

# Factors Influencing Consumer Purchasing Patterns of Generic Versus Brand Name Over-the-Counter Drugs

Erol Kohli, MD, MPH and Allison Buller, MS

**Objectives:** US consumers spend more than \$20 billion/year on over-the-counter (OTC) drugs. Although generic and brand name OTC drugs share the same active ingredients and undergo the same rigorous Food and Drug Administration approval process, brand name formulations continue to lead the OTC drug market with a higher market share. There is a limited amount of publicly available information regarding consumer perceptions and awareness about generic and brand name OTC drugs. The main objective of this research was to understand what factors influence US consumers to purchase generic versus brand name OTC drugs.

**Methods:** The researchers used a 20-question, self-administered, multiple-choice survey to collect data on the factors influencing consumers' preferences for generic versus brand name OTC drugs.

**Results:** Results revealed that the single most influential factor for participants when purchasing OTC drugs was lower cost.

**Conclusions:** Although economic factors play an important role in influencing consumers to choose generic formulations, a variety of other factors including advertisements, duration of the OTC effectiveness, severity of sickness, preferable form of OTC medication, safety of the OTC, relief of multiple symptoms, and preferred company will persuade others to pay more for brand name drugs. Ultimately, increased awareness and use of generic OTC drugs may result in substantial cost savings for consumers.

From the Kalamazoo Center for Medical Studies, Michigan State University College of Human Medicine, Kalamazoo.

Reprint requests to Dr Erol Kohli, 753 W Market St, #207, Akron, OH 44303. Email: kohlierol@gmail.com

**This article has been developed as a Journal CME Activity by the Southern Medical Association. Visit <http://sma.org/products-page/journal-activities> to view instructions, documentation, and the complete necessary steps to receive CME credit for reading this article. Fees may apply. CME credit will be available for 1 year after date of publication.**

The research was supported by a Student Award Program grant from Blue Cross Blue Shield of Michigan Foundation Grant #1579.SAP.

The authors have no financial relationships to disclose and no conflicts of interest to report.

Accepted July 30, 2012.

Copyright © 2013 by The Southern Medical Association

0038-4348/0-2000/106-155

DOI: 10.1097/SMJ.0b013e3182804c58

**Key Words:** brand name, consumer perceptions, cost savings, generic, over-the-counter drugs, patient education

American consumers spend more than \$20 billion/year on over-the-counter (OTC) drugs. Although generic and brand name OTC drugs contain the same active ingredients and undergo a rigorous Food and Drug Administration (FDA) approval process, brand name formulations continue to lead the OTC drug market. A review of the literature revealed that a limited amount of research exists detailing the purchasing patterns of OTC drugs.<sup>1</sup> Most research to date has focused on consumer purchasing patterns for prescription drugs, showing that financial incentives and physician influence play important roles in consumer purchasing patterns of prescription drugs. Studies investigating patients' perceptions of generic prescription drugs found that regardless of a physician's decision to recommend a generic or brand name prescription drug, physicians served an important function in consumers' decision making about which type of drug to purchase<sup>2-5</sup>; however, for OTC drugs, the physician may not play as central a role as he or she does with prescription drugs. The scarcity of literature investigating

## Key Points

- The majority of participants in our study indicated that over-the-counter (OTC) generic drugs and brand name drugs are equally effective, safe, and undergo the same Food and Drug Administration approval process.
- Roughly half of these participants chose to use generic rather than brand name OTCs.
- Although economic factors play an important role in influencing consumers to choose generic formulations, a variety of factors, including advertisements, duration of the OTC effectiveness, severity of sickness, preferable form of OTC medication, safety of the OTC, relief of multiple symptoms, and preferred company, will persuade others to pay more for brand name drugs.
- Increased awareness and use of generic OTC drugs may result in substantial cost savings for consumers and help curb rising drug costs.

consumers' purchasing patterns of OTC drugs has left an important gap in this area of research. We investigated the factors that influence consumers' decisions to purchase generic versus brand name OTCs. By exploring these factors, we hope to both add to the literature and provide consumers and healthcare professionals with information highlighting consumers' purchasing patterns of generic and brand name OTC drugs.

Increased awareness and use of generic OTC drugs may result in substantial cost savings for consumers and help curb rising drug costs.<sup>6</sup> A 2005 health economic study investigating the potential cost savings for the substitution of generic versus brand name prescription drugs based on data collected from 1997–2000 indicated that generic substitutions could have contributed up to \$5.9 billion in savings for populations younger than age 65 years and \$2.9 billion for populations older than 65 years.<sup>7</sup> Although these findings were exclusively for prescription drugs, it would be of benefit to conduct similar studies investigating potential cost savings in the OTC drug market.

Although American consumers generally appreciate the cost-savings value of generics, only some are willing to use them regularly. A 2009 study of commercially insured adults investigated patients' perceptions of prescription generic medications and revealed that most participants overwhelmingly (94%) agreed that generics are less expensive than brand name drugs and that generic drugs are a better value than brand name drugs; however, when asked if they "would rather take generic rather than brand name medications," only 37.6% agreed.<sup>8</sup> In addition, respondents tended to more strongly agree with the statement "branded drugs are more effective than generics."<sup>8</sup> The same study revealed interesting findings regarding patient characteristics associated with preferences and beliefs about generic drugs. The researchers determined that the wealthiest patients were more likely than poorer patients to report that they prefer generic medications. Healthier patients were more concerned than sicker patients about the efficacy of generics; poorer and older patients expressed more concern about the safety of generics, and women reported that generics offer greater value than men did. Although this study represents the important contribution of research related to prescription drugs, it does not address the factors that influence consumers' purchasing of OTC drugs.

A 2009 Finnish study assessed the role of price and brand in influencing patient preferences for generic versus brand name OTC pain medications.<sup>9</sup> The study population included young adult university students who frequently use OTC pain medicines. When asked to consider factors in their decision making when purchasing generic versus brand name OTCs, "brand and price" of the OTC turned out to be the most important attribute followed by "onset time of effect" and "source of information." "Purchase place" seemed to be less important for the respondents when they chose an OTC pain medication.<sup>7</sup> The study further concluded that patient preferences in the decision-making process of purchasing generic versus brand name OTC drugs could not be based solely on socioeconomic status and that

brand loyalty, in addition to perceived efficacy of the drug, played important roles.

In our study, we examined how certain factors may play an important role in influencing US consumer purchasing behavior of OTC drugs when compared with patterns observed in the purchase of prescription drugs. There is a limited amount of publicly available information regarding American consumer perceptions and awareness of generic and brand name OTC drugs. The main goal of our research was to understand what factors influence American consumers to purchase generic versus brand name OTC drugs. We hypothesized that there is a difference between consumer purchasing patterns of generic versus brand name OTC drugs and that certain factors may play a more important role in influencing consumer purchasing behavior. The literature on consumer purchasing patterns for prescription drugs has shown that financial incentives play an important role in consumer purchases of generic prescription drugs. The research also focused on the role of the physician in influencing consumers' preference for generic or brand name prescription drugs. There is not much literature regarding consumer choices for OTC drugs. With our study, we hope to add to the limited knowledge base of consumer preferences as we investigate factors that influence consumers' purchasing patterns of generic versus brand name OTC drugs.

## Methods

### Survey Development

The specific aim of our study guided our research questions. The main areas of interest included consumers' demographics, general knowledge and perceptions of generics and brand name OTCs, factors that influence their purchasing decision, and reported purchasing behaviors. During the development of the survey, we received feedback from peer focus groups to enhance readability. To ensure survey validity and reliability, expert consultants knowledgeable in survey design were consulted. These sessions also served to help us develop a more thorough understanding of issues important to consumers of OTC drugs.

The title page of the survey included a short list of definitions both defining and providing pictorial examples of generic and brand name OTC medications. The survey included questions with multiple-choice and five-point Likert scale responses assessing participants' demographic characteristics, age, sex, ethnicity, number of children/dependents, highest degree of education, total household income, location of the majority of OTC purchases, self-reported health status, general perceptions of generic versus brand name OTC medications, and specific factors influencing their purchasing decision. Those factors include perceived efficacy, safety, cost, and value of OTC, as well as degree of sickness, multiple symptom relief, preferred company, number of doses in package, description on the packaging, advertisements, and advice from family and healthcare

provider. To increase the internal validity, alternate form questions were included.

The survey was designed to be completed within 5 to 10 minutes. Patients were reminded that their participation in the survey was voluntary and anonymous, there were no risks associated with the study, and there were no financial incentives for completing the survey. The Privacy Board at Michigan State University/Kalamazoo Center for Medical Studies (MSU/KCMS) provided approval of waiver of individual authorization for the use and disclosure of protected health information for research purposes.

### Survey Distribution

The study design was a 20-question, self-administered, multiple-choice survey. Surveys were administered at MSU/KCMS, a medical training clinic and university collaboration specializing in care for an unselected patient population with a broad range of pathology. Research-oriented scholarly activity is encouraged at MSU/KCMS, which made this site ideal for conducting the survey. In addition, the site of survey distribution was chosen to include a diverse age range and socioeconomic background. The nursing and administrative staffs of the MSU/KCMS clinics were versed in the research protocol and, as a convenience sample, distributed the surveys to patients in the waiting areas during January to April 2010. Researchers were not present during survey distribution or collection and care was taken to ensure participants' anonymity. Our main outcome measures included participant demographics, self-reported perceptions of generic and brand name OTC drugs, and factors influencing purchasing decisions.

### Data Analysis

For data entry, a codebook was designed to record the questions and corresponding responses for each participant. We distributed 200 surveys at the clinic and collected a total of 183 surveys, for a response rate of 92%. We received 23 incomplete surveys, which we chose to omit from data analysis, leaving a total of 160 completed surveys. Participants submitting incomplete surveys (ie, multiple responses to a single question, pages or questions left blank) were omitted from the analysis. Completed survey data were recorded and imported into STATA (StataCorp, College Station, TX) for analysis.

Descriptive statistics were used to examine characteristics of the respondents. Participants were considered to agree if they somewhat or strongly agreed and were considered to disagree if they somewhat or strongly disagreed. Responses to questions exploring "characteristics of respondents" and "general perceptions of respondents" were converted into percentages. An analysis of the relation between factors influencing purchasing patterns and influences to buy generic or brand name OTCs was performed using chi-square tests. Respondents who chose "no influence" for a particular factor were omitted from that specific analysis.

## Results

### Characteristics of Respondents

On average, respondents were 41 years old (range 18–84 years), 63% were women, and 78% designated their race as white. Furthermore, 24% of participants reported having a college degree or beyond and 65% reported having a total household income in the previous year of less than \$39,999. Finally, 60% of respondents reported their health to be "good" or "very good" (Table 1).

### General Perceptions of Respondents

Respondents' general perceptions regarding OTC medications indicated that 77% have considered the differences between generic and brand name versions of the same drug. Survey results revealed that 48% of respondents would "often" or "almost

**Table 1. Respondent characteristics (N = 160)**

	Summary measures
Age, y (mean, range)	41 (range 18–84)
Female sex, %	63 (101)
Race/ethnicity, %	
White	78 (124)
Black	17 (27)
Hispanic	3 (5)
Asian or Pacific Islander	1 (2)
Native American	1 (1)
People with children/dependents, %	68 (109)
Highest degree of education, %	
Less than high school	12 (19)
High school graduate	26 (41)
Some college/postsecondary education	38 (61)
College degree or beyond	24 (39)
Total household income from all sources last year, %	
<\$20,000	42 (68)
\$20,000–\$39,999	23 (36)
\$40,000–\$59,999	18 (29)
\$60,000–\$79,999	6 (10)
≥\$80,000	11 (17)
Self-reported health status, %	
Poor	5 (8)
Fair	30 (48)
Good	48 (77)
Very good	12 (19)
Excellent	5 (8)
Majority of over-the-counter purchases, %	
Supermarket	43 (69)
Pharmacy	28 (45)
Convenience store	0 (0)
Superstores	27 (43)
Other	2 (3)

**Table 2. Respondent general perceptions (N = 160)**

Questions	Summary measure (N = percentage of response)		
1. Before this study, have you thought about the differences between brand name and generic versions of the same drug?	23% (37) Not at all	48% (76) Yes, a little	29% (47) Yes, a lot
2. Do you have strong feelings about which one is better?	1% (2) Generics are better	71% (114) They are both equally good	28% (44) Brand names are better
3. How often do you compare the “active ingredients” label on the package of OTCs to see if brand name and generic versions contain the same ingredients?	38% (61) Never/rarely	18% (29) Sometimes	44% (70) Often/almost always
4. In general, do you choose generic OTCs over brand name OTCs?	15.625% (25) Never/rarely	33.75% (54) Sometimes	50.625% (81) Often/almost always
5. How likely are you to take an OTC when you have a cold?	17.5% (28) Never/rarely	35% (56) Sometimes	47.5% (76) Often/almost always
6. How likely are you to take an OTC when you have pain?	16% (26) Never/rarely	29% (46) Sometimes	55% (88) Often/almost always
7. I tend to use brand name OTCs instead of generic OTCs.	31% (49) Strongly agree/agree	24% (39) Neither agree nor disagree	45% (72) Disagree/strongly disagree
8. I believe generic OTCs are more effective than brand name OTCs.	9% (15) Strongly agree/agree	46% (73) Neither agree nor disagree	45% (72) Disagree/strongly disagree
9. I always stick with the same brand.	71.875% (115) Strongly agree/agree	17.5% (28) Neither agree nor disagree	10.625% (17) Disagree/strongly disagree
10. I am willing to pay more for a brand name OTC.	24.375% (39) Strongly agree/agree	24.375% (39) Neither agree nor disagree	51.25% (82) Disagree/strongly disagree
11. Do you believe that generic and brand name OTCs with the same ingredients work equally well?	82.5% (132) Yes	17.5% (28) No	
12. Do you believe that generic and brand name OTCs with the same ingredients are equally safe?	91% (146) Yes	9% (14) No	
13. Do you believe generic OTCs go through the same Food and Drug Administration approval process as brand name OTCs?	91% (145) Yes	9% (15) No	

*OTC, over the counter.*

always” take an OTC if they had a cold and 55% reported that they would likely take an OTC if they had pain. Our data indicate that 51% of participants “often” or “almost always” choose generics over brand name OTC drugs, and 44% of participants indicated that they compare the active ingredients label on the packages. Participants overwhelmingly agree that both generic and brand name drugs are “equally safe” (91%) and “effective” (83%), with almost all of the respondents trusting that both drug versions undergo the same FDA approval process (91%). Regarding brand loyalty, 72% of the respondents indicated that they would “always stick with the same brand” of a drug, whereas 24% of respondents indicated that they would be willing to pay more for a brand name OTC (Table 2).

### Factors in Consumer Purchasing Patterns

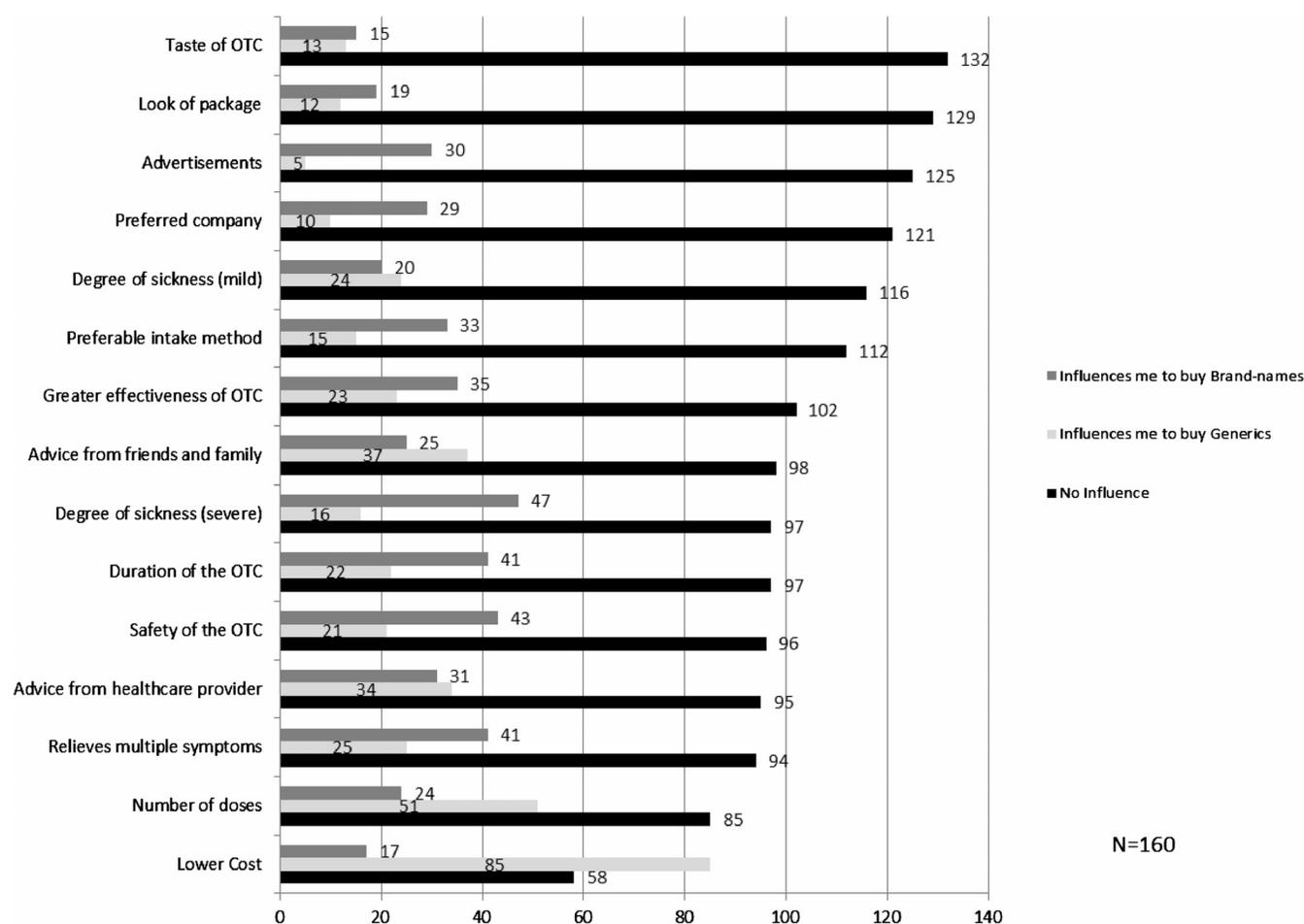
For 14 of the 15 factors we analyzed, the “no influence” category was the most commonly selected response and the single most influential factor for participants when purchasing OTCs was lower cost (53%). When the “no influence” category was omitted from the analysis, a number of factors emerged to be influential in consumer purchasing pattern of OTCs.

Among the participants who were influenced to buy brand name OTCs, the following determinants were statistically significant ( $P < 0.05$ ): advertisements, duration of the effectiveness, degree of sickness (severe), preferable form of medication, safety of the OTC, relief of multiple symptoms, and preferred manufacturer. Among the participants who were influenced to buy generic OTCs, the following factors were statistically significant ( $P < 0.05$ ): number of doses in the bottle and lower cost of the OTC.

Factors that were determined to have no statistical significance in influencing consumer purchasing patterns included advice from healthcare provider, advice from family and friends, look of the package, degree of sickness (mild), taste of the OTC, and greater effectiveness of the OTC. It is important to note that only those participants who were influenced by the factors were included in this particular portion of the statistical analysis (Fig.).

### Discussion

Brand name drugs lead the OTC market in sales; however, in our study, more than half (51%) of our survey respondents



**Fig.** Factors and direction of influence of purchasing patterns of generic and brand name over-the-counter drugs.

reported purchasing generic medications over brand name OTCs. Previous studies have indicated that individuals with lower income and less education tend to be less knowledgeable and hold more negative attitudes toward generic drugs than those with higher income and more education.<sup>8</sup> Even though the study population had lower socioeconomic status and education, it was interesting to note that more than half of our respondents reported choosing generic drugs rather than brand name drugs. Approximately 80% of survey respondents said that they have considered the differences between generic and brand name versions of the same drug and close to 90% believed the two versions to be equally safe and effective.

In agreement with the 2009 Finnish study, cost appeared to play an important role in consumer purchasing patterns of OTC drugs. Lower cost and number of doses in the package were important factors that respondents rated as having substantial influence on their purchase of generic OTCs. Factors influencing their decision to purchase brand name drugs included advertisements, duration of the OTC effectiveness, severity of sickness, preferable form of OTC medication, safety of the OTC, relief of multiple symptoms, and preferred manufacturer.

### Limitations in Study Design

Addressing repeatability proved to be a limitation in our survey design. Although we attempted to include alternate form questions, we concluded that the final wording of our questions was too different to allow for an accurate assessment of repeatability. Successfully including questions with alternate forms could have increased the precision and accuracy of our data.

Asking participants about their health insurance status and whether they receive coverage for OTC medications could have further strengthened our survey. Also, with regard to assessing factors of influence, having an option for choosing “no opinion” may have led to higher response rates, increasing the precision of our survey data.

### Limitations in Analysis of Results

An important limitation of our study is the generalizability of the results because of our convenience sampling at the MSU/KCMS clinics. Data revealed that our surveyed population had a lower socioeconomic status and educational background than

was originally hypothesized. Less than one-fourth of our population surveyed earned a college degree or beyond and more than half had a total household income of less than \$39,999. The lack of generalizability to the target population may bias the direction of our findings.

Another limitation in our analyses included the 23 incomplete surveys we received from respondents. Factors that may have contributed to incomplete surveys are themselves potential limitations of our study; for example, our four-page survey may have been too long for some patients to comfortably complete in 5 to 10 minutes while in the waiting room. Some participants suggested to the nursing staff distributing the survey that we shorten the survey to improve retention and increase participation. In addition, the survey readability (Flesch-Kincaid grade level six) may have been too high for our study population. Allowing participants to mail in their completed surveys may have resulted in an increase in the response rate.

Finally, it is possible that some of the population completing our survey answered the survey questions as if they were responding to “prescription” and not “over-the-counter” medications. Although definitions, examples, and images of both generic and brand name OTC medication were included on the cover of our survey, it is still possible that this may have been misinterpreted by the respondents to represent “prescription” drugs. Thus, responses may have varied based upon which drug category the respondent believed he or she was addressing.

## Conclusions

Although economic determinates play an important role in influencing consumers to choose generic formulations, a variety of factors, including advertisements, duration of the OTC drug’s effectiveness, severity of sickness, preferable form of OTC medication, safety of the OTC, relief of multiple symptoms, and preferred manufacturer will persuade others to pay more for brand name drugs. Approximately 90% of our survey respondents reported that they believe OTC generic drugs and brand name drugs to be equally effective and safe and undergo the same FDA approval process, yet only half of the respondents chose to use generic over brand name OTCs. The results

of this study highlight the discrepancy between consumers’ beliefs and reported purchasing behavior of OTC drugs. Increased efforts by healthcare providers to educate patients about generic OTC drugs may assist patients in making better-informed decisions. Ultimately, improved awareness and use of generic OTC drugs may result in substantial cost savings for consumers and help curb rising drug costs.

## Acknowledgments

The authors thank the following individuals for their assistance with and contributions to this study: Luis H. Toledo, MD, PhD, Richard Roach, MD, and Robert M. Flikkema, MS (Kalamazoo Center for Medical Studies, Michigan State University College of Human Medicine); Lynn Chen, MPH, Hannah Park, MPH, Shivani Parmar, MPH, and Julie Zitterkopf, MPH (Dartmouth Medical School).

## References

1. Ganther JM, Kreling DH. Consumer perceptions of risk and required cost savings for generic prescription drugs. *J Am Pharm Assoc* 2000;40:378–383.
2. Himmel WA, Simmenroth-Nayda A, Niebling W, et al. What do primary care patients think about generic drugs? *Int J Clin Pharmacol Ther* 2005;43:472–479.
3. Hellerstein JK. The importance of the physician in the generic versus trade-name prescription decision. *Rand J Econ* 1998;29:108–136.
4. Decollogny A, Eggli Y, Halfon P, et al. Determinants of generic drug substitution in Switzerland. *BMC Health Serv Res* 2011;11:17.
5. Shrank WH, Liberman JN, Fischer MA, et al. Physician perceptions about generic drugs. *Ann Pharmacother* 2011;45:31–38.
6. Rizzo JA, Zeckhauser R. Generic script share and the price of brand-name drugs: the role of consumer choice. *Int J Health Care Finance Econ* 2009;9:291–316.
7. Haas JS, Philips KA, Gerstenberger EP, et al. Potential savings from substituting generic drugs for brand name drugs: medical expenditure panel survey, 1997–2000. *Ann Intern Med* 2005;142:891–897.
8. Shrank WH, Cox ER, Fischer MA, et al. Patients’ perceptions of generic medications. *Health Aff (Millwood)* 2009;28:546–556.
9. Halme M, Linden K, Kääriä K. Patients’ preferences for generic and branded over-the-counter medicines: an adaptive conjoint analysis approach. *Patient* 2009;2:243–255.