Increased Health Care Utilization as a Function of Participation in Trauma Research

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Objective: *This study was designed to compare, in a primary care setting, the health care utilization of women who participated in a trauma research study with the health care utilization of women who did not.* *Method:* *Health care utilization in the 12 months before and the 12 months after participation in trauma research was determined for both participants (N=116) and a group of control subjects (N=100) matched for day of service.* *Results:* *Pairwise t test results indicated that for the women who participated in the research, all measures of health care utilization significantly increased in the 12 months after the trauma study; for the control subjects, only the number of ongoing prescriptions significantly increased. Sign tests confirmed that a significantly greater number of research participants demonstrated a positive difference (increase in utilization) for all health care variables, whereas only ongoing prescriptions demonstrated a significant systematic increase among control subjects.* *Conclusions:* *The findings suggest that participation in trauma research may increase subsequent health care utilization.*

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Little is known about the effects that participation in psychological research has on patients in primary care settings. In a previous study, we reported that participating in research had no measurable effects on the willingness of patients to continue a professional relationship with the research physician (1). The following study, which was based on data previously collected for other purposes (2), was conducted to explore the effects of research participation on subsequent health care utilization for subjects who had participated in a trauma study.

METHOD

One hundred sixteen women, who had been seen consecutively by a female family physician in a health maintenance organization for routine gynecological care, had participated in a research project (2) that explored personal trauma (i.e., sexual, physical, or emotional abuse; physical neglect; witnessing violence). They ranged in age from 17 to 49 years (mean=32.8 years, SD=8.9). Most were white (84.5%, N=98), and all had completed high school. Of the 116 women, 25 (21.6%) had earned a bachelor's degree, and eight (6.9%) had earned a master's degree. Seventy-three women (62.9%) were currently married, nine (7.8%) were divorced, and the remaining 34 (29.3%) were single. The control subjects were 100 women randomly drawn from the computerized clinic schedule who had been seen for routine (i.e., nonemergent) medical care by the same family physician on the same day (index date) that a subject had participated in the trauma research. Their ages ranged from 17 to 52 years (mean=33.3 years, SD=8.1). The two groups did not differ in age ($F=0.18$, $df=1, 214$, $p<0.67$) or marital status ($\chi^2=4.92$, $df=1$, $p<0.09$). All subjects in the original study provided written informed consent.

Medical records from the 12 months before (time 1) and the 12 months after (time 2) the index date were reviewed by two physicians (R.A.S., L.A.S.) to assess five areas of health care utilization: number of telephone contacts to the facility, physician visits, ongoing prescriptions (i.e., prescribed throughout the study period), short-term prescriptions, and referrals to physician specialists. All participants were members of the enclosed health care delivery system during the entire study period.

RESULTS

The five measures of health care utilization as a function of group and time are presented in table 1. Pairwise t tests were performed to compare medical utilization in the 12 months before and the 12 months after the index date for the research participants and the control subjects. Note that for research participants all measures of health care utilization increased significantly, whereas only the number of ongoing prescriptions increased significantly for the control subjects.

Because a small subset of subjects may have evidenced extremely large increases in medical utilization, which would unduly influence group means, we conducted sign tests (3). Values for the health care utilization measures for the 12 months before the index date

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TABLE 1. Health Care Utilization in the 12 Months Before and 12 Months After a Trauma Research Study for Research Participants and Nonparticipating Control Subjects

	Research Participants (N=116)						Nonparticipating Control Subjects (N=100)					
	12 Months Before Study		12 Months After Study		t Test for Paired Samples		12 Months Before Study		12 Months After Study		t Test for Paired Samples	
Utilization Variable	Mean	SD	Mean	SD	(df=99)	p	Mean	SD	Mean	SD	(df=115)	p
Telephone contacts	1.79	3.23	2.91	3.49	4.13	<0.001	3.44	3.86	3.42	4.07	0.05	<0.96
Physician visits	2.70	2.56	3.78	2.81	3.91	<0.001	4.49	3.47	4.84	4.00	0.83	<0.41
Ongoing prescriptions	0.66	0.98	0.91	1.09	4.39	<0.001	0.52	0.92	0.66	0.91	2.84	<0.005
Short-term prescriptions	2.38	2.60	3.23	2.98	3.58	<0.001	4.76	4.12	4.97	5.03	0.45	<0.66
Specialist referrals	0.16	0.76	0.64	1.95	2.60	<0.01	0.17	0.40	0.15	0.39	0.42	<0.68

TABLE 2. Change in Health Care Utilization in the 12 Months Before and 12 Months After a Trauma Research Study for Research Participants and Nonparticipating Control Subjects[a]

	Research Participants (N=116)					Nonparticipating Control Subjects (N=100)				
Utilization Variable	Decreased Utilization	Increased Utilization	No Change	z	p	Decreased Utilization	Increased Utilization	No Change	z	p
Telephone contacts	31	61	24	3.02	<0.003	45	39	16	0.55	<0.59
Physician visits	24	62	30	3.99	<0.001	36	43	21	0.68	<0.50
Ongoing prescriptions	4	27	85	3.95	<0.001	3	17	80	3.07	<0.003
Short-term prescriptions	36	56	24	1.98	<0.05	45	43	12	0.11	<0.92
Specialist referrals	4	22	88	3.33	<0.001	12	10	78	0.21	<0.84

[a]Determined by sign tests. Values for the 12 months before the research study were subtracted from values for the 12 months after the study.

were subtracted from values for the 12 months after the index date. A positive sign test result indicated an increase in health care utilization, and a negative result indicated a decrease in utilization. In this way, extreme changes by specific participants were not given greater weight. The results of the sign tests are presented in table 2. Note that a significantly greater number of research participants demonstrated a positive difference (increase in utilization) for all five health care measures, whereas only ongoing prescriptions demonstrated a significant systematic increase among control subjects.

To explore whether reporting of traumatic events may have psychologically stimulated participants with a trauma history (a retraumatization phenomenon) (4), which would result in an increase in health care utilization, we compared those subjects who reported some type of trauma (N=80) with those who did not (N=36). In a series of analyses of variance, no differences were found between these two groups for health care utilization in the 12 months before and the 12 months after research participation (results of analyses are available from Dr. R.A. Sansone). In other words, indicating a history of trauma did not appear to be a factor related to greater health care utilization.

DISCUSSION

The utilization of health care resources for participants in trauma research increased during the 12 months after the study compared with the health care utilization of the preceding 12 months, a change that was not evident among nonparticipating control subjects. Our findings indicate that participation in this type of psychological research in a primary care setting may result in an increase in the utilization of health care services. That research endeavors may increase utilization may be problematic in capitated medical care systems.

Of course, from the current study, we are unable to determine whether the increase in medical utilization reflects legitimate medical illness or otherwise. However, it may be that female patients gravitate toward a female physician who is undertaking sensitive psychological research that relates to women. In other words, the research effort itself may have functioned for participants as an empathic connection to the physician.

Not all research participants increased their utilization of health care resources. The features or predictive characteristics (e.g., the role of underlying affective disorder, age at the time of the traumata) that differentiate women who may increase their health care utilization as a result of participating in sensitive psychological research from women who do not remain unknown.

That particular types of research participation may increase subsequent health care utilization must be interpreted cautiously. Note that the health care utilization for control subjects in the 12 months before the index date was higher than that of the research participants. To the extent that utilization by control subjects is extreme, possible regression to the mean is a potential concern. However, the health care utilization of the control group appears comparable to statistics regarding the national average of annual office visits by patients (5). Therefore, although the values for the research participants appear to be low at the outset from a medical utilization standpoint, there is no reason to

suspect that their utilization should naturally increase over *only* a 12-month period. Other variables that could affect generalization of these results include the unusual demographic profile of subjects (i.e., not representative of the general population), a female family practice physician as a researcher, an entirely female study group, and a sensitive study that explored trauma histories.

The implications of these findings for research in noncapitated practices suggest enhanced patient/physician rapport that could facilitate medical care. However, there may be genuine conflicts of interest for researchers in practice models under capitation. Further research is needed to clarify the validity and implications of these findings.

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