false three to four statements regarding each term. The statements were designed to test the subjects' practical knowledge of the given term. For example, the statements related to hypertension included the concepts that it is a state of nervousness, that it cannot be changed, that it involves an elevation of blood pressure, and that it increases the risk of heart attack. For uterus, subjects were asked whether it is a digestive organ, smaller than a softball, the growing place for an unborn baby, and a highly sensitive organ of sexual contact. Copies of the questionnaire and response rates to individual items are available on request.

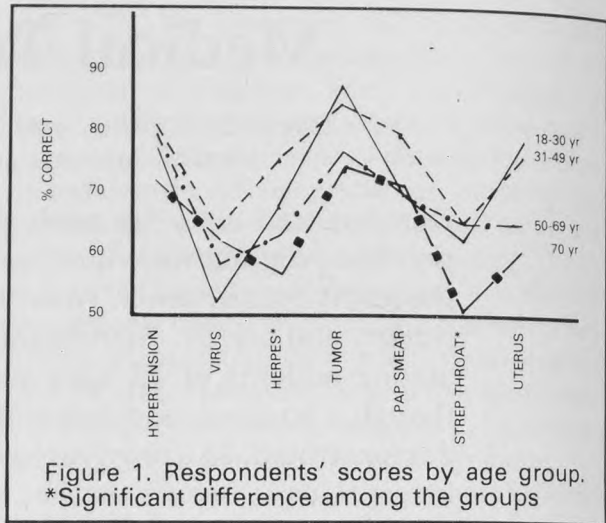
The subjects' scores were tabulated as a percentage of maximum number of correct responses for each item. Comparisons of the rates of correct responses among subgroups of subjects were performed using one-way analysis of variance and weighted linear test for trend (SPSS Version H).¹² Statistical significance was defined as $P < .05$.

Results

The demographic breakdown of the 166 study participants was as follows: 32 percent were between 18 and 30 years, 31 percent were between 31 and 49 years, 28 percent were between 50 and 69 years, and 10 percent were over 70 years of age. Educationally, 8 percent attended elementary school, 31 percent completed high school or vocational school, 37 percent completed college, and 24 percent completed graduate school. Thirty-one percent of the respondents were male. Twenty-six percent reported previous medical training.

All items on the questionnaire were commonly heard by the subject in the medical setting (greater than 99 percent) except hematocrit (45 percent). Because of the questionable denominator for answers given to hematocrit, that term was eliminated from further consideration.

Analysis of individual items revealed several interesting findings. Twenty-nine percent of participants believed that hypertension was a state of extreme nervousness; however, 72 percent did know that people with hypertension have elevated blood pressure. Virus had the lowest total correct re-



sponse rate (59 percent). Forty-two percent of the patients believed that viruses could be treated with antibiotics. Forty-two percent thought herpes could be spread only through sexual contact. Surprisingly, 45 percent believed that having herpes precluded one from having children. Statements regarding the word *tumor* elicited the highest rate of correct responses (83 percent), but 8 percent of respondents believed all tumors are cancerous. Twenty-one percent of respondents knew of the potentially severe cardiac consequences of strep throat. Nine percent believed that the uterus was a digestive organ. Nearly one fourth of the patients (22 percent) did not know that the uterus is the growing place for the unborn baby. Twenty-eight percent felt that Pap smears are done primarily to look for infection.

No difference in scores was seen in comparing male with female respondents for any of the items. As expected, subjects with medical training had higher scores than those lacking such training on all seven items, with statistical significance reached for three items (virus, herpes, and Pap smear).

Figure 1 demonstrates the scores achieved by age groups. Although the oldest age group (greater than 70 years) had the lowest score on 5 of the 7 items, significant differences among the four age groups were demonstrated only for strep throat and herpes (and in neither of these was the linear test for trend significant).

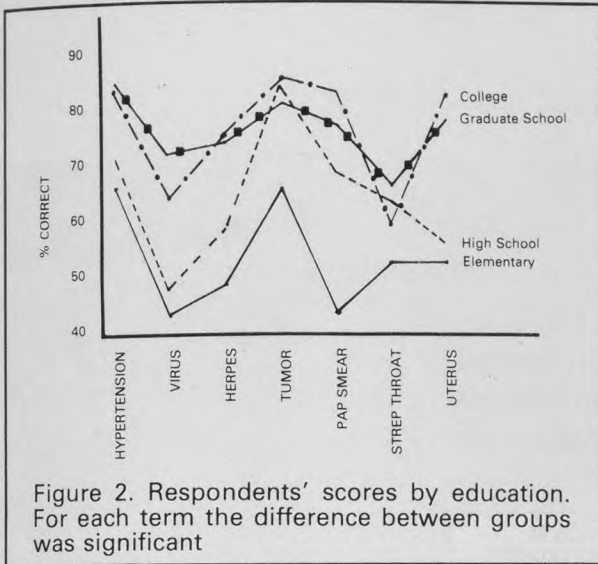


Figure 2 shows a similar breakdown by educational level. For each term there was a statistically significant difference among groups, with persons of higher educational levels achieving higher scores. Linear test for trend was significant for all items.

Discussion

Patients' understanding of commonly used medical terms was examined with attention to the definition of the words as well as basic facts about each item. Findings demonstrate substantial misconceptions of a broad range of common terms by a broad range of adult patients.

The survey demonstrates that even with terms considered quite banal to many clinicians there is misunderstanding among a large number of patients. Certain patients—particularly those who are uneducated, elderly, and lack a medical background—can be identified as having more trouble with such terminology. Even the more knowledgeable patients, however, had important misconceptions. It is important, then, in patient discussions to inquire carefully about the patient's understanding of his medical situation. For example, the word *tumor* will elicit a "cancer" response in 1 out of 10 patients, and 1 out of 5 lacks basic understanding of the function of the uterus.

Surprisingly, some of the authors' preconceived biases regarding patients' understanding were false. For example, women were as lacking as men

in their understanding of uterus and Pap smear. Also, although elderly patients tended to show more misconceptions, this was not at all a strong trend, and education proved a much more important determinant of knowledge.

The terms were presented to subjects without a clinical context. It is likely that understanding improves when a term is mentioned in an appropriate context, but the degree of such facilitation is unknown.

The terms included in the study were chosen arbitrarily, but they are not the most obscure terms physicians use without further explanation. To improve physician-patient communication, a multifaceted approach is likely to be most effective. Education from physicians, nurses, reading materials, and classes all may increase the knowledge of patients. However, physicians need to be continuously aware that their perceptions of what they tell patients and their patients' understanding may be quite divergent, even among patients whom one suspects should be knowledgeable.

This project brings an awareness of the communication gap that exists between the physician and patient. Failure of this communication is a major source of patient dissatisfaction. Increased compliance is obtained when a patient has an idea of the process of his or her disease and treatment. Communication, however, requires time and patience to educate the lay person.

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