SCIENTIFIC ARTICLE

The Influence of Patients' Participation in Research on Their Satisfaction

Lauren A. Barber, BA, Michiel G. J. S. Hageman, MD, John D. King, BA, Stijn Bekkers, BSc, Arjan G. Bot, MD, David Ring, MD

Purpose To determine if there was a difference between patients participating in research and those who did not regarding their satisfaction with the medical encounter and their physician.

Methods We prospectively randomized 128 patients to either complete 20 minutes of questionnaires (participate in research) or not. After the visit, all patients rated their satisfaction with their visit and satisfaction with the doctor on an 11-point ordinal satisfaction scales, with 0 being not at all satisfied and 10 being completely satisfied. Average satisfaction scores were analyzed in relation to demographics, questionnaires, and involvement in research.

Results There were no significant differences between patients that did and did not participate in research for satisfaction with the medical encounter or satisfaction with the treating physician. Satisfaction was not associated with marital status, work status, or diagnosis. There was a significant correlation between greater satisfaction and both less education and lower self-efficacy. There was no significant correlation between patient satisfaction and magnitude of disability, pain intensity, or health anxiety.

Conclusions This study demonstrated that patients' participation in research can coexist with patient satisfaction. *(J Hand Surg Am. 2014;39(8):1591–1594. © 2014 American Society for Surgery of the Hand All rights reserved.)*

Type of study/level of evidence Prognostic I.

Key words Clinical research, hand surgery, patient satisfaction, questionnaires.

Additional material is available online.

SCIENCE PROVIDES INFORMATION for the medical decisions of patients and health care providers. In an age in which patient satisfaction is increasingly measured and even used to determine reimbursement, we were curious whether participation in research decreased satisfaction. Research involving questionnaires adds time to the visit and may be distracting and burdensome. Although many patients enjoy helping inform and advance medicine, a few seem burdened even when they volunteer.

This investigation tested the null hypothesis that there was no significant difference in satisfaction between patients who participated in observational research and those who did not. Secondary hypotheses assessed the relationships between satisfaction and age, disability, pain intensity, pain self-efficacy, and health anxiety.

From the Orthopaedic Hand Service, Massachusetts General Hospital, Boston, MA.

Received for publication February 4, 2014; accepted in revised form April 15, 2014.

M.G.J.S.H. is supported by Dutch research grants from Marti-Keunig Eckhart Stichting and Anna Foundation (identification number br2012/06).

Corresponding author: David Ring, MD, Orthopaedic Hand Service, Yawkey Center, Suite 2100, Massachusetts General Hospital, 55 Fruit St., Boston, MA 02114; e-mail: dring@partners.org.

0363-5023/14/3908-0023$36.00/0
http://dx.doi.org/10.1016/j.jhsa.2014.04.032

MATERIALS AND METHODS

All adult (at least aged 18 years), English-speaking patients visiting the Orthopaedic Hand and Upper Extremity Service for the first time between February 2013 and April 2013 were invited to participate in this institutional review board–approved randomized controlled trial. Pregnant females were excluded from

participating. Patients were blinded for study objectives and were informed that the treating physician assessed only deidentified data. Informed consent was obtained.

Subjects were randomized either to the intervention cohort (cohort 1), which completed a set of questionnaires during their visit (~20 additional min of time), or to the control group (cohort 2), which was not subjected to a set of questionnaires. The randomization was determined after informed consent using a computerized randomization process. Patients completed the study in a single office visit.

Patients that were given questionnaires completed an 11-point ordinal rating of intensity, Quick Disabilities of the Arm, Shoulder, and Hand (QuickDASH), Pain Self-Efficacy Questionnaire (PSEQ-2), and Short Health Anxiety Inventory (SHAI). Patients in both cohorts rated their satisfaction with both the visit and the treating physician on an 11-point ordinal satisfaction scale.

A total of 128 patients were assessed for eligibility. All agreed to participate, provided informed consent, and were randomized into 64 patients in each cohort. Cohort 1 consisted of 31 men and 33 women, and cohort 2 consisted of 28 men and 36 women. The mean age of participants in cohort 1 was 51 years (SD = 18), and that of cohort 2 was 52 years (SD = 17). There were no significant differences in demographics or final diagnoses between the cohorts (Appendix A, available on the *Journal*'s Web site at www.jhandsurg.org).

Evaluation parameters

An 11-point ordinal rating was used to measure pain intensity. This is an ordinal scale that asks patients to rate their pain from 0 (indicating no pain) to 10 (indicating the worst pain ever).

The QuickDASH questionnaire was used to measure upper extremity−specific disability. This questionnaire consists of 11 questions from the 30-item DASH outcome questionnaire. The questions are answered on a 5-point Likert scale. Scores are scaled from 0 to 100, with a higher score representing greater disability.[1]

The PSEQ-2 is a 2-item instrument used to measure self-efficacy (confidence to function normally despite current levels of pain). Each item employs a 7-point ordinal confidence scale, with 0 being not at all confident and 6 being completely confident. Thus, total scores can range from 0 to 12 with a higher score indicating greater self-efficacy.[2]

Health anxiety was measured using the SHAI. This questionnaire consists of 5 items used to assess the degree of the patient's anxiety in medical and nonmedical contexts.[3] Each item consists of 4 statements in which the subject selects the statement that best reflects her or his feelings over the last 6 months. Each item is scored on a scale from 0 to 3, with total scores ranging from 0 to 15.[3] A higher total score reflects more health anxiety.[4]

Satisfaction with the physician and the visit was measured for both cohorts using 11-point ordinal scales, ordinal scale for satisfaction with the doctor and ordinal scale for satisfaction with the visit, with 0 being not at all satisfied and 10 being completely satisfied.

Statistical analysis

An a priori power analysis for our primary study question indicated that a sample size of 64 patients in cohort 1 and 64 patients in cohort 2 would provide 80% statistical power, with alpha = 0.05, to detect a 0.50 (medium) difference in satisfaction with a 2-tailed independent samples *t*-test.

Continuous data were presented as the mean when normally distributed. To determine if there is a difference in satisfaction with the medical encounter between patients participating in clinical research and patients who did not, we performed a Mann-Whitney U test.

We used an analysis of variance to test for differences in satisfaction by age, sex, marital status, work status, physician, and diagnosis. All variables with near-significant ($P < .08$) relationships were evaluated with linear regression using the backward conditional method to assess predictors of satisfaction.

RESULTS

There were no significant differences in satisfaction with the visit (9.3, SD = 1.5 vs 9.2, SD = 1.7; $P = .66$) or satisfaction with the treating physician (9.3, SD = 1.6 vs 9.5, SD = 1.1; $P = .48$) between the 2 cohorts. Satisfaction with the visit and with the physician was not associated with demographic factors or diagnosis (Appendix B, available on the *Journal*'s Web site at www.jhandsurg.org).

Among patients completing questionnaires, there were no significant associations between satisfaction with the visit and age, disability, pain intensity, or health anxiety. However, there was a small but significant correlation between greater satisfaction with the visit and both less education ($r = -0.34$, $P < .01$) and lower pain self-efficacy ($r = -0.26$, $P = .04$).

Similarly, there were no significant correlations between satisfaction with the treating physician and age, disability, pain intensity, or health anxiety. However, there was again a significant correlation between greater satisfaction with the treating physician and less education ($r = -0.45$, $P < .001$).