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Measurement of Patient Satisfaction: The Smith-Falvo Patient-Doctor Interaction Scale

SUMMARY

Patient satisfaction has been considered important for many years. This article provides a review of various methods that have been developed to measure patient satisfaction and describes the use of the Smith-Falvo scale in determining patient satisfaction with the medical services provided by residents in the Verdun Family Practice Program. In view of the limited range of scores provided by the use of this scale, the authors recommend that further research be done to develop a method of assessment of patient satisfaction that will take into account the duration of patient-physician interviews. (*Can Fam Physician* 1988; 34:2641-2645.)

Key words: patient satisfaction, methods of assessment, residency training

RÉSUMÉ

Depuis de nombreuses années, on accorde une importance marquée à la satisfaction du patient. Cet article passe en revue les différentes méthodes mises au point afin de mesurer la satisfaction du patient et décrit l'échelle de Smith-Falvo utilisée à l'Unité de médecine familiale de Verdun pour déterminer la satisfaction des patients vus par les résidents. À la lumière des résultats limités fournis par cette échelle, les auteurs recommandent de poursuivre les recherches afin de mettre au point une méthode d'évaluation qui tiendrait compte de la durée de l'entrevue patient-médecin.

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as important for many years. As early as 1968, Korsch¹ conducted interviews with the parents of pediatric patients in order to measure their satisfaction. A patient who is satisfied is thought to be more likely to comply with treatment and/or experience a more favourable outcome. From an administrator's viewpoint, patient satisfaction might well influence the use of the different components of the health-care system and aid in better planning. From an educational viewpoint, patient satisfaction is one of the desired outcomes of a training program, especially in the discipline of family medicine, where the quality of the doctor-patient relationship is so highly valued.

We at the Verdun Family Medicine Clinic needed a reliable and valid measure of patient satisfaction to evaluate our residents' interviews and to compare our findings with our own methods of evaluating patient-doctor interaction. In 1978, Ware² reviewed more than one hundred articles on patient satisfaction that had been published within the preceding 35 years. He points out that underlying the use of satisfaction data is the assumption that "satisfaction" questionnaires measure patient satisfaction reliably and validly. Yet he found that only 11 of 81 empirical studies reported reliability estimates for patient satisfaction measures, and those that did so report suggest poor

PATIENT SATISFACTION is a concept that has been addressed

reliability for single-item measures. Ware also notes that the validity of satisfaction scores as dependent variables in relation to specific characteristics of health-care providers are strictly limited.

Since the publication of this 1978 review, others have tried to produce better measurement devices. In 1984, Feletti³ constructed a scale, the items of which were chosen by the researchers. No explanation was given for the choice of those particular items, which are descriptive of physician conduct without reference to the importance of this conduct to the patient. In 1979, Biehn⁴ published a scale, the items of which, once again, were chosen by the researchers and not by patients. Moreover no evaluation of reliability or validity was included. Comstock⁵ interviewed patients and asked about their preferences before choosing the items for her satisfaction scale, but there is no documentation of reliability and validity measures. The Di Matteo scale⁶ represents a clear improvement over the earlier ones, for although the individual items are chosen by researchers and not by patients, concurrent validity is shown, and every patient was asked whether he/she wished to return to see the same doctor. Since responses were anonymous and patients were assured that their physician would not see their answers, their planning to return is probably good evidence of satisfaction. Unfortunately, this scale's value is considerably decreased because reliability could not be demonstrated.

In 1978, Wolf⁷ developed a scale of a higher quality as reflected by its use by other researchers, among them Henbest.⁸ Fifty patients critically assessed the appropriateness of each item in the scale. Internal consistency was demonstrated, as was reliability, by means of Cronbach's coefficient alpha. But, as Wolf himself points out, "further research is needed to assess [the instrument's] clinical validity". Moreover — and this is a factor that we should have looked at more attentively — both the median and the means were above .8, though Wolf states that the results are less skewed than those obtained by means of other scales. Finally, since the scale includes 46 items, its length might discourage its use.

Fully realizing that there is no per-

fect satisfaction scale, we were nevertheless impressed with the one constructed by Falvo in 1983.⁹ She and Smith developed the scale after interviewing patients from a family practice, generating 1540 descriptions of patient-preferred and not-preferred physician behaviours. In a second interview, other family-practice patients rated categories of behaviour by preference, and from the results a satisfaction scale was constructed.¹⁰ Reliability was assessed by the test-retest method, and internal reliability was measured by Cronbach's alpha. Concurrent validity was assessed by correlating the scale's scores with the patient's reported intention to return to the physician for further health care. Convergent validity was assessed by correlating the scores with those of Wolf's scale, described in the previous paragraph.

Because of its strengths, we chose to use the Smith-Falvo scale.

Method

The Verdun Family Practice Program lasts two years and accepts 24 residents at any one time. Of the 14 residents participating in the study, eight were in their first year of training, and six were in their second year. Their average age was 25 years. Ten of the participating trainees were women, and they conducted 19 of the 28 interviews. All were selected because their particular rotations gave them the time required to participate in the study when we were ready to proceed. None of them knew the purpose of the research project.

Our program makes use of community-based family practices. Thirty-seven patients from two community-based practices and one from our own hospital-based unit were approached and asked to participate in our study. Seven of these patients were coming for a regular follow-up visit and 21 others for a walk-in consultation. There was no patient selection, except for age: we ensured representation of all age groups by including four patients in each of the following age brackets: 0–3 years, 4–11 years, 12–17 years, 18–35 years, 38–84 years, 85–74 years, and over 75 years of age. A member of our team approached each patient in the appropriate age groups as soon as he or she had registered with the medical secretary. Ten patients refused to parti-

pate. They were all in the 12–17-year age bracket. For the 28 patients who accepted, the average number of years of schooling was 9.5.

The patients had a single encounter with a resident whom they had never seen before. They knew that they would not be seen by this doctor again in the foreseeable future.

The interview, but not the physical exam, was filmed. Filming is a procedure we regularly use in our teaching unit. The residents were supervised in the usual way, by direct discussion with the supervisor after taking a history and performing physical exam.

Immediately following the doctor-patient encounter, the patient (or his/her parent for those under 15 years of age) completed the Smith-Falvo questionnaire in private. A nurse, always the same one, was available to help any patient who needed assistance in interpreting the questionnaire (Figure 1).

Twenty-four of the interviews were conducted in the French language. The questionnaire was translated by six bilingual instructors (two physicians, three nurses and a family therapist), and this translation was submitted for checking to three other bilingual physicians. Their comments were considered and appropriate corrections were made. No countertranslation was done.

The questionnaire was scored according to the same method used by Smith-Falvo, giving each answer a rating of one to five (Figure 1).

Results

All residents obtained a score above 75% on the Smith-Falvo scale; 13 of the 28 interviews were scored above 85%. Assuming a normal distribution, the 99% confidence interval of the mean is $.905 > M > .834$.

A T-test pairing of the answers for all the interviews indicated that questions 7 and 11 on the Smith-Falvo scale scored significantly lower than the other answers. Re-weighting these two items by giving them more relative importance did not decrease the mean of the distribution because for the lowest-scored interviews these two questions had not been completed. Moreover, after re-weighting these two items, item-total correlations (Pearson) for four of the 19 items were unsatisfactory.

Figure 1

Dr. _____

Smith-Falvo Patient-Doctor Interaction Scale

It is important to our resident physicians to know what you, their patients, feel about your interaction with them. Only with your help can the physicians be aware of what areas they should try to improve and in what areas they are especially good. Please help us give them this feedback by filling out the following questionnaire. Your physician will not see this questionnaire and will not be aware what you, as an individual, said about him/her, but only what patients as a group said. Complete confidentiality will be maintained.

Thinking about the visit you just had with your physician, please check the boxes that best describe whether you agree or disagree with the following statements:

	Strongly Agree	Agree	Unsure	Disagree	Strongly Disagree	Does Not Apply
1. The doctor went straight to my medical problem without first greeting me.	1	2	3	4	5	
2. The doctor greeted me pleasantly.	5	4	3	2	1	
3. The doctor seemed to pay attention as I described my condition.	5	4	3	2	1	
4. The doctor made me feel as if I could talk about any type of problem.	5	4	3	2	1	
5. The doctor asked questions that were too personal.	1	2	3	4	5	
6. The doctor handled me roughly during the examination.	1	2	3	4	5	
7. The doctor gave me an explanation of what was happening during the examination.	5	4	3	2	1	
8. The doctor explained the reason why the treatment was recommended for me.	5	4	3	2	1	
9. I felt the doctor diagnosed my condition without enough information.	1	2	3	4	5	
10. The doctor recommended a treatment that is unrealistic for me.	1	2	3	4	5	
11. The doctor considered my individual needs when treating my condition.	5	4	3	2	1	
12. The doctor seemed to rush.	1	2	3	4	5	
13. The doctor behaved in a professional and respectful manner towards me.	5	4	3	2	1	
14. The doctor seemed to brush off my questions.	1	2	3	4	5	
15. The doctor used words I did not understand.	1	2	3	4	5	
16. The doctor did not give me all the information I thought I should have been given.	1	2	3	4	5	
17. The doctor criticized me for not taking care of myself.	1	2	3	4	5	
18. I would recommend this doctor to a friend.	5	4	3	2	1	
19. I would return to this doctor for future health care.	5	4	3	2	1	

THANK YOU FOR TAKING TIME TO FILL OUT THIS QUESTIONNAIRE!

Discussion

Unusual distribution of scores

The Smith-Falvo scores obtained in our setting gave us a very high mean and showed little dispersion. We believe that these results fail to permit discrimination between good and "poor" interviews. To explain these results we considered the following hypotheses.

Poor translation of the Smith-Falvo scale

Since the scale was administered in French in 24 of the 28 interviews, the scale's validity could be affected if the translation were poor. However, since nine different bilingual health professionals critically evaluated the translation, major errors seem unlikely.

Residents' characteristics

Overall, the interview scores on the Smith-Falvo scale were outstanding. Are we dealing with an outstanding group of residents? The residents are young physicians-in-training. Are patients less critical of the young trainee in view of his/her lack of experience?

Although the residents were not told the specific purpose of the study, one usually expects that in the context of a taped interview, they exhibit their best behaviour. Are the scores on the interaction scale a reflection of patients' satisfaction with the residents' skills or with their effort to perform well?

The interviews were subsequently viewed and graded independently by four teachers of family medicine, as well as by the residents themselves. For this purpose a reliable scale of doctor-patient relationship was used.¹¹ With this scale there was good dispersion in performance, whether graded by the teachers or by the residents themselves. We are convinced that this dispersion more truly represents the real differences in performance.

Patient characteristics

The educational level of our patients is lower than that of the Smith-

Falvo sample. There is one study which suggests that less highly educated patients are less critical of their doctors, but other studies do not report this finding.²

The type of encounter

Each patient was meeting the doctor for the first time. Are patients more tolerant during a first encounter, preferring to wait before making final judgements? Do these same patients hesitate to criticize because they are so rarely asked to do so?

The reputation of the community practice

All of the interviews except one were held in two Local Community Health Centres. Both Centres offer a variety of health services and enjoy an excellent reputation in their community. It is conceivable that patient satisfaction with the overall health services could have a "halo" effect on patient satisfaction with the doctor-patient encounter.

Deficiencies of the scale

Many of the questions in the Smith-Falvo scale address the issue of professional manners and patient respect in a rather basic sense (Questions 1-3, 5, 8, 13, 14, 17): "The doctor greeted me pleasantly" (Q.2); "The doctor handled me roughly during the examination" (Q.6); "The doctor criticized me for not taking care of myself" (Q.17). It is rather unusual for a resident to show flaws in these matters to the point of drawing criticism from a patient. Another series of questions addresses the issue of communication and information given to the patient. (Q. 7, 8, 15, 16): "The doctor gave me an explanation of what was happening during the examination." (Q.7) Public criticism directed to the medical profession on this point has been strong and repeated in the past years: again, although one hardly expects a supervised young physician to neglect this area grossly, serious deficiencies often appear. It may be that the questions as formulated in the scale are not sufficiently sophisticated to elicit a critical response by the patient. The patient

may be influenced in this questionnaire to give a favourable assessment in an "all or nothing" manner. Furthermore the construction of the scale may tend to induce a halo effect and a proximity error in the direction of more favourable scoring.

No control

for the length of the interview

Our interviews lasted from 20 to 80 minutes; no time limits were set for the residents. We have no solid proof, but an article by Kent Smith¹² and our own clinical experience tell us that patients overlook many shortcomings in a physician who spends a lot of time with them. Conversely, even if the history, physical exam, diagnosis and prescribed treatment are scientifically unassailable, the patient may be completely dissatisfied with the encounter if the physician spends too little time. We suggest that the variable duration of an interview may be the factor that *most* influences patient satisfaction.

After our study was completed we contacted one of the authors who conducted the initial study with the Smith-Falvo scale. She reported that by far the greater number of their own interviews were also highly rated and were not controlled for time.

Conclusion

In our study, the Smith-Falvo scale produced a dispersion of scores that severely limits discrimination between good and poor interviews. Even though "satisfaction" is a relative concept, and even if some discrimination may be possible, since nearly half the scores were above 85%, we must look for other variables that might have produced such high scores.

When measuring patient satisfaction, convergent and concurrent validity do not provide sufficient criteria by which to evaluate a scale. Dispersion of scores must permit discrimination between poor and excellent interviews. The Smith-Falvo scale, as administered by our group, does not permit this dispersion. Further re-

search should take into account the length of the doctor-patient encounter, a variable which could be more important than any other.

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BRIEF PRESCRIBING INFORMATION

ARTHRINOL* 325 ARTHRINOL* 500

(acetylsalicylic acid delayed-release capsules U.S.P.) Enteric Coated with Sustained Action

THERAPEUTIC OR PHARMACOLOGICAL CLASSIFICATION Analgesic, anti-inflammatory and antipyretic

ACTIONS Acetylsalicylic acid (ASA) interferes with the production of prostaglandins in various organs and tissues through acetylation of the enzyme cyclo-oxygenase. Prostaglandins are themselves powerful irritants and produce headaches and pain on injection in man. Prostaglandins also appear to sensitize pain receptors to other noxious substances such as histamine and bradykinin. By preventing the synthesis and release of prostaglandins in inflammation, ASA may avert the sensitization of pain receptors. Acetylsalicylic acid's antipyretic activity is due to its ability to interfere with the production of prostaglandin E in the brain. Prostaglandin E, is one of the powerful pyretic agents known. ARTHRINOL* preparations consist of small enteric-coated ASA pellets contained in hard gelatin capsules. As such, their pharmacological effects are delayed following the initial dose. ARTHRINOL* capsules therefore are more useful for chronic administration, as in arthritis, than for providing prompt relief of pain and fever. The bioequivalence of ARTHRINOL* capsules to conventional enteric-coated tablets (Entrophent†) was demonstrated in a single-dose, randomized, open-label, cross-over bioavailability study involving 24 male volunteers in both fed and fasted state.

Administration of a single 650 mg dose of both preparations to fasted subjects resulted in the following comparable mean salicylate pharmacokinetic parameters for ARTHRINOL* vs Entrophent†: C_{max} (mcg/mL): 32.7 vs 31.7; t_{max} (hr): 5.3 vs 6.0; apparent plasma elimination half-life $t_{1/2}$ (hr): 2.8 vs 2.6. Salicylate pharmacokinetic parameters in fed subjects were similarly comparable: C_{max} : 32.2 vs 29.8 mcg/mL; t_{max} : 6.1 vs 7.0 hr; $t_{1/2}$: 2.8 vs 2.7. Similarly, there were no significant differences observed between the regimens in terms of areas-under-the-curve or urinary excretion of salicylate either. The main difference observed in this study between ARTHRINOL* and Entrophent† was the fact that detectable salicylate blood levels occurred significantly earlier following administration of ARTHRINOL* than Entrophent† (1.4 vs 3.1 hrs in fasted subjects; 2.8 vs 5.3 hrs in fed subjects). In other comparative bioavailability study, at steady state, ARTHRINOL*, when administered at a dose of 1300 mg b.i.d. for 7 days, was shown to be absorbed more rapidly and to a greater extent than Entrophent† 650 mg q.i.d. for 7 days (t_{max} : 5.7 vs 10.2 hrs; C_{max} : 89 vs 82 mcg/mL; AUC_{0-12} : 790 vs 633 mcg hr/mL). Moreover, the administration of ARTHRINOL* resulted in less subject-to-subject variability of plasma salicylate levels (mean between-subject coefficient of variation of plasma salicylate concentrations over 24 hrs.: 32% vs 47%). In the same steady state bioavailability study, ARTHRINOL* 1500 mg b.i.d. produced significantly higher AUC's, maximum and morning plasma salicylate concentrations than either ARTHRINOL* 1300 mg b.i.d. or Entrophent† 650 mg q.i.d. After absorption, ASA is rapidly hydrolyzed to salicylic acid. Salicylic acid is widely distributed throughout the body with highest concentrations found in the kidney cortex, liver, heart and lung. Brain concentrations are relatively low. The chief metabolic products are the conjugates with glycine (salicylic acid) the ether or phenolic glucuronide (salicylic phenolic glucuronide) and the ester or acyl glucuronide (salicylic acyl glucuronide). A small fraction is oxidized to gentisic and other hydroxybenzoic acids. Excretion of salicylates is almost entirely via the kidney.

INDICATIONS ARTHRINOL* (acetylsalicylic acid delayed-release capsules U.S.P.) is indicated for the relief of mild to moderate pain, fever and inflammation of a variety of conditions such as arthritis, bursitis, burns, dysmenorrhea, fractures, injuries, low back and neck pain, myositis, neuralgia, sprains and strains, synovitis, and following surgical procedures. Because of its delayed and sustained-release properties, ARTHRINOL* is more useful for chronic administrations than for providing prompt relief of acute pain and fever. ARTHRINOL* is indicated whenever reduced gastric intolerance to ASA is desired.

CONTRAINDICATIONS Salicylate sensitivity, active peptic ulcer.

PRECAUTIONS Administer salicylates cautiously to patients with a history of gastrointestinal ulcerations, bleeding tendencies, significant anemia or hypoprothrombinemia, severe hepatic damage or Vitamin K deficiency, as well as to those with asthma and other allergic conditions, including those patients known to be allergic to other non-steroidal antiinflammatory drugs. Patients with angioedema are particularly likely to have hypersensitivity reactions. Special precautions are necessary when administering salicylates to patients with chronic renal insufficiency. Patients taking ASA daily are at an increased risk of developing gastrointestinal bleeding following the ingestion of alcohol.

Caution is necessary when salicylates and anticoagulants are prescribed concurrently, as salicylates can potentiate the action of anticoagulants and depress the concentration of prothrombin in the plasma. Diabetics receiving concurrent salicylate-hypoglycemic therapy should be monitored closely, and reduction of the sulfonylurea hypoglycemic drug dosage or insulin requirements may be necessary. Caution is advised when prescribing salicylate containing medications for children and teenagers with influenza or chicken pox, because of possible association with Reye Syndrome, a rare but serious illness. **Pregnancy:** Because of possible effects on the neonate and the potential increase of maternal blood loss, ASA should be avoided during the last three months of pregnancy, unless the potential benefit outweighs the potential risks. ASA interferes with maternal and infant blood clotting and may lengthen the gestation and parturition time. Salicylate may appear in human breast milk and thus should be administered to nursing mothers with caution. Salicylates can produce changes in thyroid function tests. Sodium excretion produced by spironolactone may be decreased by salicylate administration. Salicylates in large doses are uricosuric agents, smaller amounts may depress uric acid clearance and thus decrease the uricosuric effects of other drugs. Salicylates also retard the renal elimination of methotrexate. Salicylates, in doses greater than 2 g per day, have a hypoglycemic effect. Salicylates compete with a large number of drugs (e.g. phenytoin, thyroxine, warfarin, naproxin and others) for salicylate binding sites. Uremia and/or reduced albumin levels are likely to produce higher concentrations of free drug which may increase the pharmacological effect. Hepatotoxicity which is dose dependent and not associated with hypersensitivity may occur. Acute hepatitis been reported rarely in patients with systemic lupus erythematosus and juvenile rheumatoid arthritis with total plasma salicylate concentrations above 25 mg/100 mL (1.8 mEq/L). Prolonged excessive use of salicylates in analgesic mixtures may produce papillary necrosis and interstitial nephritis.

ADVERSE EFFECTS The following adverse effects, pertaining to conventional ASA dosage forms, should be kept in mind when administering ARTHRINOL*: Gastrointestinal: nausea, vomiting, diarrhea, gastrointestinal bleeding and/or ulceration, dyspepsia, heartburn.

Ear: tinnitus, vertigo, hearing loss. Hematologic: Leukopenia, thrombocytopenia, purpura, anemia. Dermatologic and hypersensitivity: urticaria, angioedema, pruritus, skin eruptions, asthma, anaphylaxis; patients with a history of angioedema are at higher risk to develop anaphylactic reaction. Miscellaneous: mental confusion, drowsiness, sweating, thirst, acute reversible hepatotoxicity.

SYMPTOMS AND TREATMENT OF OVERDOSAGE Signs of mild salicylate toxicity may occur at concentrations of 1.5 mEq/L (200 mcg/mL), severe toxic effects may occur above 3.0 mEq/L (400 mcg/mL). In mild overdosage these may include rapid and deep breathing, nausea, vomiting, vertigo, tinnitus, flushing, sweating, thirst and tachycardia. In more severe cases, acid-base disturbances including respiratory alkalosis and metabolic acidosis can occur. Severe cases may show fever, dehydration, oliguria, hemorrhage, excitement, confusion, convulsions or coma and respiratory failure. Hypoglycemia or hyperglycemia may occur. Treatment is largely symptomatic and supportive. Induce vomiting and perform gastric lavage, then administer activated charcoal. Treatment consists of prevention and management of acid-base and fluid and electrolyte disturbances. Renal clearance is increased by increasing urine flow and by alkaline diuresis but care must be taken in this approach to not further aggravate metabolic acidosis and hypokalemia. Acidemia should be prevented by administration of adequate sodium containing fluids and sodium bicarbonate. Hypoglycemia is an occasional accompaniment of salicylate overdosage and can be managed by glucose solutions. If a hemorrhagic diathesis is evident, give vitamin K. Peritoneal or hemodialysis may be required if serum salicylate concentrations are greater than 7.25 mEq/L (1.0 mg/mL) 6 hours after ingestion, in complex acid base disturbances not responsive to conventional therapy, if the patient is in renal failure or if the patient is deteriorating despite appropriate clinical care. Use general supportive measures for depressed respiration. Treat convulsions with a suitable drug of choice according to the patient's clinical condition and the physician's judgment. Hypertension and dehydration are an immediate threat to life. Initial therapy must be directed to their correction.

DOSEAGE Analgesic and antipyretic: Usual adult dose is two capsules two to four times a day, consecutive doses not to be taken at less than four-hour intervals. Patients should be advised not to exceed 4.0 g ASA daily. If underlying condition requires the use of ARTHRINOL* for more than 5 days, a physician should be consulted. Anti-inflammatory: Adults: Because the suppression of inflammation increases even when the dosage of salicylates is raised beyond toxic levels, the therapeutic objective is to employ as large a dose as possible short of toxicity.

3 or 4 capsules of ARTHRINOL* 325 or ARTHRINOL* 500. B. I. D., T. I. D. or Q. I. D., as required. Dosage needs to be adjusted individually to achieve maximum therapeutic salicylate blood levels (generally between 150 and 300 mcg/mL). Titrate the dosage by starting with 2.6 to 4 g daily according to the size, age and sex of the patient. If necessary, the dosage is then gradually adjusted by daily increments of 0.5 g to 0.65 g ASA until symptoms of salicylism e.g. tinnitus occur. Then the dosage is decreased by the same amount daily until tinnitus disappears and maintained at that level as long as necessary. Plasma salicylate concentration determination is recommended because of wide variations in pharmacokinetics, particularly if high dosage regimen are used, or in the elderly or in those with hearing impairment.

AVAILABILITY ARTHRINOL* 325 is available as red and colorless capsules, each containing 325 mg ASA, in bottles of 100, and blister packages of 24 capsules. ARTHRINOL* 500 is available as orange and colorless capsules, each containing 500 mg ASA, in bottles of 100 and 500. Also available in blister packages of 24 capsules and physicians' samples of 6 capsules.

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