Advertisement-Induced Prescription Drug Requests
Patients' Anticipated Reactions to a Physician Who Refuses

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BACKGROUND. Drug manufacturers increasingly encourage patient prescription drug demand through the use of direct-to-consumer (DTC) advertisements. We describe patients' forecasts of their reactions if their doctor were to deny an advertisement-motivated drug request and then identify significant predictors of these reactions.

METHODS. We conducted a random phone survey of 329 Sacramento adults (response rate = 69%). Key outcomes were respondents' perceived likelihood of reacting to the nonfulfillment of a prescription request by becoming disappointed, trying to persuade the physician to reconsider, seeking a prescription from a different physician, and changing physicians. We also assessed associations between the likelihood of these reactions and respondents' evaluations of their physician's communication skills; attitudes toward, assumptions about the regulation of, and past responses to DTC advertising; health status; and demographic characteristics.

RESULTS. Disappointment was the most likely reaction (46%). One fourth of the respondents anticipated resorting to persuasion and seeking the prescription elsewhere, while only 15% considered terminating their relationship with their physicians. Subjects who anticipated reacting in these 4 ways reported lower satisfaction with their physicians, evaluated DTC advertising more favorably, and possessed more confidence in the government's regulation of these advertisements.

CONCLUSIONS. A sizable fraction of patients believed they would react negatively if their physician refused to provide a prescription for a drug advertised in the general media. Avenues for dealing effectively with patients' advertising-induced requests for prescription drugs are needed.

KEY WORDS. Physician-patient relations; advertising; prescriptions, drug; patient education. *(J Fam Pract 1999; 48:446-452)*

The pharmaceutical industry is increasingly relying on direct-to-consumer (DTC) advertising to encourage demand for prescription drugs. Annual expenditures for DTC advertising totaled $1 billion in 1997, was estimated to be $1.8 billion for 1998, and could be as high as $7.5 billion by 2005.[1-3]

Consumers are paying attention to these promotions, talking to their doctors about them, and even requesting prescriptions on the basis of the information conveyed.[4,5] It is surprising, then, that the impact of DTC advertising on the physician-patient relationship has received virtually no empiric study. Such advertising could damage patients' relationships with their physicians. Patients may insist on inappropriate treatments[6,7] because they have seen promotional materials that they do not understand[8] and that come from an industry that has not always been honest about the medical value and safety of its products.[9-11] Such patient requests could also direct physician attention away from other medical needs and transform the physician-patient relationship into a physician-consumer relationship.[12]

Physicians appear ambivalent about the value of DTC advertising,[13,14] but consumers feel mildly positive toward it and reject the notion that these appeals threaten their relationships with their doctors.[15,16] In one study, the individuals most likely to be influenced by a DTC advertisement were also most interested in the physician's advice about the promoted drug, suggesting that requests stemming from DTC advertisements need not undermine the physician's role or influence.[17]

We build on past research by exploring for the first time factors that could influence how patients would react if a physician refused to provide a prescription for an advertised drug the patient thought would be beneficial. Patients have several options in such a situation that can be used alone, together, or sequentially. They can accept the physician's decision on the assumption that the physician knows best or because they trust the physician's explanation of why the drug is not right for them. Or these patients can feel disappointed with their physician's decision. They may attempt to persuade the physician to reconsider, seek to obtain the prescription

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through a different physician, or terminate their relationship with the physician.

We advanced several hypotheses. Stronger negative feelings toward having a prescription request rejected were expected among patients who evaluated their physician's communication skills as poor. A supportive physician-patient relationship should allow the physician to respond constructively to the patient's health concerns and should foster the patient's trust in the physician's clinical judgment. We anticipated that negative feelings would be greatest for patients who had more approving attitudes toward DTC advertisements. In terms of patients' beliefs about the value of DTC advertising, we hypothesized that those patients who held the incorrect belief[18] that these promotions have been subjected to government scrutiny and endorsement would hold more positive attitudes about the trustworthiness of DTC advertising. We expected that individuals who have previously requested more information or a prescription from their physician as a result of a DTC advertisement would be more upset about their physician's refusal to fill a prescription drug request. We also predicted that the intensity of reactions to request nonfulfillment would be greatest among those patients most likely to feel a need for drug treatments—in particular those who evaluate their health as poor and are already making regular use of prescription drugs.

METHODS

We conducted the survey after gaining approval from the University of California–Davis Human Subjects Review Committee. Oral informed consent was obtained from each subject before beginning an interview.

Sample and Design

Our sample, drawn from Sacramento County, was generated using a standard random telephone survey strategy.[19] Specifically, an equal number of computer-generated 4-digit suffixes were attached to all of the exchanges (prefixes) in use in the target population. As expected, most of these numbers were unassigned or nonresidential numbers. When a number was found for a household, that number was used as a seed number to create a block of 9 additional numbers that were added to the number pool. For instance, if the number 234-5678 was for a household, the numbers 234-5670 through 234-5679 were called. This strategy has the property of being self-weighting, because the proportion of interviews attempted for each exchange is proportional to the number of working residential numbers for that exchange.[20]

Interviews were conducted in the spring of 1998 by 5 undergraduate interviewers who had participated in an extensive training seminar. No attempt was made to conduct an interview if a phone number was for a business, government office, or a household where English was not spoken. The member of each household selected for the study was determined using the Hagen-Collier randomized respondent selection procedure.[21] With this approach, the target respondent in each household is randomly determined to be the youngest female, youngest male, oldest female, or oldest male. This individual was considered unreachable after 6 unsuccessful call attempts. The supervisor made random call-backs to validate calls. The survey completion rate was 69% for households for which contact with the eligible party was made.

The final sample was composed of 201 women and 128 men. The greater proportion of women (61%) reflects both a higher refusal rate among men and more difficulty in reaching male targets (54% of adults in the survey population are women). Approximately 77% of the sample was white. The age profile was as follows: 18 to 29 years = 21%; 30 to 39 years = 18%; 40 to 49 years = 22%; 50 to 59 years = 16%; 60 to 69 years = 11%; 70 years and older = 12%; and less than 1% declined to answer. Nineteen percent of respondents reported a yearly household income of less than $30,000; 25% were in the $30,000 to $44,999 range; 29% were in households making more than $45,000 to $59,999; 26% reported incomes exceeding $60,000; and slightly more than 1% declined to answer the income question. Approximately 58% of respondents had a high school education or less, and 42% were college graduates. At the time of the survey, 58% of respondents were taking at least 1 prescription drug, and 93% were covered by a health plan.

Outcome Measures

Respondents were instructed to imagine that they have asked their doctor to provide a prescription for a drug after seeing an advertisement for it, but the physician refused to provide the prescription. They were given descriptions of 4 possible responses to this refusal, and were asked to indicate how likely it was that they would experience or initiate each response. The possible responses were: (a) become disappointed in their physician (disappointment); (b) try to change their physician's mind by convincing the physician of their need for the drug (persuasion); (c) talk to a different physician about getting a prescription for the drug (prescription shopping); and (d) quit going to the physician and switch to a new physician (doctor switching). Three response categories were presented: not at all likely, somewhat likely, and very likely.

Predictor Variables

Physician communication quality. The respondent's evaluation of his or her physician's communication quality (CQ) was assessed using 5 items selected from the patient satisfaction questionnaire developed by the American Board of Internal Medicine. The alpha reliability[22] for this sample was .93. Because an evaluation of physician communication quality could only be made by respondents who had a regular physician, we created a hybrid categorical relationship quality variable for our multivariate analyses as follows: (1) respondents reporting that they did not

have a regular physician were assigned to the "no established relationship" category (17%); (2) individuals in approximately the lowest third on the CQ distribution were assigned to the [relative] "poor relationship" category (29%); (3) those who fell approximately into the middle third were assigned to the "average relationship" category (26%); and (4) those in the top third were assigned to the "positive relationship" category (28%).

Attitudes, beliefs, and behavior. The variable attitude toward DTC advertising was assessed with 4 items. Respondents were asked if DTC advertisements: provide consumers with valuable information about medical treatments; carefully describe both the risks and benefits of these drugs; are deceptive; and are something of which they disapprove. Responses were made on a 5-point Likert-type scale where 1 = strongly agree and 5 = strongly disagree. After determining through factor analysis that these items were unidimensional, an attitude score was computed for each respondent by averaging across the 4 items (after reverse-scoring the 2 positively worded items). Thus, higher scores indicated a more positive sentiment. This scale had a range of 1 to 5 and an alpha reliability of .74.

We assessed faith in regulation with 4 true or false statements about government supervision of DTC advertisements: (1) drug companies must submit copies of all prescription drug advertisements to the federal government for approval before those advertisements are used; (2) only prescription drugs that have been found to be completely safe can be advertised in the United States; (3) only prescription drugs that have been found to be extremely effective can be advertised in the United States; and (4) the advertising of prescription drugs that have serious side effects has already been banned in the United States. Respondents were asked to indicate if each statement was true or false (the correct answer to all 4 statements is "false"). We then computed a composite score for each respondent by counting the number of items judged to be true (range = 0 to 4); thus, higher scores indicated a greater misplaced confidence in government regulation of DTC advertising. The alpha reliability of this measure was .53; this modest value reflects the small number of items composing the scale, as well as the dichotomous form of subjects' responses to these items.[22]

Two single-item behavioral indicators of people's feelings about DTC advertising were also included as independent variables. Respondents were asked to indicate if they had ever requested more information about a drug, or asked for a prescription, as a result of a DTC advertisement.

Health perceptions and demographic characteristics. Each respondent's subjective evaluation of personal health was assessed with the 5-item general health perception subscale of the 36-Item Short Form Health Survey (alpha = .83).[23] Respondents also reported their current prescription drug use by indicating how many different prescription drugs they were taking at the time of the interview. The interview concluded with a set of standard demographic questions.

Statistical Analyses

Our hypotheses were examined using cross-tabulations for the categorical predictor variables and independent sample *t* tests for the continuous variables.[24] The multivariate relationships of the predictor variables to the dependent measures were examined using 4 logistic regression analyses, 1 for each of the dependent measures.[25] To increase the statistical power of our comparisons, we collapsed across the categories of several variables as follows: (a) race was treated as a dichotomous variable (0 = minority; 1 = white), because there were too few cases to make comparisons across the different ethnic groups; (b) age was recoded in 3 groups (18-39, 40-59, and 60 and older); and (c) income was recoded in 3 groups (<$30,000, $30,000 - $59,999, and ≥$60,000).

RESULTS

Anticipated Reactions to Request Nonfulfillment

Approximately 54% of respondents reported that they would not become disappointed if their request for a prescription was denied; 38% said they would be somewhat likely to become disappointed; and 8% reported a very likely rating. Fewer individuals thought that they would use persuasion in response to request nonfulfillment: 75% indicated that they would be not at all likely to try to change their physician's mind; 21% thought they would be somewhat likely to attempt to do so; and only 4% reported being very likely to attempt influence. Seventy-six percent considered prescription shopping to be an unlikely response; 18% thought it was a somewhat likely response; and 6% believed that they would be very likely to seek a prescription from a different physician. Doctor switching was not a likely outcome of request denial: 85% of respondents said they were not at all likely to seek a new doctor; 12% said that it was somewhat likely that they would do so; and only 3% thought that they would be very likely to switch doctors.

Disappointment, as an internal affective response, is qualitatively different from persuasion, prescription shopping, and doctor switching, all of which entail overt actions. Approximately 47% of respondents indicated that they would be neither disappointed in their physician nor likely to take any action in response to the denial of a prescription drug request. The percentage of respondents who would not be disappointed but would nevertheless take action was only 7%. Slightly more than 16% of respondents anticipated that they would be disappointed but not take action, and the remaining 30% thought that they would be both disappointed and take action.

The Physician-Patient Relationship

Because few individuals gave "very likely" responses on any of these outcome measures, we aggregated the "somewhat likely" and "very likely" groups in all subsequent analyses. Table 1 shows the associations between the various predictor variables and the 4 assessed reactions to physician refusal. Excluded from this table are the variables age, education, sex, and race, which were not associated significantly with any of the 4 outcome measures. Our first hypothesis was that patients would be more likely to react negatively in clinical relationships characterized by poor physician communication. In line with this prediction, respondents were more likely to report the potential for disappointment, persuasion, prescription shopping, and physician switching when they evaluated their physician's communication skills as poor.

Approval of DTC Advertising and Reactions to Request Nonfulfillment

Our second hypothesis was that patients who positively evaluated DTC advertisements would exhibit greater resistance to prescription nonfulfillment than patients with a less positive viewpoint. As expected, disappointment, persuasion, prescription shopping, and doctor switching were all judged as more likely responses to physician refusal by respondents who had positive attitudes toward DTC advertisements and undue confidence in the government's regulation of DTC advertisement content.

People who had requested information or a prescription from their physicians in the past as a result of exposure to a DTC advertisement were more likely to believe that they would react with disappointment and persuasion to not having the prescription filled; past advertisement-

TABLE 1

Predictors of Anticipated Reactions to Physician Nonfulfillment of an Advertisement-Induced Prescription Drug Request

	Disappointment		Persuasion		Prescription Shopping		Doctor Switching	
Predictor Value	**Not at All Likely (n = 173)**	**Somewhat/ Very Likely (n = 151)**	**Not at All Likely (n = 247)**	**Somewhat/ Very Likely (n = 81)**	**Not at All Likely (n = 245)**	**Somewhat/ Very Likely (n = 81)**	**Not at All Likely (n = 275)**	**Somewhat/ Very Likely (n = 48)**
Physician CQ	4.03 (SD = .87)	3.63* (SD = .99)	3.93 (SD = .93)	3.51† (SD = .99)	3.97 (SD = .89)	3.38* (SD = 1.03)	3.97 (SD = .86)	3.03* (SD = 1.19)
Attitudes, beliefs, and behaviors								
Attitude toward DTC advertising	2.90 (SD = .78)	3.42* (SD = .78)	3.06 (SD = .81)	3.40* (SD = .81)	3.02 (SD = .81)	3.52* (SD = .74)	3.10 (SD = .83)	3.40‡ (SD = .73)
Faith in regulation	1.13 (SD = 1.10)	1.60* (SD = 1.24)	1.21 (SD = 1.16)	1.80* (SD = 1.20)	1.21 (SD = 1.14)	1.83* (SD = 1.25)	1.24 (SD = 1.15)	1.98* (SD = 1.30)
Past ad-induced request for information, %	27.7	44.4*	31.2	48.1†	33.1	43.2	33.8	45.8
Past ad-induced request for prescription, %	15.0	24.5‡	16.2	28.4‡	18.8	21.0	18.9	22.9
Health factors General health perception	19.66 (SD = 4.28)	18.58‡ (SD = 4.83)	19.37 (SD = 4.35)	18.39‡ (SD = 5.15)	19.08 (SD = 4.66)	19.15 (SD = 4.33)	19.22 (SD = 4.61)	18.85 (SD = 4.55)
No. of prescription drugs currently using	1.50 (SD = 2.17)	1.80 (SD = 2.42)	1.52 (SD = 2.29)	1.99‡ (SD = 2.26)	1.64 (SD = 2.30)	1.64 (SD = 2.29)	1.62 (SD = 2.26)	1.71 (SD = 2.50)

Note: Attitudes, beliefs, and behaviors were assessed on a 5-point scale where higher numbers indicate a more positive attitude. Faith in regulation was assessed on a 4-point scale where higher numbers indicate greater confidence in government regulations of DTC advertising. General health perception was assessed using a 5-item subscale of the 36-Item Short Form Health Survey. Higher numbers indicate a more positive assessment of health.

CQ denotes communication quality; SD, standard deviation; DTC, direct-to-consumer.

*Significant association between the reaction to request nonfulfillment and the predictor variable ($P < .001$).

†Significant association between the reaction to request nonfulfillment and the predictor variable ($P < .01$).

‡Significant association between the reaction to request nonfulfillment and the predictor variable ($P < .05$).

TABLE 2

Estimated Odds Ratios for Significant Predictors of 4 Reactions to Physician Nonfulfillment of an Advertisement-Induced Prescription Drug Request

Predictor	Disappointment		Persuasion		Prescription Shopping		Doctor Switching	
Variable	OR	95% CI	OR	95% CI	OR	95% CI	OR	95% CI
Physician CQ								
No relationship	1.00		1.00		1.00		1.00	
Poor	1.26	.62-2.57	.54	.24-1.20	1.21	.55-2.68	1.34	.54-3.62
Average	1.09	.52-2.27	.41*	.17-.95	.59	.25-1.39	.50	.18-1.43
Positive	.44*	.20-.94	.14†	.05-.36	. 25‡	.10-.67	.25*	.08-.83
Attitude toward DTC advertising								
First quartile (most -)	1.00		1.00		1.00			
Second quartile	1.22	.61-2.43	1.40	.60-3.27	1.45	.56-3.77		
Third quartile	1.53	.80-2.93	.72	.30-1.72	2.84*	1.21-6.68		
Fourth quartile (most +)	5.79†	2.85-11.74	2.63*	1.16-5.94	3.61‡	1.49-8.76		
Faith in regulation, misconceptions								
None			1.00		1.00		1.00	
1-2			2.12*	1.00-4.48	1.34	.64-2.79	2.20	.83-5.82
3-4			3.92‡	1.60-9.59	3.03‡	1.30-7.05	7.44†	2.68-20.64
Current prescription drug use								
None			1.00					
Taking more than 1 drug			2.42‡	1.34-4.37				

OR denotes odds ratio; CI, confidence interval; CQ, communication quality; DTC, direct-to-consumer.
*P <.05.
†P <.001.
‡P <.01.

induced drug requests were not significantly related to forecasts of prescription shopping and doctor switching.

Health Factors and Reactions to Request Nonfulfillment

Our third hypothesis was that stronger reactions would come from individuals who had poorer health, as indicated by their own general health perceptions and their current use of prescription drugs. This hypothesis received inconsistent support. Lower ratings of general health were associated with greater projections of disappointment and persuasion, but not with prescription shopping and doctor switching. Current use of prescription drugs was associated with higher likelihood ratings for persuasion only.

Demographic Characteristics

We also examined the relationship of age, education, sex, income, and race on respondents' forecasts of their reactions to request nonfulfillment. The only significant association was for income. For reasons not readily apparent, middle-income respondents were more likely to report that they would respond to request nonfulfillment with persuasion and prescription shopping than lower- or higher-income respondents. The percentage of respondents who felt they would resort to persuasion in the event of request denial was 16% for respondents with household incomes less than $30,000, 31% of respondents in the $30,000 to $59,999 income range, and 20% for the $60,000 or more income group (P <.05). Similar figures (19%, 31%, and 17%, respectively) were obtained for prescription shopping (P <.05).

Multivariate Analyses

The independent effects of the predictor variables were assessed in 4 logistic regression analyses — 1 for each reaction — which were coded dichotomously (0 = not at all likely; 1 = somewhat or very likely). Table 2 shows the estimated odds ratios and 95% confidence intervals for the significant predictors in these analyses. Positive evaluations of physician communication abilities were associated with lower ratings for the likelihood of all reactions. A positive attitude toward DTC advertising was a significant multivariate predictor for all reactions except doctor switching. Misplaced faith in the regulation of DTC advertisements was associated with a greater likelihood of using persuasion, prescription shopping, and doctor switching. Finally, individuals who were taking prescription drugs at the time of the survey were more likely to anticipate responding to nonfulfillment with an argument.

DISCUSSION

A majority of respondents believed they would exhibit at least 1 negative reaction to their physician's denial of a prescription for a drug advertised in the general media. The variations identified across individuals in their likely reactions to nonfulfillment support 2 of our 3 hypotheses. First, patients' negative reactions to prescription request denials may reflect more general difficulties with physician-patient communication. Second, individuals who value DTC advertising information highly are more likely to become disappointed in response to request denials, with resultant behavioral responses to nonfulfillment. We found only weak support for the hypothesis that respondents who evaluated their health as poor and were taking more prescription drugs would have stronger reactions to request nonfulfillment. Thus, the most consistent predictor of resistance to a physician's denial of a prescription drug request was the quality of any pre-existing physician-patient relationship and the patient's feelings about DTC advertising information.

Implications for Future Research

This study points to several avenues for future research. First, investigations of how a physician can most constructively respond to a patient's request for an inappropriate drug are needed. Physicians are unlikely to reject patients' requests without explanation. Most likely, a physician would offer medical justification for request nonfulfillment or provide reasoned analysis of why a different treatment would be more appropriate. Second, studies of the considerations that may influence a patient's willingness to accept physicians' explanations are needed. These include the quality and history of the physician-patient relationship, the patient's motivations for turning to advertising for drug information, the patient's convictions about the severity of his or her symptoms, and the value of the requested drug and its alternatives. Third, strategies need to be developed and evaluated for responding to the patient who persists in asking for a drug after that request has been denied. Fourth, the factors that can account for variations among physicians in their willingness to grant advertisement-induced requests for prescriptions, especially those that are not medically indicated, require examination.[12] Fifth, future research must focus on clinical observations of patients' requests and physicians' responses to gain a better understanding of the interpersonal dynamics underlying these episodes. This work is now under way.

Limitations

This study is limited in several ways. We examined imagined reactions to prescription drug request denial, not actual behavior in clinical settings. We believe that these respondents offered honest projections of their reactions to request nonfulfillment, but their ability to do so reliably and with validity is not known. Even so, we believe that our approach offers a reasonable starting point for understanding the impact of DTC advertising on the clinical relationship. Our respondents were asked to reflect upon the clinical scenario presented to them in terms of predetermined categories. It would have been informative to allow them to describe more freely how they would react to request nonfulfillment and then code those answers categorically. We chose to use closed-ended questions in this initial investigation for ease of data aggregation and to keep the interviews brief, thereby encouraging participation. We also did not assess patterns of anticipated reactions to a physician who offered a justification when denying a request. Negative reactions would presumably be much lower in such situations. As a result, our data are more suited to offering an understanding of factors that affect patients' reactions to request nonfulfillment than providing an estimate of the distribution of those reactions. Finally, our results are based on the reports of individuals from just one community, albeit a rather typical one.

CONCLUSIONS

Despite these concerns, we believe that DTC advertising deserves careful and ongoing study. Such promotions have the potential to have an adverse impact on the cost of health care, while the effect of prescription medication expenditures is already being felt.[26] Drug companies have not always been completely forthcoming in advertisements targeted at the physician audience.[9] Preliminary indications are that similar problems plague DTC advertisements.[27]

Unfortunately, federal research funds are not routinely made available to study the impact of promotional materials on the costs and outcomes of health care. Until it can be shown that the health of patients benefits from DTC advertising, we advocate a cautious approach and call for more attention from less biased groups (physicians, managed care organizations, and the government) to public education about prescription drugs.

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