ORIGINAL RESEARCH

Patient Characteristics Associated with Making Requests during Primary Care Visits

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Background: **Patient requests for tests, treatments, or referrals occur frequently during primary care visits and pose challenges for clinicians to address, but little is known about patient characteristics that may predict requests.**

Objective: **To identify patient characteristics associated with a higher rate of patient requests during primary care visits.**

Design, Setting, and Sample: **Cross-sectional analyses of data from 1141 adult patients attending 1319 visits with 56 primary care physicians (including 45 resident and 11 faculty physicians) in an academic family medicine practice.**

Measurements: **Postvisit patient surveys including measures of patient requests for tests, prescriptions, and referrals; sociodemographics; mental and physical health status; symptom bother or worry (3-item scale; range, 3 to 15; Cronbach's $\alpha = 0.83$); global life satisfaction; medical skepticism; and Five Factor Model personality traits.**

Results: **Patients made 1 or more requests in 867 visits (65.7%). In multivariate analyses of the within-visit request count, the following patient variables were statistically significantly associated with a higher rate of requests: age in years (incidence rate ratio [IRR], 1.01 [95% CI, 1.00 to 1.01]), increased symptom bother or worry (IRR, 1.06 [95% CI, 1.03 to 1.08]), a more extroverted personality (IRR, 1.12 [95% CI, 1.03 to 1.08]), greater life satisfaction (IRR, 1.01 [95% CI, 1.00 to 1.02]), and any prior encounter with the visit physician (IRR, 1.17 [95% CI, 1.04 to 1.32]).**

Conclusions: **Primary care physicians should expect a greater frequency of requests from older patients, patients with greater symptoms bother or worry, more extroverted patients, patients with greater global life satisfaction, and patients with whom they have had prior visits. (J Am Board Fam Med 2019; 32:201–208.)**

Keywords: **Communication, Patient Satisfaction, Personality, Primary Care Physicians, Primary Health Care, Referral and Consultation**

During primary care visits, patients often request tests, treatments, or referrals from physicians.[1] Request fulfillment is associated with higher patient satisfaction with primary care physicians, while denial predicts lower satisfaction,[2–5] and primary care physicians usually accede to patient requests, even requests for low-value services or services without clear-cut medical indications.[6–8]

The high frequency of patient requests has implications for the value and quality of primary care.

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To maximize primary care value, primary care physicians may need skills in negotiating alternative approaches when patients request low-value tests, treatments, or referrals. Such encounters may be rife with misunderstanding, as physicians' failure to meet patients' expectations for request fulfillment may compromise patient trust and satisfaction.[1,9,10] Indeed, conversational analyses suggest that primary care physicians often fail to meet patients' informational and emotional needs when declining requests.[11] These observations point to the potential need for primary care physicians to develop skills in handling patient requests, yet current educational programs provide little training in how to respond to patient requests.

An understanding of factors that predict whether patients will make requests would be helpful in designing interventions to assist primary care physicians in handling patient requests. Ultimately health systems might prioritize such interventions for physicians serving patient panels that have a larger propensity for making requests. In addition, in light of associations between request fulfillment and patient satisfaction, it may be appropriate to adjust physician-level measures of patient experience for patient characteristics associated with higher request frequency. Prior studies have found that patients with higher levels of worry and concern, greater illness burden, and higher education were associated with patient requests during primary care visits.[1,2,9] However, it is uncertain whether other patient factors such as race/ethnicity, mental health status, personality, attitudes toward health care, or prior visits with the primary care physicians may predict whether requests are made during primary care visits. Within a large sample of primary care visits, we assessed the relationship between a range of patient-level factors and the number of patient requests during primary care visits.

Methods

Design, Setting, and Subjects

From July 2015 to April 2016, part-time research assistants recruited a convenience sample of patients from the waiting room of an urban academic family medicine clinic to complete a survey regarding patient satisfaction. Patients were eligible to participate if aged ≥18 years, able to read and complete an English survey, and attending visits with a resident or faculty physician. Patients who provided written informed consent completed postvisit surveys on tablet devices, except for a small number that preferred paper surveys. The tablet survey was administered using LimeSurvey software, which provided real-time data quality checks. Patients were eligible to complete surveys after up to 6 physician visits during the study period and were compensated with $10 gift cards. The Institutional Review Board approved the study.

Number of Requests

Participants responded to a series of validated questions asking whether they made 1 or more requests within the following service categories: new pain medication prescriptions, antibiotic prescriptions, other new medication prescriptions, laboratory testing, radiology testing, other testing (eg, sleep study), and referrals to specialists.[12,13] Using these categories, we created a count of the number of requests made during each visit which was the sum of the number of service categories within which patients made at least 1 request.

Patient-Level Variables

We collected age, sex, race/ethnicity, education, marital status, smoking status, self-reported health status (poor, fair, good, very good, excellent),[14] and mental health status using the 5-item Mental Health Inventory-5, an accurate measure of both depression and anxiety (range, 0 to 100 from worst to best mental health).[15] We also assessed 3 patient-level attitudinal or dispositional factors that we theorized could affect request frequency. First, we assessed skepticism regarding medical care, a validated 4-item measure that is conceptualized as a trait that predisposes patients to use less health care, fewer preventive services, and to make less healthful lifestyle choices.[16] Second, we assessed patient personality using the Big Five Inventory, a 44-item measure that generates scores on the 5 fixed personality dimensions: agreeableness, conscientiousness, extraversion, neuroticism, and openness.[17] Third, we assessed global life satisfaction using the 5-item Satisfaction with Life Scale, a validated measure of subjective wellbeing with high temporal reliability.[18] To minimize respondent burden, we carried initial responses to these 3 items forward to subsequent surveys for 138 patients attending 178 visits (13.5% of all visits).

Because somatic symptom burden may prompt requests for testing, referral, or treatments, we included 3 items that assessed 1) patient bother from current symptoms, 2) degree of worry about overall health, and 3) patient concerns that current symptoms are a sign of a serious illness. Because the 3 items loaded onto a single factor in factor analysis, we created a scale from the items in which a higher score signifies greater symptom bother or worry (range, 3 to 15; Cronbach's $\alpha = 0.83$). We assessed whether patients had had prior visits with the visit physician as patients may be more likely to make requests from familiar physicians. By linking patient surveys to electronic medical records, we identified the visit physician and collected patient body mass index (BMI).

We assessed visit satisfaction using 6 items derived from the individual visit version of the Consumer Assessment of Healthcare Providers and Systems (CAHPS) Clinician & Group Survey.[19] Four items derived from the CAHPS Physician Communication Composite and inquired respectively about whether the physician 1) gave easy-to-understand information, 2) knew important information about the patients' medical history, 3) showed respect for what the patient had to say, and 4) spent enough time with the patient. A fifth item inquired about whether the patient would recommend the physician to family and friends, while the sixth item requested that the patient rate the doctor from 0 to 10 from worse to best possible doctor. The 6 items were highly correlated and loaded onto a single latent construct in factor analyses. To enhance measure reliability, we created standardized scale in which higher numbers indicated better patient satisfaction by averaging the z-score for each item (Cronbach's $\alpha = 0.80$). Because the scale was highly skewed, we transformed the scores into percentile rank of visit (ranging from the worst visit rank of 0 to the best rank of 100).[20]

Analyses

Analyses were conducted using Stata Version 14.2 (StataCorp, College Station, TX). Because counts of patient requests were overdispersed, we used negative binomial regression to model the number of requests as a function of patient-level covariates. Because visits were nested within patients and physicians, we attempted a cross-nested model, but the model would not converge. In a model that included only a physician-level random effect, the within-physician intraclass correlation coefficient (ICC) was not significant (ICC ~ 0), suggesting no physician-level tendency for their patients to make requests. We therefore included only patient-level random effects in the final model. Hypothesis tests were 2-sided with a level of significance of 0.05.

Results

The study sample included 1141 patients who completed surveys after 1319 primary care visits with 56 primary care physicians (mean visits per patient, 1.2; range, 1 to 6). Of the 56 physicians, 45 were resident physicians (80%); the rest were attending physicians. Most visits were with resident physicians (75.5%). Table 1 shows characteristics of the patients by whether patients made 1 or more requests during study visits. Overall, patients made 1 or more requests in 867 visits (65.7%), including 436 visits (33.0%) with 1 request, 266 visits (20.2%) with 2 requests, 105 visits (8.0%) with 3 requests, and 60 visits (4.5%) with 4 or more requests. In bivariate analyses, patients who were older, with poorer self-rated health, greater symptom bother or worry, greater BMI, and any prior visits with the visit physician were more likely to make 1 or more requests from physicians.

In multivariate analyses of the count of requests during visits, older patient age, greater symptom bother or worry, and having had a prior visit with the visit physician were statistically significantly associated with the number of requests, while BMI and self-rated health were no longer significantly associated with the number of requests (Table 2). Additional covariates that were significantly associated with the number of requests were, greater extraversion, higher global life satisfaction, and other/multiple race/ethnicities (vs white race/ethnicity). Covariates showing the strongest association with the number of requests in adjusted analyses were greater patient age, greater symptom bother or worry, more extroverted patient personality, and having had prior visits with the visit physician (each $P < .01$).

Discussion

Among a convenience sample of adults attending visits at an academic family practice, we found that patients reported 1 or more requests for tests, prescriptions, or referrals in nearly two thirds of visits, and that several patient characteristics were associ-

Table 1. Patient Characteristics by Whether Requests Were Made During Primary Care Visits (N = 1,319 Visits Among 1141 Patients)

Characteristic	Any Request	No Request	*P* Value
N, %	867 (65.7%)	452 (34.3%)	
Age, y, mean (SD)	46.4 (15.8)	44.2 (16.7)	.017
Sex, n%			
Male	267 (30.8%)	140 (33.6%)	.38
Female	600 (69.2%)	302 (66.8%)	
Race/ethnicity, n%			
White	399 (46.0%)	226 (50.0%)	.28
Hispanic	208 (24.0%)	91 (20.1%)	
Black	104 (12.0%)	50 (11.1%)	
Asian	53 (6.1%)	35 (7.7%)	
Other/multiple races	75 (8.7%)	31 (6.9%)	
Decline to state	28 (3.2%)	19 (4.2%)	
Education, n%			
Less than high school	35 (4.0%)	11 (2.4%)	.58
High school/GED	135 (15.6%)	66 (14.6%)	
Some college	315 (36.3%)	173 (38.3%)	
College graduate	184 (21.2%)	101 (22.3%)	
Any graduate studies	198 (22.8%)	101 (22.3%)	
Self-rated health, n%			
Poor	44 (5.1%)	13 (2.9%)	.018
Fair	160 (18.5%)	72 (15.9%)	
Good	339 (39.1%)	158 (35.0%)	
Very good	239 (27.6%)	149 (33.0%)	
Excellent	85 (9.8%)	60 (13.3%)	
Mental Health Index, mean (SD)	72.5 (19.0)	73.9 (18.0)	.19
Medical skepticism, mean (SD)	3.03 (0.67)	3.02 (0.61)	.78
Big Five Personality Inventory scores, mean (SD)			
Extraversion	3.46 (0.78)	3.39 (0.79)	.16
Agreeableness	4.14 (0.57)	4.17 (0.57)	.34
Conscientiousness	3.91 (0.66)	3.94 (0.59)	.54
Neuroticism	2.74 (0.78)	2.71 (0.81)	.53
Openness	3.80 (0.58)	3.78 (0.59)	.64
Life satisfaction, mean (SD)	25.1 (6.5)	25.6 (6.4)	.17
Symptom bother/worry, mean (SD)	8.40 (2.84)	7.57 (2.70)	<.001
Body mass index, mean (SD)	30.3 (7.5)	29.2 (7.2)	.012
Current smoker			
No	768 (88.6%)	404 (89.4%)	.66
Yes	99 (11.4%)	48 (10.6%)	
Marital status			
Divorced	125 (14.4%)	46 (10.2%)	.18
Married or domestic partnership	361 (41.6%)	210 (46.5%)	
Member of unmarried couple	86 (9.9%)	47 (10.4%)	
Never married	207 (23.9%)	112 (24.8%)	
Separated	30 (3.5%)	10 (2.2%)	
Widowed	58 (6.7%)	27 (6.0%)	
Patient satisfaction percentile rank, median (IQR)	50.1 (24.1, 78.4)	50.1 (25.6, 78.4)	.79
Any prior encounter with visit physician			
None	472 (54.4%)	274 (60.6%)	.032
One or more	395 (45.6%)	178 (39.4%)	

GED, general equivalency diploma; IQR, interquartile range; SD, standard deviations.

Table 2. Patient-Level Associations With the Number of Requests per Primary Care Visit (N = 1,319 Visits Attended by 1141 Patients)

Patient Variable	Incidence Rate Ratio	95% CI		*P* Value
Patient age, y	**1.01**	**1.00**	**1.01**	**.001**
Female sex (ref = male)	0.99	0.88	1.12	.93
Race/ethnicity (ref = White)				
Hispanic	1.11	0.96	1.29	.14
Black	0.98	0.81	1.18	.81
Asian	1.06	0.84	1.34	.63
Other/multiple races	**1.29**	**1.06**	**1.57**	**.011**
Decline to state	0.93	0.68	1.26	.64
Education (ref = less than HS)				
High school/GED	1.00	0.74	1.35	.99
Some college	1.00	0.75	1.34	.98
College graduate	0.99	0.73	1.34	.94
Some graduate studies	1.04	0.76	1.41	.81
Marital status (ref = divorced)				
Married or domestic partner	0.95	0.80	1.14	.60
Member of unmarried couple	1.07	0.85	1.36	.56
Never married	1.02	0.83	1.25	.83
Separated	1.07	0.76	1.50	.69
Widowed	1.03	0.80	1.33	.79
Self-reported health status (ref = poor)				
Fair	0.92	0.70	1.21	.55
Good	0.88	0.67	1.16	.37
Very good	0.77	0.57	1.04	.091
Excellent	0.76	0.54	1.08	.13
Mental Health Index-5	1.00	1.00	1.00	.90
Current smoker (ref = No)	1.04	0.87	1.24	.66
Body mass index, kg/m^2	1.00	0.99	1.01	.80
Symptom bother/worry	**1.06**	**1.03**	**1.08**	**<.001**
Medical skepticism	1.02	0.94	1.11	.68
Big 5 Personality Inventory				
Extraversion	**1.12**	**1.03**	**1.08**	**.006**
Agreeableness	0.96	0.86	1.07	.49
Conscientiousness	0.97	0.87	1.07	.55
Neuroticism	1.00	0.91	1.10	.99
Openness	0.99	0.89	1.10	.83
Life satisfaction	**1.01**	**1.00**	**1.02**	**.023**
Patient satisfaction percentile rank	1.00	1.00	1.00	.34
Any prior encounter with visit physician (ref = no)	**1.17**	**1.04**	**1.32**	**.009**

Estimates for covariates that are significantly associated with request number ($P < .05$) are shown in bold font.
CI, confidential interval; GED, general equivalency diploma; HS, high school.

ated with a higher rate of requests, including older age, greater bother or worry about symptoms, more extroverted patient personality, greater life satisfaction, and 1 or more prior encounters with the visit physician.

Patient requests are the norm rather than the exception in primary care visits, and how physicians respond to requests has a powerful impact on whether patients are satisfied with primary care visits.[5] As patients may often request lower-value services,[8] primary care physicians need skills in handling requests such that patient concerns can be successfully addressed without acceding to requests for low-value or inappropriate services. While our study did not assess whether patients requested lower- or higher-value care, our findings highlight

several patient subgroups that are particularly likely to make requests and for whom primary care physicians are more likely to need skills in request handling. By highlighting potential causal factors that may underlie patient requests, our study will assist researchers in the development of interventions to assist clinicians in handling requests while sustaining patient satisfaction and trust. Meanwhile, among patients who lack characteristics associated with a higher rate of requests, such as younger or more introverted patients, primary care physicians may need to elicit patient concerns and expectations, as such patients may be less likely to explicitly request desired services.

In adjusted analyses, higher scores on a scale measuring the degree of patient concern, worry, or bother from symptoms were associated with higher counts of patient requests. As the standard deviation (SD) of the scale score in patients who did not make requests was 2.7 (Table 1), we estimate from regression results that a 2-SD increase in the symptom score (equivalent to moving from the median to the 95th percentile) would be associated with 32.4% increase in the rate of patient requests ($0.324 = 2 \times 2.7 \times [1.06 - 1]$). This suggests that patient worry or concern about symptoms or serious illness is a potent driver of patient requests, consistent with studies of patients' expectations for care.[21] Patients with substantial symptom worry may be especially likely to make requests for diagnostic tests, although a systematic review suggests that diagnostic tests performed with a low pretest probability of disease are not effective at reassuring patients.[22] Interventions are needed to increase primary care physician skill in providing effective, meaningful reassurance when worried patients make requests for low-value tests or referrals.

In adjusted analyses, patients made a greater of number of requests during visits with physicians they had met during prior visits. A recognized benefit of continuity of care is the rapport and familiarity that develops between patients and physicians over the course of multiple office visits and the trust created when physicians successfully assist patients in addressing health problems. Because of greater rapport, familiarity, and trust, patients with continuity relationships may be more likely to request specific tests or treatments from continuity physicians. Alternatively, this association may reflect a lower frequency of patient requests during visits with nonfamiliar physicians, which may often focus on isolated or urgent patient concerns. Primary care physicians should be prepared for a greater frequency of requests from longstanding patients, and interventions should focus on building physician skill in handling requests from continuity patients while maintaining and deepening patient trust. Although the higher rate of requests associated with continuity could conceivably increase care utilization and costs, overall costs are likely to be lower with increased continuity due to counterbalancing reductions in costs associated with chronic disease complications and hospitalizations for ambulatory-care sensitive conditions among patients with greater continuity of primary care.[23,24]

After adjustment for sociodemographic and clinical variables, patients with more extroverted personalities and who had greater overall life satisfaction had higher rates of making patient requests. These findings point to dispositional traits that may predispose patients to make requests or that facilitate request making when patients formulate unexpressed wishes for certain medical services. Patients with greater extraversion (and lesser introversion) may feel greater ease and comfort engaging with physicians during encounters, including the act of voicing requests for specific services. This finding is consistent prior studies in which extroversion predicted greater emergency department use among older Americans[25] and within a population-based German sample.[26]

Meanwhile, life satisfaction is a broad measure of one's satisfaction with multiple domains of daily life, including a sense of wellbeing and satisfaction with past achievements, current social relations and connectedness, and one's ability to cope with daily challenges. To the extent that patients perceive a lack of a certain health service as an unfulfilled desire, patients with greater life satisfaction may feel greater confidence that physicians will perceive requests for desired services as socially acceptable. Life satisfaction, however, has received little prior study as a predictor of health care utilization. In a longitudinal study of a Canadian sample, greater life satisfaction was associated with lower overall health care costs after adjusting for comorbidity and health status.[27] It is conceivable that the higher rate of requests among primary care patients with greater life satisfaction in our sample would not necessarily result in higher overall health care expenditures. Additional studies of US samples are needed to further explore this relationship.

Older age was associated with an increased rate of requests; for every 10-year increase in age, the rate of patient requests increased by 10%. While unmeasured age-related declines in health may have affected this estimate, it is plausible that with increasing age adults become more comfortable making direct requests from physicians. Older adults likely have more extensive prior experience with health care providers and may have learned from prior experience that requests are an effective means of obtaining desired health care.

Our study sample derives from a single academic family medicine practice, and results may not generalize to other primary care practices. All patients had some form of insurance, and we lacked information on whether patients would have had copayments or deductibles for requested services. The patients were a convenience sample and may not represent the broader population of patients served by the clinic. Patient requests were also assessed by self report during postvisit surveys. While direct observation and combined pre- and postvisit surveys have been used to assess for patient requests, the optimal method for measuring patient requests has not been identified, and all methods have limitations.[9,12] Nevertheless, we recognize the possibility that our approach may have over- or underestimated the frequency of patient requests.

In conclusion, within an academic family medicine practice, greater patient age, greater patient bother or worry regarding symptoms, a more extroverted patient personality, greater life satisfaction, and having previous encounters with the visit physician were associated with an increased rate of patient requests for medications, tests, or referrals. Patient requests challenge physicians to respond in ways that meet patients' needs and expectations while prioritizing the delivery of high-value care, and physicians perceive visits with some types of requests as more difficult. These findings may inform the design of communication interventions that may bolster physician skill and confidence in handling patient requests while sustaining patient trust and physician wellness.

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