



Pharmacy Practice

ISSN: 1885-642X

journal@pharmacypractice.org

Centro de investigaciones y Publicaciones

Farmacéuticas

España

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Pharmacy Practice, vol. 12, núm. 4, octubre-diciembre, 2014, pp. 1-12

Centro de investigaciones y Publicaciones Farmacéuticas

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Original Research

Exploring consumer understanding and preferences for pharmacy quality information

Olayinka O. SHIYANBOLA, Jane R. MORT.

Received (first version): 29-May-2014

Accepted: 6-Oct-2014

ABSTRACT*

Objective: To describe consumer understanding of pharmacy quality measures and consumer preferences for pharmacy quality information.

Methods: Semi-structured focus group design was combined with survey methods. Adults who filled prescription medications for self-reported chronic illnesses at community pharmacies discussed their understanding of Pharmacy Quality Alliance approved quality measures. Questions examined preference of pharmacy quality information rating systems (e.g. stars versus percentages) and desired data display/formats. During the focus group, participants completed a survey examining their understanding of each pharmacy quality measure. All focus group discussions were transcribed verbatim. Data were analyzed using thematic analysis and descriptive statistics.

Results: Thirty-four individuals participated (mean age=62.85; SD=16.05). Participants were unfamiliar with quality measures information and their level of understanding differed for each quality measure. Surveys indicated 94.1% understood "Drug-Drug Interactions" and "Helping Patients Get Needed Medications" better than other measures (e.g., 76.5% understood "Suboptimal Treatment of Hypertension in Patients with Diabetes"). Qualitative analysis indicated participants preferred an overall pharmacy rating for quick access and use. However, participants also wanted quality measures information displayed by health conditions. Participants favored comparison of their pharmacy to city data instead of state data. Most participants liked star ratings better than percentages, letter grades, or numerical ratings.

Conclusions: Individuals who have a chronic illness and regularly use community pharmacies are interested in pharmacy quality measures. However, specific quality measures were not understood by some participants. Participants had specific preferences for the display of pharmacy quality information which will be helpful in the design of appropriate quality report systems.

Keywords: Quality Assurance, Health Care; Consumer Satisfaction; Community Pharmacy Services; Pharmacies; United States

INTRODUCTION

Performance information of health care systems, health care providers, and health organizations has been increasingly made available to the public over the past decade.¹ The release of provider performance information to the public has been justified for several reasons: i) An expectation that this information will allow consumers to choose and inquire about high quality providers²⁻⁵, ii) Health care providers can use the data as a viable marketing tool⁶, iii) Cost will be contained and/or less likely to be the principal influence on the consumer's selection of a provider^{7,8}, and iv) Such information will be a useful tool for ensuring provider accountability and/or increase health provider's motivation to improve.⁹ Though the possibility is promising, there are presently no publicly available quality reports designed and disseminated for use by the pharmacy consumer.

Pharmacy-based quality measures have been developed by the Pharmacy Quality Alliance (PQA), a United States consensus-based non-profit organization established in 2006 to lead pharmacy involvements in health care quality initiatives. The goal of PQA is to develop medication use measures based on available claims data and report the results meaningfully to consumers, pharmacists, employers, health plans, and others. It has been suggested that pharmacy quality indicators may benefit pharmacy management and health care organizations that seek to use such performance data to identify quality improvement opportunities and/or change their organizational policies and procedures. In addition, pharmacy indicators may be used by regulatory or accrediting bodies to determine reaccreditation or recertification of healthcare organizations, used by payers to determine provider payments (e.g. pay for performance) and finally used by patients to determine what providers to use. Despite the potential benefits to consumers, limited work has been carried out to determine how this information could be communicated and made understandable to the consumer.^{10,11}

Research has examined how consumers make sense of quality information. To communicate quality information to consumers, it is important to use consumer preferences to determine what measures should be included in performance reports.¹² In addition, the importance of utilizing patients' understanding of quality measures in the development and advancement of quality measures has been documented. When consumers don't understand the quality information being presented in a reporting system, they are likely to dismiss the

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Table 1: Pharmacy Quality Alliance (PQA) community pharmacy quality measures and its consumer-friendly definitions	
Quality Measure	Definition ^a
Helping Patients Get Needed Medications	Pharmacy ensured that patients received the medicines for their chronic conditions and continued to receive them on a regular basis
Diabetes Medication Dosing	Pharmacy ensured patients were not dispensed a dose higher than the recommended dose for diabetes medications
Use of High-Risk Medications in the Elderly	Pharmacy ensured the elderly did not receive a Medication that can put them at high risk for developing a severe health problem
Drug-Drug Interactions	Pharmacy ensured there were no patients who were dispensed two medications that can cause harm when taken together
Suboptimal Treatment of Hypertension in Patients with Diabetes	In a pharmacy, people who have diabetes and high blood pressure were not getting the best medications to treat blood pressure in people with diabetes
Absence of Controller Therapy for Persons with Asthma	In a pharmacy, patients with asthma were using many "rescue" inhalers to treat their asthma attacks when they occur but were not getting medications to prevent asthma attacks

^a The definitions were available to participants in parenthesis.

information, even when it clearly reflects a significant measure of quality. Conversely, consumers sometimes rely on patient satisfaction ratings that seem better understood than less-understood objective clinically based measures of quality.¹² Jewett and Hibbard (1996) showed that quality measures are not well understood by consumers at either a simple or more theoretical level of comprehension.¹³ Noted comprehension problems include a lack of understanding of the terminology, a lack of understanding of the assessments (whether low or high rates of a measure indicate good quality), and not being able to comprehend what a quality measure is supposed to indicate about quality of care.¹²

According to a proposed consumer choice model, a series of events need to take place in order to facilitate the use of comparative quality information by consumers.¹⁴ This includes: an awareness and understanding of the information, perceived usefulness of the information and the ability to use the information in decision-making. Knowledge (the ability to correctly interpret quality information, understand the information, and be knowledgeable of the quality scoring system), attitude (trust, appreciation, value, and use of quality information), and behavior (selecting or switching a healthcare provider) are similarly important in the consumer choice model.¹⁵ This study explores the potential use of pharmacy quality measures by consumers using this model.

Consumer understanding and preferences for quality measures has great implications in the design, content and format of report cards, especially in the pharmacy setting where limited work has been done. Research to understand consumer preferences of quality information are needed as an important step in increasing consumer participation in pharmacy selection decision-making.

In a previous study, lay consumers reported limited knowledge and understanding of PQA pharmacy-based measures, drug names and terminologies related to quality performance information.¹⁶ However, some of these consumers were not taking medicines, did not have a chronic illness and did not necessarily use a community pharmacy to fill prescriptions. Hence, they were not representative of consumers who would be interested in using

pharmacy quality measures to choose pharmacies. This present study further explores the potential use of pharmacy quality information by individuals who regularly utilize community pharmacies. This study is significant in informing the process of making pharmacy quality information available to community pharmacy users. The objectives of this study were to 1) Describe consumer understanding of pharmacy quality measures and 2) Describe consumer preferences for pharmacy quality information.

METHODS

Design

The design of this study was cross-sectional using semi-structured focus groups and surveys as the method for data collection. Both data collection methods were used because of the newness of the topic which requires qualitative exploration of patient perceptions and may not be effectively captured by a single questionnaire or survey. In addition, patient perceptions of quality measures from both a qualitative and quantitative perspective provides a more complete understanding of pharmacy quality measures, allows the addition of information about study participants and facilitates the comparison of participants' contextual information with their survey responses.

Sample

The sample included adult men and women who could speak and understand English. Participants had to be diagnosed with a chronic illness by their health provider, currently using a community pharmacy to fill prescriptions and currently taking a prescription medication. The convenience sample was recruited from a rural and urban geographical location using newsletters, flyers, radio announcements and word of mouth from participants. Human subjects study approval was received by the investigators' university institutional review board.

The Focus Groups

Focus Groups lasting about 60 to 90 minutes assessed consumers' understanding and preferences for pharmacy quality measures information. The groups were held from January to May 2013 with four to six participants in each group.

Best practices for conducting focus groups were followed during the discussion.¹⁷ Participants discussed their understanding and interpretation of each quality measure by examining the language and meaning of the measures. Also, participants discussed their rating preference for quality information (e.g. the use of stars versus the use of percentages), their preferred method for the data display of quality ratings (e.g. the use of bar graphs) and the format of presenting quality information. In addition, mock report cards were used by participants to discuss their preferences for pharmacy report cards. Snapshots of a Medicare Part D (Medicare prescription drug benefit plan) comparison quality information available on the internet was shown to participants as an example of a performance rating system (See Appendix). Participant reactions to the format and display of the quality information were documented. Open-ended neutral questions were used in all discussions and these questions were developed by the research team with feedback and input from a collaborator at PQA. The focus group script had been used and tested in our previous pilot study and was modified to fit the objectives of this study.¹⁶ The specific questions were based on the objectives of the study and there was minimal deviation from the script during the administration of each focus group. The project collaborator at PQA provided the consumer-friendly phrasings and definitions of the pharmacy quality measures (Table 1). The pharmacy quality measures that were presented to the participants in this study included:

1. Helping Patients Get Needed Medications
2. Diabetes Medication Dosing
3. Use of High-Risk Medications in the Elderly
4. Drug-Drug Interactions
5. Suboptimal Treatment of Hypertension in Patients with Diabetes
6. Absence of Controller Therapy for Persons with Asthma.

The focus group discussions were audio recorded using a digital recorder. The principal investigator or Research Assistant moderated the sessions. Focus groups were conducted in an urban and rural area of a Mid-Western State in the United States. The urban location is the largest city in the state with a population of about 150,000 people while the rural location is a small rural town of about 3,000 people.

The Surveys

Two surveys were administered to the participants. At the beginning of the focus group, a brief 5-minute survey was administered to participants. The questionnaire collected information on participants' socio-demographic and clinical characteristics including age, gender, race/ethnicity, years of school completed, self-rated health (response options from poor to excellent), current use of prescription medications (Yes/No), number of prescription medications, number of pharmacies used in the previous six months, number and the type of chronic illness, and type of health insurance plan. Information on participants' use and access to the web/internet were also obtained. For example, specific questions on participants' primary site for

the use of the web, availability of internet access at home (Yes/No), type of home internet connection, and frequency of the use of the internet were included in the survey. During the focus groups, participants were given survey worksheets to complete. Using response options of Yes/No, questions related to consumers' understanding of each pharmacy quality measure were examined. Specifically, participants indicated if they understood the meaning of each specific measure. All participants were identified using identifier numbers. Each participant received a USD20 gift card as compensation for their participation in the study.

Analysis

Audio recordings of the focus group discussions were transcribed verbatim by a certified transcriber. Thematic analysis was used to examine consumers' understanding of pharmacy quality measures and consumer preferences for pharmacy quality information including data formatting and data display.¹⁸ Other emergent themes related to access and dissemination of pharmacy quality information was also examined. The participants' statements from transcribed notes were used to explore themes and subthemes. Then, using the focus group questions, final themes were obtained. Additional themes that emerged from the discussions were also noted. Three researchers (the investigator and two research assistants) coded the transcripts individually and the results from each coder were compared to assure consistency. The thematic analysis followed best practices by incorporating both a data-driven inductive approach and a deductive a priori template of coding using the study research objectives and focus group questions.^{18,19} Descriptive statistics examined the frequencies and means of all consumer characteristics and survey questions on understanding of quality measures. All quantitative data were analyzed using SPSS version 21.0.

RESULTS

There were 34 participants in this study with a mean age of 62.85 years (SD=16.05). Most participants were female (n=26, 76.5%) and white (n=31, 91.2%). (Table 2). Two major themes and three emergent themes were identified from the focus groups. The major themes were 1) Consumers' understanding of pharmacy quality measures differed by the type of measure and 2) Consumers' had specific preferences for the display of pharmacy quality information. Additional themes emerged during the focus group discussion (Table 3).

Objective 1

Consumer understanding differed by the type of measure. Measures such as Diabetes Medication Dosing, Suboptimal Treatment of Hypertension in Patients with Diabetes, and Absence of Controller Therapy for persons with Asthma was difficult for participants to comprehend. Similar to the focus groups, the survey responses showed that Suboptimal Treatment of Hypertension in Patients with Diabetes and Absence of Controller Therapy in

Table 2: Descriptive statistics of the study population (N=34)			
Variable		Number (%)	Mean (SD) ^a
Socio-demographics			
Age			62.85 (16.05)
Gender	Male	8 (23.5)	
	Female	26 (76.5)	
Geographical Location	Rural	12 (35.2)	
	Urban	22 (64.7)	
Racial background	Caucasian	31 (91.2)	
	American Indian	3 (8.8)	
	Black or African American	0	
	Hispanic	0	
	Asian or Pacific Islander	0	
	Arabic	0	
Years of school completed	8 grades or less	2 (5.9)	
	Some high school	2 (5.9)	
	High school graduate or GED ^b	5 (14.7)	
	Some College	10 (29.4)	
	College graduate	12 (35.3)	
	Graduate degree	3 (8.8)	
Health Insurance plan in the past six months	An individual plan	3 (8.8)	
	A plan through your employer	6 (17.6)	
	Military or VA ^c Health Plan	2 (5.9)	
	Medicaid	3 (8.8)	
	Medicare	10 (29.4)	
	Other	7 (20.6)	
	I've not had an insurance plan in the past 6 months.	3 (8.8)	
Clinical characteristics			
Self-rated health	Excellent	1 (2.9)	
	Very good	11 (32.4)	
	Good	10 (29.4)	
	Fair	12 (35.3)	
	Poor	0	
Number of prescription medications taken daily	1	7 (20.5)	4.18 (3.53)
	≥ 2	27 (79.5)	
Number of pharmacies used in the past six months	1	21 (61.8)	1.44 (0.71)
	≥ 2	13 (38.2)	
Pharmacy Type	Chain	19 (55.9)	
	Independent	14 (41.2)	
	VA	1 (2.94)	
Number of chronic illnesses	1	11 (32.4)	3.09 (2.09)
	≥ 2	23 (67.6)	
Other characteristics			
Primary internet site	Home	16 (48.5)	
	Office	1 (3.0)	
	Community center	6 (18.2)	
	Other	10 (30.3)	
Has internet at home	Yes	17 (51.5)	
	No	16 (48.5)	
Frequency of Internet Use	Daily	14 (42.4)	
	1-3 times weekly	4 (12.1)	
	Weekly	2 (6.1)	
	Monthly	2 (6.1)	
	Others	11 (32.4)	

^a SD= Standard deviation units; ^b GED= General Educational Development for Certificate of High School Equivalency; ^c VA= Department of Veteran Affairs

Persons with Asthma had the lowest percentages of participants who understood the measure, 76.5% and 79.4% respectively. (Table 4)

Consumers thought the explanation of each measure in parenthesis helped them to understand the measure. Participants explained that some of the measures were hard to understand because of complex wordings (due to high grade reading level). Also, some of the measures were hard to understand because of consumers' non-familiarity with the type of information presented. Consumers want plain language in the communication of quality information (Table 3).

Objective 2

Participants had specific preferences for the display of pharmacy quality information including data display, data formatting and important pharmacy quality information (Table 3).

Data display. Most participants liked the star system better than percentages, letter grade or numerical ways of rating. Some participants did not care what grade system was used as long as the criteria was understood and the measures were clear. "A lot of times those ratings systems are like a five star or something like that. You don't always know what the criteria are. So, I think it would be important for people to understand what they were measured on, rather than just be five stars or whatever"

Table 3. Participants' understanding and preferences for community pharmacy quality information (Focus Group Results)			
Objectives and Themes	Topics	Perceptions	Sample quotations
<p>Objective 1: Describe consumers understanding of community pharmacy quality measures</p> <p>Theme 1: Quality measures are hard to understand and consumers are unfamiliar with the type of information.</p> <p>Theme 2: Participants' level of understanding differed for each pharmacy quality measure. (Results show Suboptimal Treatment of Hypertension in Patients with Diabetes and Absence of Controller Therapy in Persons with Asthma were least understood while Helping Patients Get Needed Medication, Use of High Risk Medication in the Elderly, Diabetes Medication Dosing ,and Drug-Drug Interactions were understood)</p>	<p><i>Comprehension and understanding</i></p>	<p>Prior knowledge of pharmacy quality information and low reading levels of information is needed to increase consumer understanding of measures.</p>	<p><i>"I wouldn't word it this way, I don't think the wording is understandable...It's hard to understand this stuff when you don't use it"</i></p> <p><i>"...I've always been told you have to write things to an eighth grade level. Would a sixth grader know that?" My husband also is Hispanic. He graduated from high school. He has asthma. I don't think he would understand"</i></p>
		<p>Further descriptions of each quality measure (e.g. in parenthesis) is needed to understand the measures.</p>	<p><i>"...some of these I didn't understand very well until I read the little parenthesis part. It would be nice to have a place to click so that I did understand all that"</i></p> <p><i>"Controller therapy might be the biggest one where if I looked at it and I just read it, I'm not sure I would have any idea. I can go read the parenthesis, but if you're not reading the parenthesis, I'm not sure I would know what that means as a general person"</i></p>
<p>Objective 2: Describe consumer preferences for pharmacy quality information.</p>	<p><i>Data Formatting</i></p>	<p>Plain language is needed when communicating quality measures information to consumers.</p>	<p><i>"I don't think anybody should have a problem as long as it's not, you know, complicated language... it should be written in a normal, you know, everyday language so everybody could understand it. That is pretty plain."</i></p>
		<p>Consumers want an overall pharmacy rating displayed for quick access and use. However, some participants would prefer quality measures information displayed by certain health conditions rather than an overall pharmacy score.</p>	<p><i>"I would want to see overall. That's kind of specializing a pharmacy to where they're dealing with just one condition, and I wouldn't go to that pharmacy if they're not there to help me as well as that diabetic. Then there's no sense of me going there."</i></p> <p><i>"Both scores would be optimal. The overall and then the detail because if you give them both immediately, it will be too much. If you get an overall, then pull out detail."</i></p> <p><i>"I think by condition would be good. I'm not as concerned with high blood pressure or diabetes, and I might want to just focus on what's right for me. It would probably also shorten the process and make it quicker for people"</i></p>
	<p><i>Data display of report cards</i></p>	<p>Consumers dislike the use of 'lower is better' format in comparing pharmacies</p>	<p><i>"They've gotta reverse it back that higher is better...because reading that, it's even confusing for me. You've gotta stop and double think. If somebody is a little older or somebody doesn't always retain information, are they going to be able to comprehend how that is set up and be able to choose a pharmacy from there?"</i></p> <p><i>"You're used to looking that the higher, the better. It's just the way your mind works from school. That is very confusing."</i></p>

		Consumers don't like the inclusion of a state average in pharmacy quality reports nor the comparison of a pharmacy to the state average.	<p><i>"What if I don't know what the state average is necessarily? How do you know what a good number is? How do I know the state average is a good average? What if the whole state is doing poorly?"</i></p> <p><i>"I'm just curious why they want to have it (state average). I live in a big city. I don't really care what the state average is. I care about in-town. —am I going to chase around to find a pharmacy that has a highest rating? Why don't I just look for a pharmacy that has a high rating in (City) or wherever I live? If I lived in (City), I would want to know where in that city the best pharmacy was"</i></p>
		<p>Consumers have mixed feelings about the use of star rating systems versus other methods of displaying quality information.</p> <p>In general, most participants liked star ratings better than percentages, grade letters or numerical ratings.</p>	<p><i>"I don't know if it would matter to me. I'm a little uncomfortable with the A to F because I'm a teacher. That has such negative connotations I think. I think I'd rather see a star system or a one through ten"</i></p> <p><i>"I think stars might confuse. Especially when you're dealing with the elderly because they aren't always aware, you know they might think they're looking at something else when they're actually looking at their pharmacy. It needs to be something that's not used by restaurants or hotels and those type of things. It needs to be something that sticks out.</i></p> <p><i>"The stars are overused, I think. ...Percentages, I think, would be more accurate"</i></p> <p><i>"I'm used to stars. That's what you read in magazines and television"</i></p> <p><i>"The star system is more visual. It's faster especially if you're looking at the computer. You don't have to do a lot of thinking. You just simply glance down especially if there are a lot of different columns. You may or may not be looking for a certain thing. You may just be looking overall. The A, B, C, D was the way everything was for many years, but I think I see the stars used for everything now. I think that's a lot better"</i></p>
		Consumers understood the Medicare star rating better than the use of a bar graph system which was confusing and difficult to comprehend.	<p><i>"The nice part about it (the Medicare star rating) is that it's similar to what older people are using. It would help prevent some confusion. The more similar to that, the better off."</i></p> <p><i>"The bar graph is okay, but it should be the opposite direction. I liked the other one (Medicare star rating) better. It's just easier to understand."</i></p>
<u>Other themes</u>	<i>Interest in pharmacy quality information</i>	Consumers are interested in publicly available pharmacy quality information and would access the information if available.	<p><i>"It (pharmacy quality information) should be displayed publicly! I think they should have to display that right there at their counter"</i></p> <p><i>"I think that (publicly available quality measures) would make them more aware, and they're gonna try harder 'cause no one wants something bad about 'em sticking out there, whether you do percentages or you use the alphabet or whatever, you know, they did that to themselves, and everybody is seeing it. That's gonna make them want to improve I would hope."</i></p> <p><i>"It would be nice to know if my pharmacy rates low. I would want to know why. I would ask them what they have done to better themselves"</i></p>

	<p><i>Inclusion of other information in pharmacy reports</i></p>	<p>Other than the PQA quality measures, consumers would like to see additional information on the pharmacies including their customer service, patient satisfactions and cost of medications.</p> <p>Few participants were hesitant about including consumer information.</p>	<p><i>"I think service would be important. I think going to some place where you know they're going to take the time to answer your questions if you have questions...I think that's important.</i></p> <p><i>"I think customer service is such an important thing. People should feel comfortable and feel like they can ask questions, especially the elderly. You don't get that information at the doctor's office...it is good to have someone that will take the time to explain things to you.</i></p> <p><i>"It depends. If a person goes a lot to the pharmacy, there are so many variations when you look at those reports. If somebody treats me bad, it doesn't mean that they are going to treat her bad."</i></p>
	<p><i>Access to pharmacy quality information</i></p>	<p>Consumers mostly want to use the internet to access quality information, with some hesitation from a few individuals.</p> <p>Consumers also want quality information placed at the pharmacy.</p> <p>Some wanted to be able to inquire about pharmacy quality information from their doctors' office.</p>	<p><i>"You could look at it (on the internet) before you went to a drugstore. You would have some idea of what drugstore you wanted to go to and check it out before you went there. Or are you going to just drive around and go to every pharmacy (in response to placing quality information at the pharmacies)"</i></p> <p><i>"I think about the patient population here (rural area), I would say at least half are probably not technologically literate enough to access information. Even people with computers, I'm not sure. My grandma, for example, can use a computer. She can check her email, but I'm not sure she could figure out how to get to a website if her life depended on it"....</i></p> <p><i>"You're not going to go home on your computer and look it up, and then go find the pharmacy. You're leaving the clinic."</i></p> <p><i>"They should have 'em (quality ratings) at the pharmacies...Display it or something. Maybe some print out like a report card. I don't have a computer. There's a lot of people that don't. A lot of people wouldn't bother to look, but if it's sitting there in a little thing in their pharmacy, they're gonna pull it out, and they may read it. Also, I think it needs to be all over. The accessibility has gotta be widespread, not just on the Internet like— There would be too many people not getting the information"</i></p> <p><i>"I think that would be something to have like at a doctor's office if they have computers that the patient can look at. If you're in a strange town or something, the patient could go on the computer at the doctor's office."</i></p> <p><i>"...at the clinic...I mean, you've got to go to your doctor to get the prescription. They should have a print out for the people to pick up if they needed it."</i></p> <p><i>"...at my doctor's office. ... When they ask what pharmacy I want them to send that to, I would say, "Do you have a sheet on the pharmacies? What would you recommend?" I'd like to get a copy of that or something"</i></p>

Table 4. Survey Results on Participants' Understanding of Specific Pharmacy Quality Measures (n=34) ^a	
Quality Measure	Percent Understanding (Number)
Drug-Drug Interactions (Pharmacy ensured there were no patients who were dispensed two medications that can cause harm when taken together).	94.1 (32)
Helping Patients Get Needed Medications (Pharmacy ensured that patients received the medicines for their chronic conditions and continued to receive them on a regular basis).	94.1 (32)
Use of High-Risk Medications in the Elderly (Pharmacy ensured the elderly did not receive a Medication that can put them at high risk for developing a severe health problem)	88.2 (30)
Diabetes Medication Dosing (Pharmacy ensured patients were not dispensed a dose higher than the recommended dose for diabetes medications)	85.3 (29)
Absence of Controller Therapy for Persons with Asthma (In a pharmacy, patients with asthma were using many "rescue" inhalers to treat their asthma attacks when they occur but were not getting medications to prevent asthma attacks).	79.4 (27)
Suboptimal Treatment of Hypertension in Patients with Diabetes (In a pharmacy, people who have diabetes and high blood pressure were not getting the best medications to treat blood pressure in people with diabetes)	76.5 (26)
a. Survey results were collected during the focus group discussions	

Consumers did not like the inclusion of a state average in the mock reports nor the comparison of the pharmacy rating to the state average. Instead, consumers favored a comparison of their pharmacy to city data instead of state data. *"I think there's a whole lot of too much information (in reference to state data)... Well, I think you have to realize most of us elderly now just have high school and very little collegeWe get too much information thrown at us..."*

Data formatting. Consumers would like to see a pharmacy score with an overall pharmacy rating displayed for quick access and use. Consumers also wanted to see quality measures information displayed by certain health conditions. *"I feel like something like this (data broken down by health condition) would be a good secondary supplemental information to a broader visual rating. Or let's say you had just like an overall like composite general thing for people who want just a general knowledge"*

Additional themes

Interest in pharmacy quality information. Participants were interested in publicly available pharmacy quality information and would access quality information if available. Consumers noted that they want their pharmacies to be rated. *"Would you ever find anybody that doesn't want to have their pharmacy rated? I can't imagine anybody not wanting to know whether their pharmacy was doing what they're supposed to be doing"*

Participants stated that they would ask their pharmacist about the quality ratings. Also, they noted that they would ask for pharmacy quality information if they were educated on the content. *"I would think once you're educated, if you know what's out there, you're going to ask for it"*

Inclusion of other pharmacy information in quality reporting systems. In addition to quality measures information, participants wanted to see other pharmacy information including their service, patient satisfactions and cost of medications (Table 3).

Some individuals were hesitant about including consumer satisfaction information in pharmacy quality reports. *"The science part would be objective if they were making mistakes or something like that. Consumers are just personal opinions"*

Consumers also indicated they may pay more for the price of quality. A participant said:

"Cost is important. I think that (this information) should be there. Things could be a lot cheaper but the quality isn't there. I want to make sure the quality is there if I'm going to pay. For more money, if the quality is better, I would pay the difference. Your life is worth more than money"

Access to pharmacy quality information. Participants mostly wanted to use the internet to access quality information but also wanted the information available to individuals who had no access to the internet. *"I think we should have choices, you know, for those who want to go on the Internet. The world is automatically thinking everybody's got a computer. But not everybody does"*

Participants also wanted quality information placed at the pharmacy and wanted to be able to inquire about pharmacy quality information from their doctor's office (Table 3).

Criteria for rating pharmacies. Some participants thought that the quality measures presented during the focus group were not appropriate for rating pharmacies. A participant said *"Oh, I could give you criteria to rate a pharmacy. But I don't think these—I wouldn't use these criteria"*

DISCUSSION

This study showed that consumers' understanding of pharmacy quality measures may differ by the type of measure being examined, and pharmacy users have particular preferences for the display and formats of pharmacy quality information. The findings also reveal that individuals who regularly use community pharmacies are interested in public

reports of pharmacy quality information and would seek quality information, if available. A strength of this study is the utilization of pharmacy users with varying chronic conditions.

Suboptimal Treatment of Hypertension in Patients with Diabetes and Absence of Controller Therapy in Persons with Asthma were understood by the smallest percentage of patients while other measures including Drug-Drug Interactions, Helping Patients Get Needed Medication, Use of High Risk Medication in the Elderly, and Diabetes Medication Dosing were understood by a larger portion of the participants. It is possible that Absence of Controller Therapy and Suboptimal Treatment of Hypertension in Patients with Diabetes were the least understood quality measures because these two measures refer to the percentage of negative events occurring in the patient population (as defined in the study) while the other measures refer to the pharmacy ensuring positive, high-quality care. In other words, the four measures that were better understood may have been perceived as positive procedures (the pharmacy making sure patients receive optimal treatment) and the two measures with less understanding may have been perceived as negative events (the percent of pharmacy patient's not getting optimal treatment).

Some of the measures were difficult to understand because of the complexity of wording (written at a higher grade reading level). An understanding of the specific quality measure might be based on the plain language utilized in describing the measure. Previous research suggests that using simple language as an approach to communicating quality information is the most effective way of sharing such information with consumers.^{16,20,21} A barrier to the use of quality information by consumers is a lack of understanding of the information.^{1,22} Before pharmacy quality measures can be used in provider selection, the information has to be understandable, then consumers would be able to use the information presented in quality reports.^{23,24}

Consumers explained that some of the measures were hard to understand because of their non-familiarity with the type of information presented. In a previous study, lay consumers reported difficulty understanding pharmacy quality measures because of knowledge deficits.¹⁵ If patients are not accustomed to using quality information or knowledgeable of the meaning of quality reports, they might not be able to use such information. Quality reports should include useful educational information¹² and be widely disseminated to all patient groups. If quality measures information is comprehensible, the provider selection decision-making process will be easier and more effective for patients.

The majority wanted pharmacy reports formatted to display an overall pharmacy rating for quick access and then condition-specific ratings for detail. Comparative data on the performance of physician groups in the US showed that the presentation of summary measures of provider quality and the ability to assess further details if needed was important to patients.^{20,25} In this current study,

participants did not favor the 'lower is better' format for presenting quality ratings due to previous experiences with higher numbers meaning better performance. Similarly, Massachusetts primary care physician groups structured their quality measures with a 'higher being better' framework.²² Using a 'higher is better' frame to present quality information is consistent with how individuals think about and process numbers.²⁰ Simple changes in information presentation that meets the cognitive expectations of consumers is key to increased comprehension of comparative quality information. In addition, a better formatting of pharmacy performance data will enable community pharmacies to appropriately compare their performance to other pharmacies within their communities or state.

Consumers preferred the use of a star rating system compared to the use of other methods for displaying quality ratings including percentages, letter grades, and numerical values, due to the visual nature of the star system. Familiarity with previous approaches of rating other performance information (the use of stars) possibly made participants more comfortable with the star rating system. Previous research has shown that consumers rarely use public reports of healthcare quality due to their poor design and formats, rather than a lack of interest in the information.^{12,23-26} To achieve optimal use of report cards, desired formats and designs of pharmacy quality reports which will meet the needs of pharmacy-users' should be further explored.

This study showed that pharmacy users are interested in pharmacy quality information, would inquire about quality ratings from their pharmacies, and would seek quality information if educated on the content. Previous studies confirm that consumers are highly interested in quality-of-care information.^{4,27,28} In two studies, almost half of the consumers stated that having high quality care was the most important concern they face when choosing a health provider.^{4,29} Publicly reported quality information is intended to stimulate active consumer participation in provider selection and increase transparency.¹⁵ Patient interest in pharmacy quality information is a positive motivation towards developing publicly available quality reports.

Besides the inclusion of quality measures information in public reports, consumers wanted other pharmacy information such as service information, patient satisfaction results and cost of medications included. Our previous pilot work among lay consumers showed that cost of medications and the relationship with the pharmacist were factors favored over the use of quality measures data in choosing a pharmacy.¹⁶ In other studies, service-based factors, price and the type of services being offered at a pharmacy have been shown to be important in pharmacy choice. Patients like to use satisfaction measures in decision-making, especially if the responses are from people like themselves who are making similar choices.³⁰

Consumers wanted access to pharmacy quality information through various dissemination avenues,

including the internet, doctors' offices and pharmacies. The wide dissemination of public reported pharmacy quality information is important in the education of consumers about pharmacy quality. These findings provide some direction to the appropriate placement of pharmacy quality information for consumers, when available.

Some consumers did not think that the quality measures presented were the most appropriate measures for rating pharmacies. Previous research has shown that consumers rarely use public reports of healthcare quality due to the irrelevant content contained within the report cards.^{12,23,25} For public reporting of pharmacy quality information to be effective, reports need to provide patients with consumer-relevant information that can help inform their conversations with their pharmacists and help guide their health care decisions.

The study findings had key implications for community pharmacies and pharmacy management organizations. For example, an in-depth understanding and meaningful interpretation of pharmacy performance data will allow community pharmacists to demonstrate the impact their care has on patient outcomes. This information is especially useful to payers who might assess pharmacies for pay-for-performance metrics. If community pharmacies understand how pharmacy quality data is being formatted and used in evaluations, they will know how their pharmacy is being measured and evaluated compared to state and national performance data, they will be able to assess where they are having the best impact in the quality of patient care, and then they will be able to identify opportunities to improve the care delivered to patients.¹¹

This study had some limitations. The study sample was small, predominantly English-speaking white females and located in one state which limits the ability to generalize the study findings to other racial/ethnic groups and settings. However, the study sample somewhat represents the residents within the study's geographic location.³¹ The use of a qualitative study design also limits the ability to make generalized concluding statements. Participants' self-reported their diagnosis of a chronic illness and this was not confirmed by medical records. Inter-rater reliability between the individuals who coded the data was not determined by statistical analysis but by consensus. Finally, the survey questions were not pretested or pilot-tested before its use in the study.

CONCLUSIONS

Individuals who have a chronic illness and regularly use community pharmacies are interested in pharmacy quality measures. However, quality measures need to be understood by patients. Simple and plain language with data formats and presentations that meet the cognitive expectations of consumers is the best approach to communicating quality information. If patients are accustomed to using quality information or knowledgeable of the meaning of quality reports,

they might be able to use such information. This study's participants had specific preferences for the display and format of pharmacy quality information which will be helpful in the design of appropriate quality report systems.

ACKNOWLEDGEMENT

The authors would like to acknowledge Trent Harris and Alicia Christensen who helped with the data collection and coding of the focus group transcripts. Also, we thank David Nau, President of Pharmacy Quality Solutions (Senior Director for Quality Strategies, PQA at the time of the study) for providing advice and direction for this study.

CONFLICT OF INTEREST

The authors have no conflict of interest.

Funding support: This study was funded by the Community Pharmacy Foundation. The sponsor had no role in the study design, data collection and analysis, the interpretation of the data, and in the decision to submit the paper for publication.

EXPLORANDO COMPRENSIÓN Y PREFERENCIAS SOBRE LA CALIDAD DE LA INFORMACIÓN EN FARMACIA

RESUMEN

Objetivo: Describir la comprensión sobre las medidas de calidad de la farmacia y las preferencias del consumidos por la información sobre calidad de la farmacia.

Métodos: Se combinó un método de grupo focal semi-estructurado con una entrevista. Los adultos que presentaban una receta de medicación para una enfermedad crónica auto-reportada en farmacias comunitarias discutieron su comprensión de las medidas de calidad aprobadas por la Pharmacy Quality Alliance. Las preguntas examinaban las preferencias sobre los sistemas de información de clasificación de la calidad de farmacia (p.e. estrellas contra porcentajes) y los formatos/presentaciones de datos deseados. Durante la participación en los grupos focales, los participantes cumplieron un cuestionario que examinaba su comprensión de cada medida de calidad de farmacia. Todas las discusiones de los grupos focales fueron transcritas literalmente. Se analizaron los datos usando un análisis temático y estadística descriptiva.

Resultados: Participaron 34 individuos (edad media=62,85; DE=16,05). Los participantes no estaban familiarizados con las medidas de calidad de la farmacia y su nivel de comprensión variaba entre las diferentes medidas. Las encuestas indicaron que el 94,1% entendía "Interacciones medicamento-medicamento" y "Ayudar al paciente a que obtenga las medicinas que necesita" mejor que otras medidas (p.e. 76,5% entendía "Tratamiento sub-óptimo de la hipertensión en pacientes con diabetes"). El análisis cualitativo indicó que los participantes preferían las calificaciones generales de la farmacia para un acceso y uso rápido. Sin embargo, los participantes también querían información de las medidas de calidad expuestas por problemas de salud. Los participantes estaban a favor de su farmacia con los datos de la ciudad, en lugar de con los datos del estado. A la mayoría de los participantes les gustaban las calificaciones de estrellas más que los porcentajes, calificaciones por letras o calificaciones numéricas.

Conclusiones: Los individuos que tienen una enfermedad crónica y usan regularmente una farmacia

comunitaria están interesados en medidas de calidad de la farmacia. Sin embargo, algunos participantes no entendían las medidas de calidad de la farmacia. Los participantes tenían preferencias específicas para la exposición de la información de la calidad de la farmacia que serían útiles para ayudar en el diseño de sistemas idóneos de información de calidad.

Palabras clave: Garantía de la Calidad de Atención de Salud; Satisfacción de los Consumidores; Servicios de Farmacia Comunitaria; Farmacias; Estados Unidos

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