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Pharmacy-Level Quality Measures and the Consumer: Preferences and Attitudes

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PHARMACY-LEVEL QUALITY MEASURES AND THE CONSUMER:

PREFERENCES AND ATTITUDES

A Thesis
presented in partial fulfillment of requirements
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by

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ABSTRACT

<u>Objectives:</u>

To determine the perceptions of consumers toward community pharmacy quality

measures and compare their perceptions regarding their pharmacy's overall quality before and

after exposure to these measures.

To explore the use of evaluative criteria applied by consumers to determine their

preference for information related to these measures.

<u>Methods:</u>

Focus groups were used to refine attributes and levels used in the quantitative phase of

the study. An Internet-based survey was administered to a national, online, consumer panel of

community pharmacy patrons using maintenance medications.

Descriptive statistics, MANOVA and t-tests were used to determine and compare

perceptions related to the community pharmacy quality measures. Conjoint analysis was used to

evaluate the relative importance of consumer preferences for the four selected attributes.

<u>Results:</u>

Consumers attributed a higher level of importance to items related to the pharmacy's

operations and outcomes as compared to those related to its environment. Consumer perceptions

regarding their pharmacy's overall quality were not found to be statistically significantly different from one another before and after exposure to the aforementioned items.

'Measure type' was the most important followed by *'Source'*, *'Star ratings'*, and *'Accreditation'* was the least important attribute measured. Just over half (52.2%) of the respondents indicated they were likely to use report cards and would recommend their use to family and friends. Of these respondents who were likely to use, 69.5% reported they would switch to a pharmacy that matched their definition of 'ideal' based on report card information.

Conclusions:

Respondents perceived their current pharmacy to provide quality care, which suggests that they are satisfied with the level of care they are receiving from their pharmacy.

'Measure type' being rated as the most 'important' of the four attributes included in the conjoint analysis was not totally unexpected, since it conveys the characteristics of the pharmacy and thus, based on pharmacy patronage literature would be the most salient when making patronage decisions.

Attitudes toward report cards were generally favorable, and it is possible that once report cards become a reality and are endorsed widely, consumers will use the data to inform their community pharmacy patronage decisions.

DEDICATION

I dedicate this thesis to Ma, Papu, and Nana, without whose unending love and support this

would have been impossible.

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CHAPTER I

INTRODUCTION

Quality health care can be broadly defined as the extent to which patients get the care they need in a manner that most effectively protects or restores their health. This may include the receipt of effective medical treatment, having timely access to care, and/or the receipt of appropriate preventative care. [1] 'Quality health care' may hold a different meaning in the eyes of the providers, the payers and the patients. Publicly disclosed performance reports, sometimes referred to as 'report cards', are one manifestation of the health care marketplace in which various measurable, standardized performance measures are reported. [2, 3] These report cards are/may be used by various stakeholders in order to make 'informed' decisions about the quality of care being offered. Performance reports providing comparative information on health care quality of physicians, hospitals and health plans are currently available. [2, 4]

Two types of health care report cards exist; these are those that measure outcomes and those that measure processes. A report of hospital mortality rates is an example of an outcomes-based report card. Process-based report cards report on rates of medical interventions such as various screening tests, medication use, etc. [4] Some salient examples of report cards that use process-based measures include, the National Committee for Quality Assurance's (NCQA) Health Plan Employer Data and Information Set (HEDIS), which includes quality indicators on health plan performance; [5] and the Center for Medicare & Medicaid Services' (CMS) nursing

home report card, which provides information on the quality of care in nursing homes nationwide. [6]

Report cards may assist consumers when making choices among the products and services that are available. They serve to expand the consumer's knowledge base and information set and are believed to facilitate the selection of products and/or services that offer the best tradeoff between quality and cost. [7] Public report cards have become a prominent part of the quality improvement landscape over the last quarter century. [4] Studies have found that if in fact a set of patients is aware of the existence of the report cards that does not imply that the quality indicators detailed in the report card are well understood at even a basic level of comprehension. [4, 8] Patients have also reported not trusting the information in report cards. [4] Salience of the quality indicators is another factor that affects use of such information. Prior research has shown that some quality indicators are not viewed as salient, with patient ratings and preventive indicators being cited as the most useful measures. [9]

If patients do not use the publicly available report cards for provider selection, their physicians might use them in their choice of referrals. In this way, patients may benefit indirectly or be influenced by report cards as a result of the more informed choices made by their referring physicians. Even if a majority of the patients and the referring physicians do not use report cards for provider selection, purchasers might use this information in order to establish provider contracts which again may potentially affect choices made by patients. [4]

Currently information about quality or more appropriately quality indicators is largely unavailable in the community pharmacy setting. Quality continues to be measured by consumers patronizing various pharmacies in the traditional sense. Convenience motives continue to prevail

as the strong primary determinants of pharmacy selection regardless of type of pharmacy, but secondary patronage motives vary between professional and personal pharmacist characteristics for independent pharmacy patrons and professional pharmacy patrons and prescription prices for chain-discount pharmacy patrons. [10, 11] Also, price is expected to play a more important role in the pharmacy selection process for those consumers for whom medication expenditures are especially burdensome -- particularly the elderly. [10] Services offered by the pharmacy such as easy navigation through the pharmacy, 24X7 hours of operation, one-stop shopping, maintenance of prescription and insurance information, parking and drive-thru facilities, etc. are among the additional factors that may influence choice of pharmacy. [12] Thus, over the years consumers have rated the pharmacies they patronize based on convenience, personnel and basic service related attributes of the pharmacy.

Other factors, potentially communicating quality, which may have been invisible to patrons in the past, may be much more relevant in today's environment. Considering the current health care system, with its rising costs; beyond convenience and price what are the factors that aid the consumer in determining the quality of the pharmacy he/she patronizes? Are pharmacy quality indicators salient to the current consumer of pharmaceutical products and services? If at all, which are the specific indicators that are important to the consumer and how should these indicators be presented such that they are useful and beneficial to the consumer?

Organizations such as the Pharmacy Quality Alliance (PQA) in collaboration with the NCQA have co-developed a number of performance measures in order to gauge and create benchmarks related to pharmacy quality. The mission statement of the PQA is to 'improve the quality of medication use across health care settings through a collaborative process in which key stakeholders agree on a strategy for measuring and reporting performance information related to

medications.' [13] Performance measures developed by PQA are in essence the only measures related to pharmacy quality available to date. Would consumers utilize these pharmacy quality performance measures in order to influence their selection of the pharmacy they patronize?

Much attention is being paid to the development and refinement of the technical aspects of pharmacy quality measures and in trying to ensure that they are valid. However, very little attention is being given to how consumers will respond to and use the information provided by such quality measures. Borrowing from the literature on quality indicators related to health plans, understanding, interpretation and application of such quality indicators involves understanding of a number of multifaceted concepts and constructs. These complicated ideas may be poorly understood by the average consumer. Some consumers may be more disadvantaged in their understanding of quality information due to lack of experience or access to the system. [14]

Another aspect that needs consideration is that if pharmacy quality information is made available to the public, what would be the most appropriate source (e.g. government agency, non-profit organization, academic institution etc.) to disseminate this information? A number of factors such as source credibility and consumer preference of the various sources for information on quality in terms of trustworthiness, accessibility and ease of usage need to be evaluated.

With the rising costs and the increasing amount of money consumers are individually being required to expend in order to have access to health care products, providers and services, consumers may become more aware and more selective about the quality of care they receive. Pharmacy quality report cards that contain quality measures that the consumers can identify with will enable them to make better-informed choices regarding the pharmacy they patronize.

Competition has emerged as a powerful force in the health care sector, and a vital aspect of this competitive approach is to motivate consumers to make informed health care choices. [9] Providing consumers with more information regarding relative cost and quality of pharmacies, will aid in stimulating the competition between pharmacies. Payers can utilize these measures in order to reimburse pharmacies by promoting the 'pay for performance' reimbursement model. Providers -- pharmacists will be motivated to improve the quality of care they provide to their customers/patients which in turn will result in consumers receiving better quality of care and being more satisfied with the level of care they receive, which is truly the ultimate/paramount goal of the health care sector.

The primary goal of this study is to determine the perceptions of consumers of pharmaceutical products and services toward the selected pharmacy quality measures, the format in which this information would be most salient, useful and easy to comprehend for consumers and the most appropriate format for dissemination of this information.

CHAPTER II

REVIEW OF THE LITERATURE

Quality in health care

Quality may be defined as a level of excellence, superiority in kind or a property or attribute that differentiates one from another. [15] The term quality is used in a wide range of contexts, including the fields of business, healthcare, education etc. The Centers for Medicare and Medicaid Services (CMS) define quality in health care as 'the right care for every person every time'. [16] How does one know if they are receiving quality health care? -- Your health care fits your needs and preferences; does not cause harm; is right for your illness; is given without unnecessary delays; includes only the medical tests and procedures that you need; is fair and not affected by such things as your gender, language, color, age or income. [17]

Quality measurement requires a large amount of resources to develop and collect the information. There has been an increased amount of interest in quality measurement over the past few years and this may increase the rate of development and reporting of quality measures over time. [17] A quality measure in health is a standardized assessment which quantifies the extent to which an individual unit (person in a clinic, individual clinic amongst all clinics in a region) within a population meets some criterion for quality of care. [18] It is in effect a rule (or the result of a rule) that assigns numeric values to a specific quality indicator. A quality indicator refers to an attribute of care that can be used to gauge quality of care in a specific area. The essential distinction between quality indicators and quality measures is that quality measures take

on numeric values, while quality indicators refer only to unquantified attributes of care related to quality. [19]

Various researchers/organizations have characterized quality in health care as a multidimensional construct. The Institute of Medicine (IOM) has specified six elements to be measured when defining quality in health care -- safe, effective, patient-centered, timely, efficient and equitable. [20] Donabedian is best known for his tripartite model of quality assessment, wherein he describes the relationship of structure, process and outcomes of health care. This framework has been used effectively to guide the development of a variety of quality based measures. [21] Structure refers to the manner in which the organization is managed and staffed or the physical entities associated with quality, process refers to how care is delivered or the actions associated with quality, and outcome is the end result or effect of the care rendered. [22, 23] A few studies have described how Donabedian's structure-process-outcome framework could be specifically applied to pharmaceutical care as well. [21]

The structure-process-outcome paradigm may be utilized as a framework for quality assessment of pharmaceutical care. Structure may be assessed at periodic intervals in order to identify the potential for the provision of quality care. The 'Process' variable may be described as the care that pharmacists provide. Technical and interpersonal processes in the arena of pharmaceutical care may be examined. The 'Outcome' variable of the framework requires an interdisciplinary approach that not only considers medical care inputs but also recognizes the psychological, economic, and social factors that affect health status and quality of life. 'Process' and 'Outcome' must both be assessed to distinguish the contribution of pharmacists from that of other healthcare providers. The structure-process-outcome paradigm provides a framework to identify and link pharmacists' processes with patients' outcomes. [24]

Organizations involved in measuring health care quality

A variety of quality indicators are available to the public in order to determine the quality of care that is being provided. The Agency for Healthcare Research and Quality (AHRQ) congressionally mandated the National Healthcare Quality Report, which reports on 150 measures of quality. [4] CMS has a "Quality Improvement Roadmap" to guide its activities in this arena and has taken on the position of being a national leader in driving quality improvement in health care. [25] In this context the CMS has developed a number of quality indicators that may be used to ascertain the quality of care provided by hospitals, physicians and nursing homes. The data on these indicators is available in a format that allows the public to compare the available information and make informed decisions when choosing a provider. Some example indicators include 'Heart attack patients given beta-blocker at discharge', 'Outpatients having surgery who got the right kind of antibiotic', and 'Death rate for heart failure patients' etc. [26] These indicators and others developed by CMS are hosted by the U.S. Department of Health & Human Services (DHHS) on their website. [27]

In addition to the government agencies mentioned above, a number of private organizations, accreditation organizations and public-private partnerships and alliances are involved in measuring health care quality. NCQA is a private, not-for-profit organization dedicated to improving health care quality. The NCQA seal is a widely recognized symbol of quality. Various organizations and providers may incorporate this seal into their marketing material after passing a comprehensive review. Consumers and employers may use this seal as an indicator to reliably predict quality care and service. NCQA has developed quality standards and performance measures for a broad range of health care entities which are used by these organizations and individuals to identify opportunities for improvement. NCQA's major

contribution to the health care system is regularly measured in the form of statistics that track the quality of care delivered by the nation's health insurance plans. Accredited health insurance plans today face a rigorous set of more than 60 standards (HEDIS) and must report on their performance in more than 40 areas in order to earn NCQA's seal of approval. [28]

HEDIS is one of the most recognized set of measures developed by NCQA. It consists of 75 measures across 8 domains of care, examples of the domains include 'Asthma medication use', Controlling high blood pressure', 'Breast cancer screening' etc. HEDIS is designed to provide purchasers and consumers with the information they need to reliably compare the performance of health care plans. An interactive, web-based comparison tool -- Quality Compass® -- allows users to view plan results and benchmark information provided by HEDIS. [29]

HealthGrades® is a leading independent health care ratings organization, providing ratings and profiles of hospitals, nursing homes and physicians to consumers, corporations, health plans and hospitals. The organization compiles data from dozens of independent private and public sources; including CMS of the U.S. DHHS, several states' records, 50 states' medical board records, publicly available directories and telephone surveys. It permits users to compare health care information on a user-friendly interface and make smarter and more informed decisions concerning quality of health care. [30]

Information on quality standards and performance measures provided by the aforementioned organizations is generally available in the form of report cards. Consumers may use the performance measures in report cards in order to determine which health plan they should enroll themselves in or regarding which hospital to use for elective surgery etc.

Regulators such as state insurance or health departments may use report cards to ensure that minimum standards of acceptability are met. External stakeholders may use report cards in order to make informed purchasing decisions on behalf of their beneficiaries. [3] Publicly available report cards may improve health care quality in 3 general ways: (1) remediation i.e. they cause providers to change their practices to improve quality; (2) restriction i.e. they lead to limitation of providers' practices so that they no longer provide care for which they (the providers) are rated poorly; and (3) removal i.e. they cause low-quality providers to exit the health care market. [4]

A number of groups are thus involved in developing initiatives related to performance measures and reporting data. There was concern that perhaps there would be conflicting initiatives, unnecessary burden for providers or confusion among consumers as a result of the large number of measures and reports that are available. Thus, the Quality Alliance Steering Committee (QASC) was formed in 2006 to coordinate the efforts of existing quality alliances, government, physicians, pharmacists, hospitals, nurses, health insurers and others working on improving quality of health care. In this regard, QASC has developed a diagram illustrating the contributions of various organizations toward improving the quality of health care in the country (Figure 1). The vision of QASC is to advance high-quality, cost-effective, patient-centered health care through the coordination of various groups that are working to promote public reporting of health care provider information for quality improvement, consumer decision making, and informing policy. [30a]
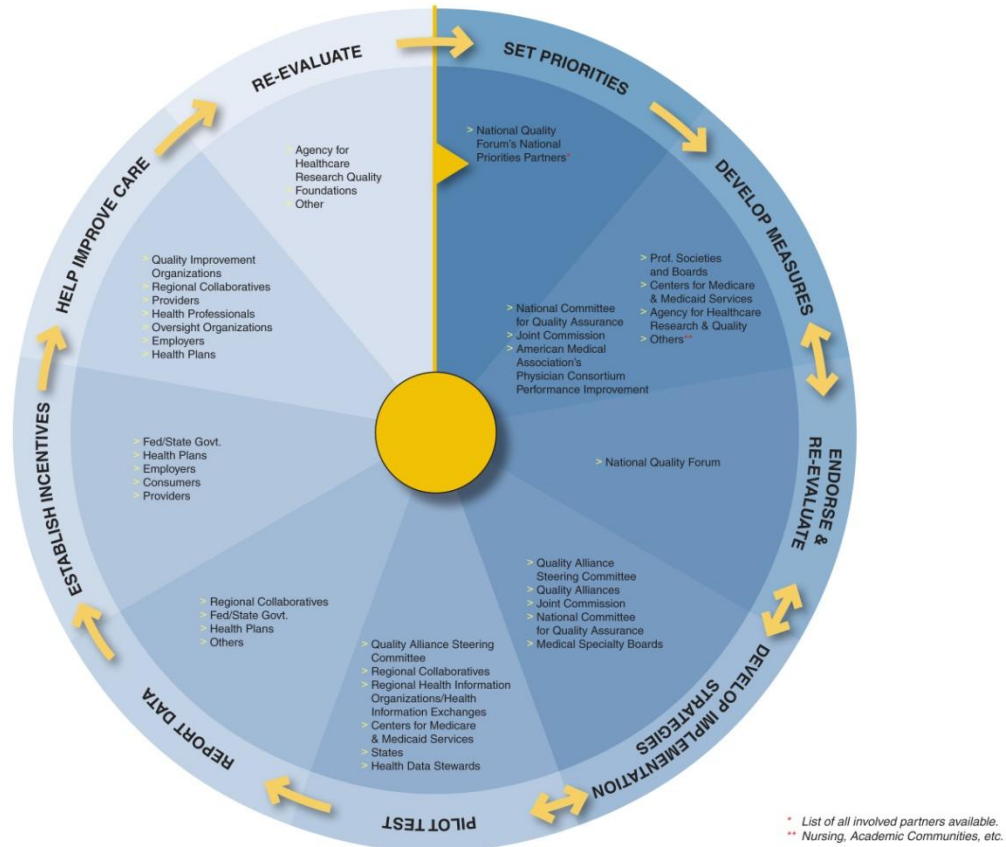
Figure 1: Quality Alliance Steering Committee (QASC) Road Map Organizational Wheel

Quality report cards and the consumer

Health care report cards have emerged as a common decision support tool, especially related to the choice of health plans and hospitals. Various stakeholders distribute comparative reports on the quality of health plans, physicians and hospitals in an effort to provide their beneficiaries with better information for making health care related decisions. [31] A number of studies have focused their attention on consumers' attitudes toward and usage of report cards. It has been postulated that report cards make the average consumer more knowledgeable about health care quality by translating complex data about plan benefits, treatments and services provided into a small number of dimensions that are understandable and useful to the consumer.

Thus, they help the consumer in making better-informed choices among the products and services they consume. [7]

Several studies have concluded that consumers care about the measures listed in report cards and would use them to assist with their plan choice. Hibbard and colleagues [7, 9] noted that consumers have a clear preference for patient ratings and 'desirable-event indicators' (e.g. rates of cholesterol screening, mammograms etc.). Consumers assign a higher degree of importance to these desirable-event indicators because they give information about the interpersonal aspects of care (patient ratings) and they are linked to health outcomes (desirable events). In contrast, undesirable-event indicators (e.g. mortality rates, hospital-acquired infection rates etc.) are considered less important. This may be because these indicators are not as well understood by the average consumer.

A study by Scanlon [32] and colleagues found evidence that dissemination of report card scores does influence consumer choice. They reported that consumers avoid plans with many below average ratings relative to plans with many average ratings. Additionally, consumers do not appear to be attracted strongly to plans with many superior ratings. These findings are consistent with findings noted in a study by Hibbard et al., 2000. They found that individuals more often avoid low-rated plans than select high-rated ones. [33]

Often consumers' use of quality information may be affected as a result of their limited understanding of how health plans can influence the quality of care being delivered and how quality indicators measure plan performance. Consumers report that they do not understand survey methods or how to interpret the results of a survey. [34] Quality indicators that consumers view as important may not be the indicators they use to choose a plan. Research has shown that

when risk is made explicit and personal control is low, consumers will make a risk-averse choice. To explain this further, when consumers were asked to rate a set of quality measures that were most useful in choosing a health plan, they selected patient satisfaction ratings and indicators reflecting preventive measures as most useful. However, when provided with a mock report card, consumers chose plans that performed well on adverse events. This indicates that consumers behave differently when they are asked in abstract terms what is important and when they are actually asked to make comparisons and trade-offs. [8, 9]

A number of quality indicators are not well understood by consumers. Comprehension problems include but are not limited to not understanding terminology, whether the particular indicator is supposed to tell one anything about quality (as understood by the consumer), and lack of understanding as to whether high or low rates of the indicator are indicative of good performance. [8] Also, aggregations and quantitative concepts maybe particularly difficult to understand.

Comprehension of quality indicators varies among consumers with greater and lesser disadvantages or access to care. Privately insured individuals have a better understanding of desirable-event indicators as compared to uninsured and Medicaid consumers, possibly due to greater access to preventive care. Also, privately insured individuals seem to be more aware or more willing to address their own deficits in information, have proportionately less misinformation and have better understanding of quantitative and aggregate concepts. If quality indicators are not well understood, the purpose of disseminating report cards is lost as informed plan choice cannot occur. Low comprehension results in misinterpretation of quality information and thus, results in poor choices for individual consumers. [14]

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Internet as a Source of Health-related Information

Millions of Americans use the Internet as a resource for information, with a large proportion seeking health information. [35] Commonly cited estimates suggest that more than half and as much as 80% of adults with Internet access use it for health care purposes. These are among some of the well disseminated estimates; however some of the less publicized reports suggest much lower rates of use. [36]

A study [36] carried out to determine the extent of Internet use for health care among a representative sample of the US population found that approximately 40% of the respondents with Internet access reported using the Internet to search information or advice related to their health or health care. About a third of those using the Internet for health reported that their use of the Internet affected certain decisions they made related to their health care, but very few respondents reported impacts that were measureable in terms of health care utilization.

According to the Pew Internet and American Life Project, [37] approximately 80% of Internet users had searched for health information online in the past. In their summary report the authors label the act of looking for health and medical information online as one of the more popular activities that Americans engage in after email and researching a product or service before buying it.

A study [38] conducted at three urban primary care clinics reported that approximately 53% of the respondents had used Web or email during the past 12 months. 68% of those who accessed the Web used it to search for health information and more often patients were investigating information about a specific illness. Only 13% of the patients searched for health-

related information prior to visiting their primary care physician and many searched for information unrelated to their clinic visit.

Internet users are more likely to be female, better educated, younger, European American and earn a higher income. [39] Also, patients with fair to poor health are more likely to use the Internet for health seeking as compared to patients with good or excellent health. [36]

Some of the reasons for large variations in findings from various studies are the manner in which the questions related to Internet usage for obtaining health related information have been framed. Some studies ask respondents whether they have ever used the Internet to obtain such information whereas others focus the question on respondents' usage during the past 12 months. Another reason for this sort of variation is whether the sample consisted of individuals who already had web access or not. [36]

There are a number of sources of health information available to the interested individuals of which the Internet is one. On reviewing some of these studies we may conclude that the use of the Internet as a medium to gather information in general and specifically health-related information is one the rise. [36, 38] As mentioned earlier, information related to quality of care provided by various providers of health care such as hospitals, physicians, health plans etc. in the form of report cards is available on the Internet. Based on the experience of these report cards, performance measurements of quality of care provided by pharmacies may also be disseminated in the form of report cards via the Internet.

Measuring Quality in Pharmacy

Community pharmacy, as a health care provider, is one of the last to be measured in terms of quality. The collaborative, known as Pharmacy Quality Alliance (PQA), which was begun in 2006, is a membership-based quality alliance that includes many different organizations such as government agencies, pharmaceutical companies, health plans, national pharmacy organizations etc. [23] PQA is at the forefront in the arena of pharmacy quality measurement. PQA is analogous to other quality alliances that have been facilitated by CMS. [21] PQA and NCQA have co-developed a starter set of measures which have been field tested through various demonstration projects. [40] These demonstration projects are conducted in order to evaluate the practical utility of these measures in the real world. All the measures in the starter set are developed using pharmacy claims databases to calculate the measures. Thus, all the measures are at the pharmacy level and not the pharmacist level. [23]

The PQA measures include both process-based and outcome-based measures. Since measurement is the key to driving improvement, the process measures must be standardized and consistent across healthcare organizations. Thus, the PQA efforts underway include not only developing standardized measures to assess quality and safety in pharmacy, but also testing the measures to assure standardization so the measures can be used to compare organizations and/or providers. [23]

Some examples of the PQA measures are as follows, "Proportion of Days Covered (PDC)", which measures the percentage of patients 18 years and older who met the Proportion of Days Covered (PDC) threshold of 80% during the measurement year; "Diabetes Medication Dosing", which measures the percentage of patients who were dispensed a dose higher than the

daily recommended dose for the following therapeutic categories of oral hypoglycemics: biguanides, sulfonlyureas and thiazolidinediones; "Drug-Drug Interactions", which measures the percentage of patients who received a prescription for a target medication during the measurement period and who were dispensed a concurrent prescription for a precipitant medication. [41]

These measures will be used in a manner similar to their hospital and physician counterpart measures in order to indicate the quality of care provided by a pharmacy or pharmacist. [23] The measures may also be used by pharmacies to develop continuous quality improvement programs; pay for performance programs etc. [42] In the future, these measures may also be used by consumers in order to make decisions related to pharmacy patronage.

In the past pharmacy quality has been measured mainly in terms of service quality. One study utilized indicators such as average drug dispensing time, percentage of drugs actually dispensed, availability of key drugs, adequacy of labeling in order to determine the quality of service provided by pharmacies. [43] Another study measured service quality in terms of four facility-specific indicators -- order in the pharmacy, availability and expiration date of essential drugs, and availability of essential materials for dispensing. [44] Patients' expectations and satisfaction with pharmacy services has been measured using a number of service related items such as wait times, characteristics of the pharmacist, availability and quality of written and verbal information etc. [45] Most of the aforementioned indicators may be envisaged as structure and process-based measures.

Parasuraman et al., 1986 developed a multiple-item scale called SERVQUAL for measuring service quality. A modified version of SERVQUAL that has been used in the context

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of pharmacist services is the PHARM-SERVQUAL (PSQ). The PSQ scale is a valuable tool that can be used to determine consumers' perceptions about the level of service quality they are receiving from their pharmacy. The information obtained from the PSQ scale can then be used to inform specific areas that need improvement. [46] The response-oriented patient evaluation survey (ROPES) is an administrator's tool for identifying opportunities for service quality improvement. The ROPES survey was designed to provide pharmacy managers with a tool to obtain information about service quality and can be used to identify deficiencies in pharmacy service quality from the patient's point of view and can thus, seek out opportunities for quality improvement in pharmacy services. [47]

On reviewing the literature, it is evident that there have been attempts to measure the quality of care provided by pharmacies. However, these attempts at measurement have been focused in the area of service quality. Over the past two decades, other health care organizations such as hospitals, nursing homes etc. have been required to develop measures of quality and report performance data to accrediting bodies and government regulators. [21] Community pharmacies on the other hand in the past have not been called on to increase requirements for quality measurement and reporting. However, this situation has begun to change and requirements for pharmacies to implement quality assurance and improvement programs are on the rise. Thus, given these new requirements pharmacies will now be measured on a more global level. Through this new movement toward pharmacy quality, measurement of various aspects such as medication adherence, medication therapy management, medication error rate etc. will come into play in addition to the measurement of various aspects of service quality.

Pharmacy Patronage Motives

Over the years consumers have rated the pharmacies they patronize in a traditional sense. Gagnon [10] identified 14 patronage motives some of which include convenient location, price, personnel characteristics, wait time, services, quality and merchandise assortment etc. Gagnon found that convenience motives are strong primary determinants of pharmacy selection regardless of type of pharmacy. Consumer demographic characteristics also had an influence on choice of patronage. Females had a greater tendency than males to be influenced by personnel factors and service, whereas males were more concerned about location. It is expected that price will play a more important role in the pharmacy selection process for those consumers for whom drug expenses are especially burdensome – particularly the elderly. [10] Being younger and purchasing OTCs and non-health related purchases at the same location were significant factors to predict patronage of a mass-merchandise pharmacy. Residence in a more affluent neighborhood, a higher level of educational attainment and older age were significant predictors to predict patronage for traditional independent pharmacies. Gender, insurance coverage and number of prescriptions were not significant predictors of pharmacy patronage. [48]

Majority of the studies reviewed cited "convenience" as the primary reason for patronage of a particular pharmacy. [49, 50, 51] Community pharmacy patrons were more likely to rate easy navigation through the pharmacy and 24X7 hours of operation as key services as compared to supermarket pharmacy patrons who were more likely to rate one-stop shopping and adequate hours of operation as priorities. [12] A study by Franic and colleagues suggests that most consumers do not perceive pharmacies as merely prescription distribution centers that vary only by convenience and do not consider prescriptions as just another economic good. Consumers assign value to personnel characteristics, which in turn influence pharmacy selection. [52]

It is clear that consumers use various convenience factors such as location, 24-hour pharmacy access, wait time etc. as surrogate measures for quality. It is not inconceivable, however, to expect that in the future, consumers may begin to adopt some other measures of quality beyond convenience and cost of prescriptions. [23] There is a need now to make the consumer of pharmaceutical products and services aware of the existence of various standardized measures of pharmacy quality that are being made available by organizations such as PQA. These measures have been tested for scientific soundness and their level importance as indicators of pharmacy quality. In the future, consumers will likely be able to select a pharmacy based on the measured quality of care that has been demonstrated by the pharmacy as compared with other pharmacies.

CHAPTER III

RESEARCH METHODOLOGY AND TECHNIQUES

Restatement of Purpose

This study has been tailored to ascertain the perceptions of consumers of pharmaceutical products and services toward selected pharmacy quality performance measures, and the format in which this information would be most salient, useful, and easy to comprehend for consumers. This section is concerned with the methodology and techniques used to achieve the below mentioned objectives.

Research Objectives and Hypotheses

Three primary objectives address the area of research interest. Stated below are the three research objectives along with their associated hypotheses. The hypotheses are stated in their null form and are representative of antithetical expectations based on the literature reviewed.

Objective 1: To determine the perceptions of consumers of pharmaceutical products and services toward community pharmacy quality measures

H_{1a0}: All consumer segments are associated with similar perceptions toward community pharmacy quality measures

Objective 2: To compare consumer perceptions toward their pharmacy's overall quality before and after exposure to a series of items related to pharmacy quality

   H$_{2a0}$: Consumer perceptions toward their pharmacy's overall quality will be the same before and after exposure to the series of items related to pharmacy quality

Objective 3: To explore the use of evaluative criteria applied by consumers to determine their preference for information on community pharmacy quality measures

Preliminary Exploratory Research

Pharmacy quality is a complex multidimensional concept that may be perceived in many ways. In order to develop items appropriately for this purpose, preliminary exploratory research in the form of focus groups was undertaken. Using focus groups is a helpful strategy for exploring complex concepts because it facilitates exploration of human tendencies, attitudes and perceptions related to programs, products or services. [53] Focus groups enable disclosure among participants through the process of discussion. Additionally, focus groups have been suggested as being an appropriate research technique for health services research. [54]

Therefore, focus groups were thought to be an appropriate means to explore the following research questions for this study, from the perspective of consumers of pharmaceutical products and services:

- What do consumers look for in order to determine the quality of care provided by their pharmacy?
- What lets consumers know that their pharmacy is lacking in quality?

- If information related to pharmacy quality measures was available to a consumer, would they use such information and in which specific measures would they be interested in? and

- What are consumers' impressions of some of the structure, process and outcome based measures of pharmacy quality?

Selection of Attributes for the Final Conjoint Task:

The use of certain attributes and their corresponding levels have support based on the review of several of the currently available report cards related to quality of hospitals, physicians and health plans. These attributes were further explored during the focus groups in order for them to be used later in the quantitative phase of the study. These attributes and their corresponding levels are:

- Indicator used to assess pharmacy quality (Measure-type)

  - Environment-based measure only

  - Operations-based measure only

  - Outcomes-based measure only

- Format of the indicator used to assess pharmacy quality

  - Text only

  - Tables with text

  - Charts with text

- Star ratings

  - Based on patient reviews

  - Based on insurance company reviews

- Accreditation status

    - Accredited

    - No accreditation

- Source of information in report card

    - Government agency

    - Consumer organization

    - Insurance company

- Direct comparison with other pharmacies

    - Select up to three pharmacies to compare

    - Compare to national average ratings

These 6 attributes were presented to each of the focus group participants on cards (one attribute per card), gathered in an envelope. The attributes were verbally described to the participants as "categories of information that might appear in a pharmacy quality report card." Participants were then asked to review the attributes for clarity and to voice their opinions regarding the various attributes and their subsequent inclusion in a pharmacy quality report card.

Comparing the Importance of the Attributes: Each participant was asked the question "How important would it be to see each of these categories (6 attributes) of information in a pharmacy quality report card?." Participants were instructed to pile the cards in their rank order, with the top most card being the most important and the bottom card being the least important attribute. After placing the cards in rank order the participants were instructed to rate the attributes in terms of importance on a scale from 0 to 100, with 0 being "not at all important" and 100 being

"extremely important." The ratings were subsequently evaluated to determine the suitability of

the attributes for the final conjoint task in the quantitative phase of the study.

It has been recommended that focus groups be limited to no more than 12 participants so

that every participant has the opportunity to share their insights and observations. [53] Two such

focus groups of 7 and 8 participants respectively were conducted. After seeking approval of the

Institutional Review Board (IRB) at the University of Mississippi (UM), a convenience sample

of the members from the local community in Oxford, Mississippi, was invited to participate in

the focus group sessions. A copy of the moderator guide used during the focus group sessions

can be found in Appendix A.

Measurement

Operational Definitions:

In order to improve the reliability of the results obtained through this research,

operational definitions for environment, operations and outcomes-based measures related to

pharmacy quality were included in the survey instrument. These measures were designed to

reflect Donabedian's tripartite model of quality assessment, wherein he describes the relationship

of structure, process and outcomes of health care.

For the quantitative phase of this research, these three measures were defined as follows:

> **Environment-based measure:** Measures the availability and/or the performance of
>
> various physical aspects of the pharmacy. Examples include pharmacy environment,
>
> availability of parking space, preventive care services etc.
>
> **Operations-based measure:** Measures how successfully the prescription delivery
>
> process   is carried out and may include factors related to the characteristics of the

pharmacist,   the interaction between the pharmacist and patient etc. Examples include patient counseling services, communication between pharmacy staff and patients, wait time etc.

Outcomes-based measure: Measures the effect or the end result of the care provided by the pharmacist. Examples include accuracy of dispensing of medications, patient satisfaction etc.

Additionally, an operational definition for quality report cards used in health care was also included so that all the respondents undertaking the conjoint task began with a similar definition of the subject matter under investigation, in the case of the conjoint task, that being quality report cards in health care.

Quality report card in health care: is a tool which provides information on the performance of providers (e.g. hospitals, physicians, nursing homes, health plans etc.), in a manner similar to a report card which measures a student's performance. Such a report card may cover a variety of topic areas such as structural and process-related characteristics of the provider being measured, patient and provider reviews, accreditation status etc.

Other Measurement Considerations:

Perceptual Measurement Considerations: Measurement of consumers' thoughts about an ideal pharmacy were obtained by asking them to list the top three attributes that best describe their ideal pharmacy. Additionally, consumers were asked to rate the 'overall quality of care' provided by their pharmacy in a single item, to achieve a global assessment of their perception of the quality of care provided to them by their pharmacy. This same question was repeated after

introducing the consumers to the various measures of pharmacy quality in order to determine if these measures affect their perception of the quality of care provided to them by their pharmacy. Consumers utilized a 7-point scale where, 1 = poor and 7 = excellent in order to rate their pharmacy.

Following the first global assessment of pharmacy quality, the consumers were introduced to some environment, operations and outcomes-based items related to pharmacy quality. Respondents were asked to indicate the level of importance they assign to a variety of these pharmacy-based quality measures. These measures were sub-grouped under three broad classes of quality measures i.e. environment, operations and outcomes-based measures. Respondents used a 5-point scale, labeled from 'not at all important to 'extremely important' in order to indicate the level of importance for each of the measures in the list. A copy of the list of measures that were used is available in Appendix B.

Conjoint Measurement Considerations: The full-profile method was the method of choice for the conjoint analysis. Full profile ratings, delivered in a fractional factorial design improve the manageability of the conjoint task. In an orthogonal design, a full profile exercise pairs each level of one factor in equal or proportional occurrence with each level of another factor. [55] By assuring such a mix, the full profile exercise decreases the likelihood of association between attributes, generating decisions that are free from choice simplifications that may occur when respondents make such associations.

When using the full profile rating design of conjoint, the respondents may 'anchor' their expectations based on the first profile they see and use this profile as an arbitrary 'standard' in subsequent preference judgments. In order to avoid such anchoring, the respondents were shown (in our judgment) the best and the worst profiles of the mock report card so that they get a sense

of the two extreme situations and could then make subsequent preference judgments based on them.

In conjoint analysis, preference judgments of respondents may be collected through either rank ordering of each profile or through rating scales. Rating scales benefit the respondent in terms of convenience and time, thus simplifying the conjoint task. [56] Therefore, ratings were used as the mode of response for conjoint task in the survey. Respondents were asked to rate each profile individually on a scale from 0 to 100, where '0' corresponds to "not at all likely to use it" and '100' corresponds to "highly likely to use it". To provide a measure of validity, three holdout samples were included in the conjoint task.

Other Conjoint Task Considerations: The conjoint task was communicated through the use of a scenario. First, respondents were provided with an operational definition of a quality report card following which respondents were presented with a scenario that explained the utility of a quality report card in order to make decisions related to health care quality and how they might use such a report card in daily life. Next respondents were asked to imagine that they were in search of information related to pharmacy quality and they were utilizing information presented on a website in the form of a report card to do so.

The mock report cards designed to look like a webpage followed these instructions. This type of pictorial representation of the various attributes is expected to increase the perception of reality (resembles a webpage one might come across on the Internet) and enhance the simulation of actual choice. [57] Care was taken to ensure that each item of information appeared in the same location on each of the report cards, the only variation being in the information content and not in the placement. A copy of the mock report cards can be found in Appendix C.

The preliminary exploratory research played a significant role in the development of the survey instrument and its final composition, however questions have also been included based on review of the literature. A copy of the final survey instrument can be found in Appendix D (supplemental file).

First participants were screened on the basis of their consumption of at least one maintenance medication which was available through prescription only (Question 1). In order to achieve accurate and appropriate segmentation of the respondents, the collection of a few demographic variables was warranted. Information related to respondents' health condition, type of pharmacy, gender, age, race, education level and state of residence were collected here. It was postulated that the respondent burden for these items was minimal therefore; these items were included at the start of the questionnaire (Questions 2 - 9).

The open-ended question related to consumers' perception of an ideal pharmacy was placed at the front of the questionnaire, following the questions related to demography, in order to facilitate top-of-mind thinking related to pharmacy quality. The questions related to consumers' perceived importance of various pharmacy-based quality measures that follow may influence consumers' ideas about various measures that may be important to ascertain pharmacy quality and therefore, it was thought best to include the aforementioned open-ended question before introducing the respondents to various measures of pharmacy quality (Question 10).

The initial measure of pharmacy quality followed the open-ended question for reasons similar to ones mentioned for the open-ended question. The pharmacy-quality measures that the respondents are introduced to next may influence the consumers' perceptions about the overall quality of care provided by their pharmacy. Based on this assumption, consumers were once

again asked to rate the overall quality of care provided by their pharmacy after they were introduced to the pharmacy-based quality measures (Question 11 and 16).

Between the pre and post global measures of pharmacy quality, the consumers were introduced to the environment, operations and outcomes-based measures of pharmacy quality. First, consumers were provided with operational definitions of the three measures. These definitions have been altered so as to be applicable to the practice of pharmacy. Following the definitions respondents were directed to indicate the level of importance they assign to the various pharmacy-based quality measures (Question 12-14).

The conjoint task of the survey instrument follows next. Respondents were instructed to successively rate each of the 12 profiles (mock report cards) in order to indicate which profile they are most likely to utilize when searching for information on or making decisions related to pharmacy quality (Profiles p1 - p12).

The final part of the survey instrument addressed general attitudes of the consumer toward pharmacy quality report cards. Attitudes related to consumers' perceived likelihood of usage of report cards in order to determine the quality of the pharmacy they patronize, recommendation to others to use this information, frequency of usage of such information and likelihood to switch a pharmacy based on such information were explored (Question 17 - 20).

Field Pre-testing the Instrument:

Pretesting is essential to identify potential problems with wording, ordering and formatting of questions. After conducting the focus groups and incorporating the comments and suggestions of the participants, the completed version of the survey instrument was field pretested using a convenience sample of members from the local community in Oxford, Mississippi and among graduate students at the Department of Pharmacy Administration,

University of Mississippi. After receiving the pretest results of the surveys from the participants, they were contacted via email and in person to discuss any problems faced while attempting the survey and to elicit any suggestions and comments regarding the same.

Sampling

Sample Design:

The target population for this study was consumers of at least one prescription maintenance medication that patronized a community pharmacy in the United States of America. A convenience sample composed of people who routinely consume prescription medications for the treatment or management of a condition or a disease were included in the study. This sample was obtained in the form of an online consumer panel. This technique afforded us a nationwide sample at a relatively reasonable price.

Sample Size:

The main considerations that contributed to the determination of an acceptable sample size were the statistical techniques planned for analyses. The statistical analyses that need to be considered while calculating sample size include MANOVA and conjoint analysis. While running the MANOVAs, the maximum number of dependent variables that were planned to be used was 10 and the maximum number of groups present in any independent variable used was 4. Assuming a moderate effect size ($f^2 = 0.15$), [58] given a desired α value of 0.05 and the conventional power estimate of 0.80, the necessary sample size per group was 92 subjects. This gives us a total (required) sample size of 368 subjects. [56]

Assuming a moderate effect size ($f^2 = 0.15$), [58] and given a desired α value of 0.05 and the conventional power estimate of 0.80, the necessary sample size for the conjoint analysis was

calculated using G*Power. If 6 criteria or attributes were to be included in the analysis there would be 6 degrees of freedom in the F ratio yielding a sample size of 98. Too many cases may make the analysis unmanageable, [56] however, larger the sample can be, the more reliable the identification of correct and incorrect hypotheses becomes. Thus, there is a need to achieve an appropriate balance between the above two considerations. Given the sample size requirements for the two primary analyses, a total sample of 368 subjects was deemed appropriate for this research project.

Data Collection and Management

An internet-based survey in the form of a questionnaire was administered to an online consumer panel. This survey was constructed using Qualtrics™. Some web-based design features were included in the survey to enhance the quality of the results. A progress bar was present to indicate how far along the respondent was in the survey. Additionally, respondents were forced to rate the profiles displayed for the conjoint task of the survey so as to ensure that we got reliable estimates of the ratings for the profiles.

Due to the use of an online consumer panel vendor, data management procedures were reduced to a minimum. Data for the completed responses were obtained in the form of a Microsoft® Excel file (*.xslx). Cleaning of the data was carried out prior to analysis. Inappropriate responses were indentified and investigated. Since all responses were complete, none of the required questions were seen to have missing values. Thus, no case was omitted.

Analysis Plan

The data were analyzed using SPSS v16 and v18. The analytical techniques that were used have been mentioned below.

Objective 1: To determine the perceptions of consumers of pharmaceutical products and services toward community pharmacy quality measures

H_{1a0}: All consumer segments are associated with similar perceptions toward community pharmacy quality measures

Each sub-group of measures i.e. environment, operations and outcomes were considered as three separate groups. Say we were considering the environment-based set of measures, there were ten measures listed in this group and each one of these was considered as a dependent variable (DV). Therefore, we ran MANOVAs with these ten DVs and each of independent variables (IVs) under consideration. The IVs of interest were gender, type of pharmacy, number of prescription maintenance medications used, health-related condition, and education level. Thus, a total of 5 MANOVAs were run for the environment-based set of measures. Similar analyses were run for the operations-based and outcomes-based set of measures. SPSS v18 was used for the analyses.

Objective 2: To compare consumer perceptions toward their pharmacy's overall quality before

and after exposure to a series of items related to pharmacy quality

H$_{2a0}$: Consumer perceptions toward their pharmacy's overall quality will be the same

before and after exposure to the series of items related to pharmacy quality

This objective was analyzed using paired sample t-tests. SPSS v18 was used for the analyses.

Objective 3: To explore the use of evaluative criteria applied by consumers to determine their

preference for information on community pharmacy quality measures

Consumer preferences for the attributes related to pharmacy quality measures were evaluated using an additive, main effects model applied to a fractional factorial design, using CONJOINT command in SPSS. The 'DISCRETE' preference model specification was used and the model's accuracy was assessed by observation of the correlation between the observed and predicted values for the validation set of holdout profiles (Kendall's tau). Three of the twelve profiles presented to respondents were holdouts. Importance scores were calculated in order to determine the attributes that were deemed most important, least important and those in-between. Results were considered to be significant when the p-value was ≤ 0.05. SPSS v16 was used for the analyses.

CHAPTER IV

RESULTS

Preliminary Exploratory Research

Pharmacy quality is a complex multidimensional concept that may be evaluated in many ways. In order to develop items appropriately for this purpose, focus group (2 groups, 8 and 7 participants, respectively) research was undertaken. When asked to list the attributes of their ideal pharmacy, participants most often mentioned friendly and courteous staff as an important feature of their ideal pharmacy. Other important attributes mentioned by the participants included, convenience factors such as location, store hours, parking, automated refill, prompt service, home delivery etc. Additionally, focus group participants discussed pharmacists being knowledgeable about issues related to insurance and regarding generic alternatives, the accuracy of dispensed medications, as well as having an accessible pharmacist who checks for drug-drug interactions and is willing to answer questions and offer helpful information about prescription medications.

Participants mentioned that if the pharmacy was consistently slow in filling their prescriptions or if the staff was impersonal during their visit it would be indicative of low quality of care provided by the pharmacy. The majority of the participants in the focus groups expressed a dislike for pharmacies that are located within discount or mass merchandise stores and preferred 'independent' community pharmacies.

When asked for their opinions regarding existing websites that provide information related to quality of care provided by hospitals, physicians and other providers, participants thought the information available on these websites was 'rather interesting'. They were fascinated to know that such types of information were at their disposal and that they could access it to compare and contrast the level of quality of the care available to them. All of the participants attested to the importance of such information and majority of them were of the opinion that the information presented on the websites was easy enough to comprehend.

Participants expressed that they would utilize similar websites that communicated the quality of care provided by pharmacies in their community. On such websites, participants would like information related to education, experience and licensure of the pharmacist, store location and hours, information related to accuracy of prescription medications being dispensed, and potentially a system wherein prescriptions can be refilled online.

As part of the focus group sessions, participants were given a list of fourteen statements that conveyed information related to pharmacy quality. Participants were asked to select their top five statements from this list. These included:

1. Percent of times the pharmacy staff checked to make sure that the medications were covered by the patients' insurance provider. (Higher numbers are better)
2. Percent of times the pharmacy staff dispensed medications with a high degree of accuracy. (Higher numbers are better)
3. Percent of times the pharmacy staff talked to the patients about their medication(s) and/or condition(s) in a way that was easy to understand. (Higher numbers are better)

4. Percent of times patients using the pharmacy received a medication that interacted with their current medication resulting in an adverse drug event. (Lower numbers are better)

    and

    Percent of times the pharmacist was available to talk to the patients about any concerns they might have had when they visited the pharmacy or via telephone. (Higher numbers are better)

5. Percent of times the pharmacy staff treated the patients with courtesy and respect. (Higher numbers are better)

When asked how often they would access such websites, most participants mentioned that they would probably look at such information 'once a year', 'not very often', and 'once in a while'. They reasoned that once they were satisfied with the products and services provided by their pharmacy they would not really need to access such information on a regular basis. They mentioned that information on such websites would be especially useful if they say moved to another city/town and would have to make a decision about which pharmacy to patronize.

When asked if based on the information provided on these websites if they would switch to a pharmacy that more closely fits their idea/description of an ideal pharmacy, participants did not express much enthusiasm to switch. Few of the participants mentioned that 'it's a lot of trouble to switch' and so 'it depends upon which things the pharmacy is better or worse at'. Participants indicated that they would switch only if their current pharmacy had 'made a lot of mistakes', was not competitive in terms of the cost of medications, or if they were personally dissatisfied with their current pharmacy. Some of the participants explained that even if their pharmacy was rated lower, because the personnel at their current pharmacy knew them, their

conditions, and their medications, unless they were really dissatisfied they would not switch to a pharmacy that was rated higher.

Finally, participants were asked to evaluate attributes related to pharmacy quality by answering the following question "How important would it be to see each of these categories (6 attributes) of information in a pharmacy quality report card?". The six attributes (accreditation status, indicator to assess pharmacy quality, format of the indicator used to assess pharmacy quality, source of information in report card, star ratings and direct comparison with other pharmacies) were selected based on the review of several currently available report cards related to quality of hospitals, health plans, etc. After placing the cards in rank order, participants were asked to rate the attributes in terms of importance on a scale from 0 to 100, with 0 being "not at all important" and 100 being "very important."

The ranking and rating task was successfully completed by all of the 15 participants. Table 1 lists the attributes in rank order from most important attribute to least important attribute as indicated by the participants. Statistics pertaining to the ratings assigned by the participants are located in Table 2.

Table 1: Attribute Rankings assigned by Focus Group Participants	
Attribute	**Ranking***
Accreditation status	1
Source of information in report card	2
Indicator to assess pharmacy quality	3
Format of indicator used to assess pharmacy quality	4
Star ratings	5
Direct comparison with other pharmacies	6
*Attributes are listed in the order of most important to least important	

Table 2: Attribute Ratings assigned by Focus Group Participants				
Attribute	Mean Rating (0-100)*	Std. Dev.	Minimum	Maximum
Accreditation status	78.13	28.94	20	100
Indicator used to assess pharmacy quality	76.87	20.76	40	100
Source of information in report card	76.47	24.70	15	100
Format of indicator used to assess pharmacy quality	67.67	26.11	0	100
Direct comparison with other pharmacies	67.53	21.56	20	90
Star ratings	55.87	37.12	0	100
*Attributes are listed in the order of most important to least important				

On examining tables 1 and 2, we can see that accreditation status was considered to be the most important attribute followed closely by indicator to assess pharmacy quality and source of information in the report card. Star ratings was, on average, the least important attribute; however it was valued greatly by some participants (Std. Dev. = 37.12).

Selection of Attributes for the Final Conjoint Task

The six attributes from the preliminary study and their corresponding levels resulted in the creation of 20 distinct profiles (using Orthoplan in SPSS v16) to be evaluated by consumers (respondents) during the final conjoint task. Based on comments received during field testing of the final questionnaire, it was believed that the evaluation of 20 profiles would result in excessive respondent burden. Thus, the number of attributes and/or their levels needed to be reduced for the final conjoint task. The data obtained on attribute importance during the focus groups guided this process.

The top three attributes -- 'accreditation status' (mean rating = 78.13), 'indicator to assess pharmacy quality' (mean rating = 76.87), and 'source of information in report card'

(mean rating = 76.47) were included in the final conjoint task. Two attributes -- 'direct comparison with other pharmacies' (mean rating = 67.53) and 'format of indicator used to assess pharmacy quality' (mean rating = 67.67) were eliminated for the purposes of the final conjoint task.

The attribute 'direct comparison with other pharmacies' was ranked as the least important attribute and was also rated fifth in terms of importance. It had two levels associated with it -- select up to three pharmacies to compare, and compare to national average ratings. Participants had indicated during the focus groups that they would like to compare their current pharmacy to other pharmacies in the area. No participant mentioned wanting to compare characteristics of their pharmacy to national ratings. Thus, although this attribute was not included in the conjoint task per say, it appeared (as a static image) in the report card (with only one level i.e. select up to 3 pharmacies to compare) (See mock report cards, Appendix C).

The attribute 'format of indicator used to assess pharmacy quality' had three levels associated with it -- text only, tables with text and charts with text. It was reasoned that if consumers were asked to choose among these three levels, majority of them would select the third level i.e. charts with text as information presented in this format would be perceived as being most descriptive and thus, easier to understand and interpret. Therefore, although this attribute was dropped from the final conjoint task, information related to the attribute 'indicator used to assess pharmacy quality' was presented in the form of 'charts with text' (See mock report cards, Appendix C). In spite of being dropped from the final conjoint task, certain aspects of both the aforementioned attributes that were perceived to be relevant and salient to the consumers (respondents) were nonetheless included.

Finally, as was mentioned earlier, although the attribute 'star ratings' was rated the least important (mean rating = 55.87) it had the highest deviation in dictating some value for some consumers. One of the reasons for this variation may be attributed to social desirability bias. More over organizations such as CMS are using the 5-star rating system to indicate quality among Medicare Part D plans. This form of rating is also featured in the 'compare tools' such as Nursing Home Compare, Hospital Compare etc. provided by CMS. As such it was reasonable to include this attribute in the final conjoint task despite its rated importance.

Four attributes of the six attributes proposed were used for the final conjoint task. The four attributes and their corresponding levels resulted in the creation of nine profiles for evaluation during the conjoint task. Three holdout samples were also included in the conjoint task resulting in a total of twelve profiles to be evaluated by the respondents. Thus, four attributes seemed to be an appropriate compromise that would yield enough information and yet not prove too overwhelming for the respondents. Table 3 lists the attributes and their corresponding levels that were included in the final conjoint task.

Table 3: Attributes and their corresponding Levels included in the Final Conjoint Task	
Attributes	**Levels**
Measure-type[a]	Environment, Operations, and Outcomes*
Star rating	Patient rating and Insurer rating
Accreditation[b]	Accredited and Not accredited
Source[c]	Insurance Company, Government agency, Consumer Organization
*Designed to reflect Structure, Process and Outcome respectively, but selected words designed to facilitate lay understanding.	
[a] Indicator used to assess pharmacy quality renamed to **'Measure-type'**	
[b] Accreditation status renamed to **'Accreditation'**	
[c] Source of information in report card renamed to **'Source'**	

Quantitative Phase

Description of Responding Sample

The survey was attempted by 1275 respondents that were a part of an online consumer panel hosted by Research Now™. 689 participants were disqualified by the screener questions. Of the participants that qualified, 138 abandoned the survey before completion and 448 completed responses were obtained. On examining the 448 completed responses, 17 responses were found that did not meet the inclusion criteria (i.e. these respondents patronized a mail order pharmacy) and were thus, eliminated. Further examination revealed that certain respondents assigned the same rating to each profile in the conjoint task which invalidated the entire purpose of rating the profiles and certain others had assigned the same rating to multiple items related to the environment, operations and outcomes of the pharmacy. 48 such responses were identified and eliminated. This resulted in a final count of 383 completed responses for this study. Since a convenience sample (in the form of an online consumer panel) was used, we could specify the number of completed responses required from the company hosting the survey and thus, calculating a response rate was not possible.

Based on frequency distributions of the variables, certain variables were collapsed as deemed necessary. Those demographic and health-related variables of the study sample that were altered for use during analyses have been listed in Table 4. Frequency distributions of the demographic and health-related characteristics for the study sample appear in Table 5a and Table 5b respectively.

Table 4: Recategorization of Variables for Analysis		
Variable	**Measured as**	**Used in analyses as**
Number of Prescription Maintenance Medications Used	Interval variable	Three category nominal variable based on frequency distribution (only 1 prescription medication, 2-3 prescription medications, 4 or more prescription medications)
Type of Primary Pharmacy	Seven category nominal variable (Chain pharmacy, Independent (non-chain) pharmacy, Pharmacy located in a Grocery Store, Pharmacy located in a Discount Store/ Mass Merchandiser, Outpatient Pharmacy in a Hospital, Mail Order Pharmacy, and Other type of Community Pharmacy)	Three category nominal variable based on frequency distribution (Chain pharmacy, Independent pharmacy, Pharmacy located in a Grocery/Discount/Mass Merchandise Store). Some responses from the category 'other type of community pharmacy' were re-categorized into one of the other three categories, when deemed ethical, by the researcher.
Health-related Condition	Eight category nominal variable (Diabetes, High Blood Pressure, High Cholesterol, Asthma and/or other breathing disorder(s), Irregular heartbeat (arrhythmias), Arthritis and joint pain, Conditions related to mental health, I have never been told by a doctor that I have any of these conditions)	Two category nominal variable (Single condition, Multiple conditions)
Highest Level of Education	Eight category nominal variable (Less than high school, High school/GED, Some College, 2 year College Degree, 4 year College Degree, Master's Degree, Doctoral Degree, Professional Degree)	Four category nominal variable based on frequency distribution (Up to High school, Some college or 2 year college, 4 year college, Graduate or Professional degree)

In brief, the majority of those who responded to this survey were male (63.0%), middle-aged (52.1% were between ages 46 and 64, average age = 53.6, range = 20 to 85), and White/Caucasian (93.7%). Majority of the respondents patronized a chain pharmacy (51.7%) and were insured by a private insurer for their prescription medications (71.5%).

Table 5a: Demographic Characteristics for Responding Sample	
GENDER (n = 378)	
Male	n = 238 (63.0%)
Female	n = 140 (37.0%)
AGE (n = 305)	
Average age	53.6
Median age	55.0
Range	20 - 85
ETHNICITY (n = 383)	
White / Caucasian	n = 359 (93.7%)
Other	n = 24 (6.3%)
GEOGRAPHIC REGION (n = 336)	
Northeast	n = 42 (12.5%)
Midwest	n = 79 (23.5%)
South	n = 109 (32.4%)
West	n = 106 (31.5%)
EDUCATION (n = 380)	
Up to high school	n = 32 (8.4%)
Some college or 2 year college	n = 97 (25.5%)
4 year college	n = 132 (34.7%)
Graduate or professional degree	n = 119 (31.3%)

Table 5b: Health-related Characteristics for Responding Sample	
PRIMARY PHARMACY (n = 383)	
Chain pharmacy	n = 198 (51.7%)
Independent pharmacy	n = 40 (10.4%)
Pharmacy in a discount, grocery or mass merchandise store	n = 145 (37.9%)
PRESCRIPTION INSURANCE STATUS (n = 383)	
No prescription insurance	n = 35 (9.1%)
Private insurance	n = 274 (71.5%)
Medicare Part D	n = 48 (12.5%)
Medicaid	n = 5 (1.3%)
Other type of insurance	n = 21 (5.5%)
NUMBER OF PRESCRIPTION MEDICATIONS (n = 383)	
Only 1 prescription medication	n = 119 (31.1%)
2-3 prescription medications	n = 155 (40.5%)
4 or more prescription medications	n = 109 (28.5%)
HEALTH-RELATED CONDITION* (n = 383)	
Single Condition	n = 184 (48.0%)
Multiple Conditions	n = 199 (52.0%)
*(As diagnosed by a physician)	

Examination of Research Objectives

Objective 1: To determine the perceptions of consumers of pharmaceutical products and

services toward community pharmacy quality measures

H_{1a0}: All consumer segments are associated with similar perceptions toward community

pharmacy quality measures

The means of the responses to the perceptual questions asked of each respondent in

question 12, 13 and 14 provide an overall impression of the opinions of this sample of consumers

toward the pharmacy's environment, its operations and outcomes that are the result of care

received. In order to give a more complete and accurate impression of the respondents'

perceptions, other descriptive statistics are mentioned along with the means in Table 6 (question

12: Environment of a Pharmacy), Table 7 (question 13: Operations of a Pharmacy), Table 8

(question 14: Outcomes of a Pharmacy) respectively.

Table 6: Mean Importance Scores assigned by Consumers to Items related to the Environment of the Pharmacy**					
	Mean	**Std. Dev.**	**Median**	**Mode**	**n**
The environment at the pharmacy is appealing	3.62*	0.77	4	4	383
The pharmacy has a drive-thru facility	2.77*	1.20	3	3	383
The pharmacy has a designated area for parking	3.31*	1.10	3	4	383
The pharmacy offers home delivery service	2.46*	1.01	3	3	383
The pharmacy offers preventive health services e.g. immunizations, vaccines etc.	2.98	1.08	3	3	383
The pharmacy offers services that help you manage your own health e.g. on-site blood pressure testing, information kiosks etc.	2.96	1.04	3	3	383
The pharmacy has a private area (or room) for pharmacist and patient interaction	3.05	1.03	3	3	383
The pharmacy always has your medications in stock	4.64*	0.54	5	5	383
The pharmacy has a waiting area	3.51*	0.87	4	4	383
The pharmacy offers 24-hour service	3.48*	1.01	4	4	383
** These values are based on a 5-point ordinal 'importance' scale, labeled "not at all important" to "extremely important." * Indicates that the mean is statistically significantly different from the neutral point ("neither important nor unimportant") on the 5-point ordinal 'importance' scale.					

Consumers were relatively neutral to majority of the items related to a pharmacy's environment. The item 'the pharmacy always has your medications in stock' enjoyed the highest mean importance score (4.64). Other items that were considered moderately important by consumers included 'the environment at the pharmacy is appealing', 'the pharmacy has a waiting area', and 'the pharmacy offers 24-hour service'.

Table 7: Mean Importance Scores assigned by Consumers to Items related to the Operations of the Pharmacy**					
	Mean	**Std. Dev.**	**Median**	**Mode**	**n**
The pharmacy staff talks to you about your medication(s)/condition(s) in a way that is easy to understand	4.17*	0.75	4	4	383
The printed information provided by the pharmacy staff is written in a way that is easy to read and understand	4.16*	0.77	4	4	383
The pharmacist is available to talk to you about any concerns you have when you visit the pharmacy or via telephone	4.28*	0.65	4	4	383
The pharmacy staff spends enough time talking to you	4.06*	0.71	4	4	383
The pharmacy staff is friendly	4.29*	0.60	4	4	383
The pharmacy staff treats you with courtesy and respect	4.42*	0.57	4	4	383
Time spent waiting in the pharmacy is minimal	4.30*	0.67	4	4	383
The pharmacy provides patient counseling services	3.48*	0.83	4	4	383
The pharmacy provides services that help patients get the best benefits from their medications by actively managing drug therapy and by identifying, preventing and resolving medication-related problems	3.97*	0.85	4	4	383
The pharmacy staff checks to make sure that your medications are covered by your insurance provider	4.41*	0.75	5	5	383
** These values are based on a 5-point ordinal 'importance' scale, labeled "not at all important" to "extremely important." * Indicates that the mean is statistically significantly different from the neutral point ("neither important nor unimportant") on the 5-point ordinal 'importance' scale.					

Consumers considered the majority of the items related to a pharmacy's operations important (all item means are statistically significantly different from the neutral point and are trending in the direction of important or extremely important). The item 'the pharmacy staff treats you with courtesy and respect' enjoyed the highest mean importance (4.42) closely

followed by 'the pharmacy staff checks to make sure that your medications are covered by your insurance provider' (4.41).

Table 8: Mean Importance Scores assigned by Consumers to Items related to the Outcomes of the Pharmacy**					
	Mean	Std. Dev.	Median	Mode	n
The pharmacy staff dispenses medications with a high degree of accuracy	4.89*	0.35	5	5	383
The pharmacy helps to assure that the patients take their medications correctly	4.00*	0.88	4	4	383
Patients using the pharmacy do not receive a medication that may interact with their current medication resulting in an adverse drug event	4.67*	0.52	5	5	383
Elderly patients using the pharmacy do not receive a high-risk medication, which may result in an adverse drug event	4.27*	0.87	4	5	383
Patients using the pharmacy received an intervention(s) which resulted in a positive health outcome	3.78*	0.88	4	4	383
Patients using the pharmacy always receive medications that are appropriate for their condition	4.44*	0.68	5	5	383
Patients using the pharmacy are satisfied with the products provided by the pharmacy	4.42*	0.60	4	4	383
Patients using the pharmacy are satisfied with the services provided by the pharmacy	4.37*	0.63	4	4	383
**These values are based on a 5-point ordinal 'importance' scale, labeled "not at all important" to "extremely important." * Indicates that the mean is statistically significantly different from the neutral point ("neither important nor unimportant") on the 5-point ordinal 'importance' scale.					

The majority of the items related to a pharmacy's outcomes were important to the consumers (all item means are statistically significantly different from the neutral point and are trending in the direction of important or extremely important). The item 'the pharmacy staff

dispenses medications with a high degree of accuracy' was found to be extremely important to the consumers (mean importance = 4.89). Consumers also attributed a high level of importance to the item 'patients using the pharmacy do not receive a medication that may interact with their current medication resulting in an adverse drug event', mean importance = 4.67.

An additional indication of consumers' perceptions regarding a pharmacy's environment, operations and outcomes may be seen in Tables 9, 10 and 11 respectively, which displays the percentage of respondents who considered each of these items to either be important or unimportant (and in the middle). An item being important or unimportant was determined by which end of the 5-point ordinal 'importance' scale the responses rested on. Responses of 'important' and 'extremely important' were considered as important; responses of 'unimportant' and 'not at all important' were considered as unimportant; and responses of 'neither important nor unimportant' were considered a neutral response.

Table 9: Consumer Perceptions of Items related to the Environment of the Pharmacy*			
	% Important[a]	% Unimportant[b]	% Neutral[c]
The environment at the pharmacy is appealing	62.7%	6.3%	31.1%
The pharmacy has a drive-thru facility	27.2%	40.5%	32.4%
The pharmacy has a designated area for parking	49.1%	21.4%	29.5%
The pharmacy offers home delivery service	14.4%	49.9%	35.8%
The pharmacy offers preventive health services e.g. immunizations, vaccines etc.	35.0%	33.2%	31.9%
The pharmacy offers services that help you manage your own health e.g. on-site blood pressure testing, information kiosks etc.	32.4%	30.0%	37.6%
The pharmacy has a private area (or room) for pharmacist and patient interaction	33.9%	27.7%	38.4%
The pharmacy always has your medications in stock	98.2%	0.5%	1.3%
The pharmacy has a waiting area	55.1%	9.9%	35.0%
The pharmacy offers 24-hour service	52.0%	15.1%	32.9%
[a] Those who were said to consider the specified statement as **'important'** responded with "extremely important" or "important" on the 5-point ordinal 'importance' scale. [b] Those who were said to consider the specified statement as **'unimportant'** responded with "not at all important" or "unimportant" on the 5-point ordinal 'importance' scale. [c] Those who were said to be **'neutral'** on the matter responded with "neither important nor unimportant" on the 5-point ordinal 'importance' scale.			

On examining Table 9, it was clearly important to a large majority (98.2%) of the consumers that the pharmacy should always have their medication in stock. Also, 62.7% of the respondents indicated that it was important that the pharmacy have an appealing environment.

Table 10: Consumer Perceptions of Items related to the Operations of the Pharmacy*			
	% Important[a]	% Unimportant[b]	% Neutral[c]
The pharmacy staff talks to you about your medication(s)/condition(s) in a way that is easy to understand	88.5%	3.1%	8.4%
The printed information provided by the pharmacy staff is written in a way that is easy to read and understand	86.9%	3.7%	9.4%
The pharmacist is available to talk to you about any concerns you have when you visit the pharmacy or via telephone	92.4%	1.0%	6.5%
The pharmacy staff spends enough time talking to you	84.6%	2.9%	12.5%
The pharmacy staff is friendly	94.3%	0.5%	5.2%
The pharmacy staff treats you with courtesy and respect	97.1%	0.3%	2.6%
Time spent waiting in the pharmacy is minimal	90.9%	1.0%	8.1%
The pharmacy provides patient counseling services	53.3%	9.7%	37.1%
The pharmacy provides services that help patients get the best benefits from their medications by actively managing drug therapy and by identifying, preventing and resolving medication-related problems	77.3%	5.0%	17.8%
The pharmacy staff checks to make sure that your medications are covered by your insurance provider	93.0%	2.3%	4.7%

[a] Those who were said to consider the specified statement as **'important'** responded with "extremely important" or "important" on the 5-point ordinal 'importance' scale.
[b] Those who were said to consider the specified statement as **'unimportant'** responded with "not at all important" or "unimportant" on the 5-point ordinal 'importance' scale.
[c] Those who were said to be **'neutral'** on the matter responded with "neither important nor unimportant" on the 5-point ordinal 'importance' scale.

Table 10 lists items related to the operations of the pharmacy. All but two items were important to > 80% of the respondents. 97.1% of the respondents indicated that courteous and respectful treatment by pharmacy staff was important to them. Pharmacist availability, friendly staff, time spent in the waiting room were some of the other items that were important to the majority of the respondents. Only 53.3% of the respondents indicated that it was important that the pharmacy provides patient counseling services.

Table 11 lists items related to the outcomes of the pharmacy. All but three items were important to > 90% of the respondents. 99% of the respondents indicated that it was important that the pharmacy staff dispenses medications with accuracy, which is not surprising. Also, a large majority of respondents expressed that it was important that patients using the pharmacy did not receive a medication that interacted with their current medications (97.4%) and that patients were satisfied with the services (94.8%) and products (95.3%) provided by the pharmacy. None of the consumers indicated that the items 'the pharmacy staff dispenses medications with a high degree of accuracy' and 'patients using the pharmacy do not receive a medication that may interact with their current medication resulting in an adverse drug event' were unimportant to them.

Table 11: Consumer Perceptions of Items related to the Outcomes of the Pharmacy*			
	% Important[a]	% Unimportant[b]	% Neutral[c]
The pharmacy staff dispenses medications with a high degree of accuracy	99.0%	-	1.0%
The pharmacy helps to assure that the patients take their medications correctly	75.7%	5.2%	19.1%
Patients using the pharmacy do not receive a medication that may interact with their current medication resulting in an adverse drug event	97.4%	-	2.6%
Elderly patients using the pharmacy do not receive a high-risk medication, which may result in an adverse drug event	82.0%	2.6%	15.4%
Patients using the pharmacy received an intervention(s) which resulted in a positive health outcome	62.9%	4.7%	32.4%
Patients using the pharmacy always receive medications that are appropriate for their condition	92.7%	1.0%	6.3%
Patients using the pharmacy are satisfied with the products provided by the pharmacy	95.3%	0.3%	4.4%
Patients using the pharmacy are satisfied with the services provided by the pharmacy	94.8%	0.5%	4.7%
[a] Those who were said to consider the specified statement as **'important'** responded with "extremely important" or "important" on the 5-point ordinal 'importance' scale. [b] Those who were said to consider the specified statement as **'unimportant'** responded with "not at all important" or "unimportant" on the 5-point ordinal 'importance' scale. [c] Those who were said to be **'neutral'** on the matter responded with "neither important nor unimportant" on the 5-point ordinal 'importance' scale.			

Each of the items discussed above -- 10 items related to the environment of the pharmacy (listed in Table 6), 10 items related to the operations of the pharmacy (listed in Table 7) and 8 items related to the outcomes of the pharmacy (listed in Table 8) -- were selected for further testing to assess whether differences existed when compared using consumer demographic and health-related characteristics. Multivariate analyses of variance (MANOVA) were used, as this type of analysis addresses the intercorrelation among the dependent variables by considering them simultaneously. [59]

To clarify interpretation of potential results, each of the items were entered as the dependent variables in each MANOVA assessment, with each of the following demographic items as an independent variable in separate tests: gender, education (up to high school, some college or 2 year, 4 year college, graduate or professional degree), primary pharmacy type (chain, independent, pharmacy located in a discount/grocery/mass merchandise store), number of maintenance prescription medications (only 1 prescription medication, 2-3 prescription medications, 4 or more prescription medications), health-related conditions (single condition, multiple conditions). Box's M test, a multivariate test for homogeneity of variance, was conducted for each MANOVA run with each of the independent variables. The significance of Box's M test should be interpreted with the understanding that this test is very sensitive to departures from normality. [59]

Wilks' Lambda was used as the multivariate test for significance where the independent variable included three or more categories; and where only two categories were present in the independent variable, Hotelling's T was used. [59] Where multivariate significance was detected (i.e. when Wilk's Lambda or Hotelling's T ≤ 0.05), univariate F-tests were conducted.

For Environment of the Pharmacy:

In the multivariate assessments, differences were found based on gender (Hotelling's T = 0.013) and primary pharmacy type (Wilk's Lambda < 0.001). No statistically significant differences were detected on the basis of education (Wilk's Lambda = 0.759), health-related condition (Hotelling's T = 0.174) or number of maintenance prescription medications (Wilk's Lambda = 0.113). Results of the univariate F-tests for gender, and primary pharmacy type are presented in Tables 12, and 13 respectively.

Table 12: Univariate Analyses of Variance for Items related to the Environment of the Pharmacy by Gender[a,b]				
	Males (Mean)	Females (Mean)	Univariate F Statistic	Sig.
The environment at the pharmacy is appealing	3.58	3.66	1.050	0.306
The pharmacy has a drive-thru facility	2.62	3.01	9.798	0.002**
The pharmacy has a designated area for parking	3.23	3.44	3.168	0.076
The pharmacy offers home delivery service	2.39	2.55	2.137	0.145
The pharmacy offers preventive health services e.g. immunizations, vaccines etc.	3.01	2.90	0.888	0.347
The pharmacy offers services that help you manage your own health e.g. on-site blood pressure testing, information kiosks etc.	3.00	2.87	1.261	0.262
The pharmacy has a private area (or room) for pharmacist and patient interaction	3.05	3.02	0.091	0.764
The pharmacy always has your medications in stock	4.61	4.71	3.203	0.074
The pharmacy has a waiting area	3.46	3.59	1.774	0.184
The pharmacy offers 24-hour service	3.36	3.66	8.001	0.005**
[a]Multivariate significance = 0.013 [b]Box's M = 0.030 ** Statistically significant at the 0.01 level.				

Females were found to differ significantly from males, with respect to higher importance

of drive-thru facility ($p = 0.002$) and 24-hour service ($p = 0.005$).

	Chain pharmacy (Mean)	Independent pharmacy (Mean)	Disc/Gro/MM pharmacy (Mean)	Univariate F Statistic	Sig.
Table 13: Univariate Analyses of Variance for Items related to the Environment of the Pharmacy by Primary Pharmacy Type[a,b]					
The environment at the pharmacy is appealing	3.70	3.85	3.45	6.510	0.002**
The pharmacy has a drive-thru facility	2.92	2.68	2.59	3.247	0.040*
The pharmacy has a designated area for parking	3.44	3.68	3.03	8.698	< 0.001**
The pharmacy offers home delivery service	2.46	2.83	2.36	3.286	0.038*
The pharmacy offers preventive health services e.g. immunizations, vaccines etc.	3.08	2.98	2.84	1.976	0.140
The pharmacy offers services that help you manage your own health e.g. on-site blood pressure testing, information kiosks etc.	2.94	3.10	2.93	0.437	0.646
The pharmacy has a private area (or room) for pharmacist and patient interaction	3.07	3.33	2.95	2.117	0.122
The pharmacy always has your medications in stock	4.62	4.72	4.66	0.666	0.515
The pharmacy has a waiting area	3.61	3.53	3.37	3.401	0.034*
The pharmacy offers 24-hour service	3.70	3.33	3.22	10.243	< 0.001**
[a]Multivariate significance < 0.001 [b]Box's M = 0.650 * Statistically significant at the 0.05 level. ** Statistically significant at the 0.01 level.					

Post-hoc Tukey HSD tests were employed to identify which 'type of pharmacy' groups differed when significance was detected. Respondents who patronized chain and independent pharmacies attributed higher importance to the environment of the pharmacy (p = 0.002) and to the availability of designated parking spaces (p < 0.001) as compared to those who patronized pharmacies located in either a discount/grocery/mass merchandise store.

Chain pharmacy patrons attributed higher importance to the availability of 24-hour service (p < 0.001) and drive-thru facilities (p = 0.040) as compared to respondents who patronized pharmacies located in either a discount/grocery/mass merchandise store. Respondents who patronized pharmacies located in either a discount/grocery/mass merchandise store attributed less importance to availability of a designated waiting area as compared to chain pharmacy patrons (p = 0.034) and to the availability of home delivery service as compared to independent pharmacy patrons (p = 0.038).

For Operations of the Pharmacy:

In the multivariate assessments, no differences were found based on gender (Hotelling's T = 0.058), education (Wilk's Lambda = 0.401), primary pharmacy type (Wilk's Lambda = 0.359), health-related condition (Hotelling's T = 0.804) and number of maintenance prescription medications (Wilk's Lambda = 0.604).

For Outcomes of the Pharmacy:

In the multivariate assessments, no differences were found based on gender (Hotelling's T = 0.063), education (Wilk's Lambda = 0.090), primary pharmacy type (Wilk's Lambda = 0.127), health-related condition (Hotelling's T = 0.339) and number of maintenance prescription medications (Wilk's Lambda = 0.178).

Objective 2: To compare consumer perceptions regarding their pharmacy's overall quality before and after exposure to a series of items related to pharmacy quality

H$_{2a0}$: Consumer perceptions regarding their pharmacy's overall quality will be the same before and after exposure to the series of items related to pharmacy quality

Respondents were asked to rate their current primary pharmacy on a 7-point linear numeric scale, where 1 = Poor and 7 = Excellent. Primary pharmacy was defined as the pharmacy where one filled majority of his/her prescription medications. This rating task was performed twice, once before exposure to a series of items related to pharmacy quality (items) and once after. A paired sample t-test was employed in order to test if consumer perceptions regarding their pharmacy's overall quality differed before and after exposure to the series of items related to pharmacy quality.

Table 14: Overall Rating of Pharmacy Quality				
	N	**Mean**	**Std. Dev**	**p-value**
Overall pharmacy rating prior to exposure	383	5.79	1.03	0.2570
Overall pharmacy rating after the exposure	383	5.83	0.98	

There was no statistically significant difference in the ratings assigned by the respondents to the pharmacy prior to (Mean = 5.79, Std. Dev. = 1.03) and those assigned after exposure to (Mean = 5.83, Std. Dev. = 0.98) the items related to pharmacy quality; t(382) = - 1.136, p = 0.257. This suggests that consumer perceptions regarding their pharmacy's overall quality did not differ before and after exposure to the series of items related to pharmacy quality.

An additional analysis was run to determine how many respondents' perceptions changed and remained the same regarding their pharmacy after exposure to the items related to pharmacy quality. Majority of the respondents (73.4%) rated their pharmacy at the same point on the 7-point linear numeric scale after exposure to the items related to pharmacy quality as they had prior to exposure. Only 11.2% of the respondents' ratings decreased and 15.4% of the respondents' ratings increased after exposure to these items. The rating value that occurred most frequently in the dataset (mode of the distribution) for both the pre and post measure of the pharmacy's overall quality was a 6.

Objective 3: To explore the use of evaluative criteria applied by consumers to determine their preference for information on community pharmacy quality measures

Consumer preferences for the attributes related to pharmacy quality measures were evaluated through conjoint analysis. Respondents were asked to rate 12 profiles, which were designed to look like web pages. This type of pictorial representation of the various attributes was expected to increase the perception of reality (resembles a webpage one might come across on the Internet) and enhance the simulation of actual choice. [57] Of those 12 profiles, 3 were holdouts. The profiles were combinations of four different attributes: 'Measure-type', 'Accreditation', 'Source', and 'Star ratings' (Table 4).

An additive, main effects model applied to a fractional factorial design, with the 'DISCRETE' preference model specification was used in this conjoint analysis. Kendall's tau is a measure of correlation between the observed value of the holdout profiles and the values predicted for those profiles by the conjoint model derived from the design profiles. This correlation was assessed for each individual case, and the average correlation from all individuals was reported on the subfile summary. This aggregate correlation (tau = 0.611) was significant (p = 0.011) therefore, this supports the suitability of the model's predictive accuracy.

In the examination of consumer preferences for the various attributes, part-worths (utility scores) were estimated for each individual case. These utility scores were then used in computations to derive the relative importance of each attribute for each respondent. This in turn revealed the attributes that were considered most important, least important and those in-between

for each case. The mean relative importance scores for each attribute (averaged across individuals) are included in Table 15.

Table 15: Average Importance Scores of Attributes Included in the Conjoint Analysis		
Attribute[a]	Mean[b]	Std. Deviation
Measure type	39.55	15.06
Source	28.83	11.45
Star rating	16.13	11.27
Accreditation	15.50	10.12
[a]Attributes are listed in descending order of mean relative importance. [b]Individually calculated importance scores were averaged to derive this value.		

'Measure type' (Structure/Environment, Process/Operations, Outcome/Outcomes) was the most important attribute followed by 'Source', 'Star ratings', and 'Accreditation' being the least important attribute measured. An examination of individually calculated importance scores revealed that the attributes 'Measure type' (59.25%) and 'Source' (24%) were of highest importance (Table 16). This supports the higher relative importance of those two attributes in the aggregate results presented in Table 15.

Table 16: Proportional Response[a] to Each Attribute Rated as Most Important		
Attribute[b]	Number	Percentage
Measure type	227	59.27%
Source	90	23.5%
Star Rating	29	7.57%
Accreditation	28	7.31%
Two Attributes Rated as Most Important[c]	9	2.35%
[a]Individually calculated importance scores were counted. [b]Attributes are listed in descending order of mean relative importance. [c]Based on importance scores, eight respondents rated the attributes 'Measure type' and 'Source' as most important, and one respondent rated the attributes 'Measure type' and 'Accreditation' as most important.		

The aggregate utility scores for each level and the relationships of these utilities are displayed in Figures 2-5.
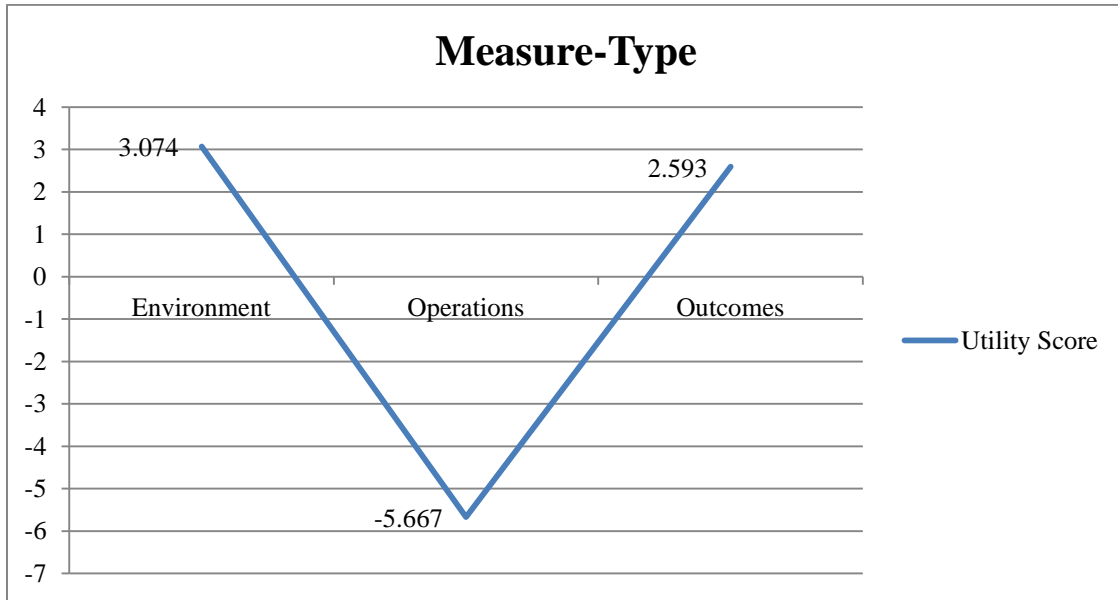

Figure 2: Line Graph of Utilities for Levels of the Attribute 'Measure-Type'

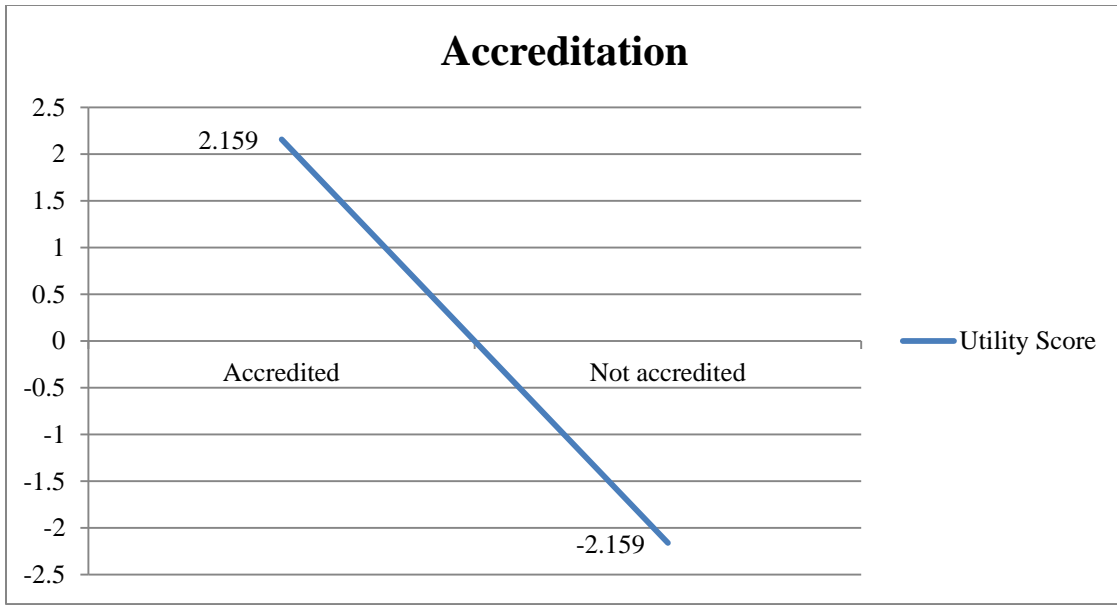Figure 3: Line Graph of Utilities for Levels of the Attribute 'Star Ratings'

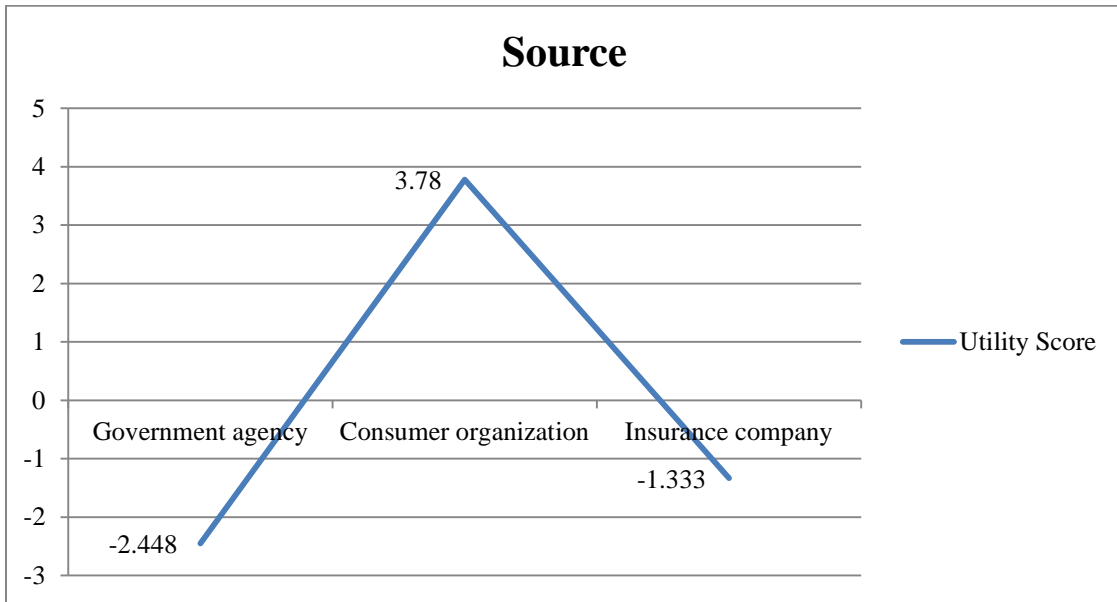Figure 4: Line Graph of Utilities for Levels of the Attribute 'Accreditation'

Figure 5: Line Graph of Utilities for Levels of the Attribute 'Source'

When comparing the mean utility scores of the levels within the attributes included in the conjoint task, the level 'environment' of the attribute 'Measure type' had more utility than 'outcomes', which had more utility than 'operations'. A pharmacy being 'accredited' had more utility than 'no accreditation'. A 'consumer organization' as a source of information had more utility than an 'insurance company', which had more utility than a 'government agency'. Finally, 'insurer ratings' in the form of star ratings had more utility than 'patient ratings' (Table 17).

Table 17: Utilities			
Attributes with levels		**Utility Estimate**	**Standard Error**
Measure type	Environment	3.074	3.081
	Operations	-5.667	3.081
	Outcomes	2.593	3.081
Star rating	Patient rating	- 0.609	2.311
	Insurer rating	0.609	2.311
Accreditation	Accredited	2.159	2.311
	Not accredited	-2.159	2.311
Source	Government agency	-2.448	3.081
	Consumer organization	3.780	3.081
	Insurance company	-1.333	3.081
Constant		64.637	2.436

52.2% of the respondents indicated that they were likely to use report cards available on the Internet in order to determine the quality of the pharmacy they patronize and/or other pharmacies. However, 28.5% of the respondents indicated that they were undecided on this matter (Table 18).

Table 18: Use of Report Cards		
	Frequency	**Percentage**
Very Likely	63	16.4%
Likely	137	35.8%
Undecided	109	28.5%
Unlikely	54	14.1%
Very Unlikely	20	5.2%
Total	383	100%

54.1% of the respondents indicated that they were likely to recommend the use of such report cards to their friends and family (Table 19).

Table 19: Recommendation of Report Cards		
	Frequency	**Percentage**
Very Likely	60	15.7%
Likely	147	38.4%
Undecided	101	26.4%
Unlikely	59	15.4%
Very Unlikely	16	4.2%
Total	383	100%

Of the respondents that reported a likelihood to use online report cards, 59.1% of the respondents indicated that they would occasionally access such online report cards whereas, 8.1% indicated that they would rarely access them (Table 20).

Table 20: Frequency of Access of Report Cards		
	Frequency	**Percentage**
A Great Deal	14	7.1%
A Moderate Amount	51	25.8%
Occasionally	117	59.1%
Rarely	16	8.1%
Total	198	100%

Also, of the respondents that reported a likelihood to use online report cards, 69.5% reported that they were likely to switch to a pharmacy that matched their definition of 'ideal' based on report card information. However, 24.5% of the respondents indicated that they were undecided about a switch to their 'ideal' pharmacy (Table 21).

Table 21: Likelihood to Switch Pharmacies		
	Frequency	**Percentage**
Very Likely	44	22.0%
Likely	95	47.5%
Undecided	49	24.5%
Unlikely	10	5.0%
Very Unlikely	2	1.0%
Total	200	100%

CHAPTER V

DISCUSSION and IMPLICATIONS

Consumer Perceptions toward Community Pharmacy Quality Measures

In general consumers had a relatively neutral perception regarding the importance of various items related to the pharmacy's environment. Consumers believed that it was extremely important that the pharmacy always had their medications in stock. This is understandable considering that a pharmacy is "the" location a consumer expects to carry his/her medications. A related explanation is that medications are 'critical goods' and thus, consumers may attribute higher importance to them and subsequently their availability at the pharmacy.

Consumers also assigned moderate importance to the environment of the pharmacy being appealing and to the availability of 24-hour service and a waiting area. Consumers who have chronic conditions (as do the responding sample) are likely to make regular trips to the pharmacy. Depending on the location and type of pharmacy, the wait time to pick up prescription medications and have a consult with the pharmacist may vary. These factors may contribute to the consumers assigning a higher level of importance to the environment of the pharmacy and the availability of a waiting area. Availability of 24-hour service may be considered important as a result of the sheer convenience of the service in emergent, urgent or even in non-emergent situations.

Nearly half the responding sample (49.9%) did not value home delivery service. The reason for this finding is unknown. In spite of the convenience associated with delivery, it may

be conceivable that consumers prefer to check and pick up their own medications instead of having them delivered. It is possible that consumers may assume that home delivery has some additional service charges associated with it and thus, prefer to pick up their own medications. The fact that the item stated it as "home delivery" could also have been problematic for some working individuals who may have assumed that they need to be at home to receive their medications. Another possible reason for this finding may be the fact few pharmacies offer home delivery service and since this item may have been a hypothetical situation for many of the respondents the ratings could have been skewed.

Females attributed a higher level of importance to convenience factors related to the pharmacy such as drive-thru facility and 24-hour service as compared to males. One explanation for this may be that a woman often takes on the responsibility of fulfilling her family's medication needs and thus, any form of services offered by the pharmacy that may facilitate this process may be likely to be valued more by them as compared to their male counterparts.

Respondents' perceptions regarding the pharmacy's environment differed based on the type of pharmacy they patronized. Respondents who patronize a pharmacy located in a discount/grocery/mass merchandise store may do so because such stores offer a one-stop shopping opportunity. This may be the reason why these patrons attributed less importance to a number of items related to the environment of the pharmacy such as appealing environment, availability of a waiting area, 24-hour service and home delivery service as compared to traditional chain and independent pharmacy patrons.

Availability of designated parking spaces may have been less important to respondents that patronized a pharmacy located in a discount/grocery/mass merchandise store because

generally stores of this nature already have large parking lots available to their patrons. In general, the perceptions of chain and independent pharmacy patrons toward a pharmacy's environment were not found to be statistically significantly different from one another.

Consumers considered the majority of the items related to a pharmacy's operations important including courteous and respectful treatment by pharmacy staff, pharmacist availability, friendly staff, and time spent in the waiting room etc. The fact that respondents attributed a high level of importance to these items made intuitive sense. Just over half (53.3%) of the respondents indicated that it was important that the pharmacy provide counseling services. The reason for this may be that respondents may have interpreted counseling services as 'mental health therapy', instead of services provided to better understand one's health condition, medications and their associated benefits and side effects. Other possible explanations could be that they have never received such counseling from their pharmacist, or their current health status precludes the need for such services from the pharmacist.

The majority of the items related to a pharmacy's outcomes were considered very important by the respondents. 99% of the respondents indicated that it was important that the pharmacy staff dispenses medications with accuracy, which is not surprising. Also, a large majority of respondents expressed that it was important that patients using the pharmacy did not receive a medication that interacted with their current medications. None of the respondents were of the opinion that either of these items was unimportant.

About 63% of the respondents indicated that it was important that 'patients using the pharmacy received an intervention(s) which resulted in a positive health outcome'. One of the reasons fewer respondents perceived this item as important as compared to some of the other

items may possibly be because the respondents did not understand the meaning of the item. Another possibility is that the respondents may not be interested in receiving such interventions as was observed earlier in the item related to a pharmacy's operations - 'the pharmacy provides patient counseling services'. This may be because consumers are possibly concerned about such outcomes and services only as they relate to themselves; and so if they have not had such a pharmacy experience they may not have any personal interest in the provision of the same.

Respondents' perceptions regarding items related to the pharmacy's operations and outcomes were not statistically significantly different among the different categories of gender, health-condition, type of pharmacy, education or number of prescription medications. This may be indicative of the fact that the different consumer segments may perceive these items to be equally important and thus, have similar perceptions regarding these (operations-based and outcomes-based) community pharmacy quality measures.

Consumer Perceptions regarding their Pharmacy's Overall Quality

Consumer perceptions regarding their pharmacy's overall quality were not found to be statistically significantly different from one another before and after exposure to a series of items related to pharmacy quality. Nearly three-quarters (73.4%) of the responding sample rated their pharmacy's overall quality at the same point on the 7-point scale for the pre- and post-measures of pharmacy quality. It was hypothesized that after exposure to these items consumers' perceptions regarding the quality of care provided by their pharmacy would change -- they could have either realized that their pharmacy provides better quality than they gave credit for or the opposite effect could have occurred. However, since consumer perceptions did not differ before

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and after exposure to a series of items related to pharmacy quality it may be indicative of the fact that consumers do not consider these items when judging the quality of care provided by their pharmacy. Another possible explanation may be that consumers are probably satisfied with moderate performance and may have low expectations of their pharmacy.

Since the mean ratings of the respondents related to their pharmacy's overall quality changed from 5.79 during pre-evaluation to 5.83 during post-evaluation, it may be possible that we raised a little awareness among respondents regarding what one may expect in terms of pharmacy quality. Additionally, respondent ratings during the pre- and post-evaluation of their pharmacy's overall quality were found to be statistically significantly different from the neutral position, trending in the direction of 'excellent'; practically speaking being quite different from the neutral position as well.

Additionally, the fact that the mode of the ratings for both the pre- and post-measures of pharmacy's overall quality was the same (mode = 6) may be indicative of a few things; first it is an additional indicator of the fact that a majority of the respondents' perceptions did not change after exposure to the items; and second, as suggested by the means of the distributions (pre-measure mean = 5.79 and post-measure mean = 5.83), a modal value of 6 suggests that majority of the respondents expressed a relatively favorable perception regarding their pharmacy's overall quality. These findings may be suggestive of the fact that respondents perceive that their current pharmacy provides quality care and are satisfied with the level of care they are receiving from their current pharmacy.

Consumer Preferences for Information on Community Pharmacy Quality Measures

It was not totally unexpected that 'Measure type' was perceived to be, on average, the most 'important' of the four attributes included in the conjoint analysis. It is this attribute that conveys the characteristics of the pharmacy and thus, would essentially be the most salient when making pharmacy patronage decisions. Within this attribute, the level 'environment' had more utility than the levels 'outcomes' and 'operations'. This finding highlights the fact that consumers base their patronage decisions largely on convenience factors.[10] There is thus a need to educate the current consumers of community pharmacy regarding other factors that they might consider when making patronage decisions or when determining the quality of care they receive from their pharmacy.

The relationships between the utility values for each of the levels for the attributes 'Measure type', 'Source' and 'Accreditation' made intuitive sense. Respondents most preferred to receive information related to pharmacy quality from a 'consumer organization'; perhaps that information is perceived as the most unbiased information since it is received from an organization that represents the consumer.

As was expected, being 'accredited' was preferred to 'no accreditation'. It is important to note that although there are discussions of community pharmacy accreditation at several of the national pharmacy associations, to date there are no formal public proposals regarding the same. Respondents may have assumed that such accreditation is akin to basic licensure and therefore, required for operation.

The relationship among the levels on the 'Star rating' attribute was somewhat surprising. It was anticipated that 'patient ratings' would have greater utility than 'insurer ratings' given that

patient ratings in the form of stars would give a succinct picture of consumer impressions of that particular pharmacy. One explanation of this deviation from the expected could be that patient ratings (like consumer ratings of a product on say Amazon[®] or eBay[®]) are often skewed based on individual experiences and thus, insurer ratings may provide a more rational and reasonable picture. Another explanation may be that since insurer ratings are generally based on aggregate data they may provide a broader perspective and hence, may be preferred by consumers.

Just over 50% of the respondents indicated that they were likely to use such report cards as well as recommend their use to family and friends. The majority (69.5%) of those would switch to a more 'ideal' pharmacy if report card comparisons revealed a difference. This suggests that it is possible that if such report cards become a reality and are endorsed more widely, consumers will use the data to inform their community pharmacy patronage decisions.

During the conjoint task, within the attribute 'Measure type', the level 'environment' had more utility than the levels 'outcomes' and 'operations'. However, during the previous task wherein respondents were directed to indicate the level of importance of various items related to the environment, operations and outcomes of the pharmacy, respondents attributed less importance to the items related to the environment of the pharmacy as compared to those related to the operations and outcomes of the pharmacy.

The reason for this is unknown. One possible explanation could be that it may have been easier for the respondents to evaluate the physical aspects (environment) of a pharmacy as compared to the operational and outcomes related aspects when making a patronage decision during the conjoint task. Also, it is conceivable that when making a decision to patronize a new pharmacy, factors related to the environment of the pharmacy are considered more important as

compared to the operations and outcomes related factors. This is in contrast to the other situation wherein respondents were asked to indicate the level of importance of the various items related to the environment, operations and outcomes of the pharmacy; here respondents were rating these items keeping their ideal pharmacy in mind.

Implications of the Study

The finding that a majority of the respondents' ratings on the pre- and post-measure of overall pharmacy quality remained the same is interesting. The items related to the pharmacy's environment, operations and outcomes that were included in the survey held potential to provide some amount of educational information to the respondents. The limited information provided may have missed out on altering the respondents' perceptions regarding their pharmacy's overall quality, however. Thus, there is some opportunity to investigate what could shift consumers' perceptions from their present static state. One thing worth mentioning is that the respondents indicated that their pharmacy does currently provide quality care (modal value of 6 on a 7-point linear numeric scale) and thus, it may not be possible to further alter their perceptions regarding their current pharmacy.

Consumers possibly perceive the pharmacy as just another retail store, albeit one where they can purchase their medications and are perhaps satisfied with just an adequate product (i.e. consumers generally may be satisfied if the pharmacy is situated at a convenient location, and if they receive the right medication without having to spend much time to do so). Thus, they may not be cognizant of the service component associated with pharmacies. Pharmacies provide a number of services such as patient counseling, medication therapy management, assistance with medication adherence, surveillance of drug-drug interactions, and ancillary services such as blood pressure monitoring, flu shots etc. This may be an area where pharmacies may benefit by differentiating themselves from other competing pharmacies and demonstrating to consumers the value of these services in the management of their health. As indicated in the results of this study, consumers do not assign as much importance to the provision of such services and thus, unless consumers understand the added value of these services in the management of their

health, they may continue to disregard them as inessential. Demonstration of the added value of such services by pharmacies and pharmacists may result in consumers changing their perceptions regarding their pharmacy's overall quality.

In the survey, respondents assigned relatively high importance to a number of items related to the operations of the pharmacy and moderate importance to those related to the environment of the pharmacy. Thus, pharmacists and pharmacies may be able to capitalize on this and increase recognition and pharmacy patronage by improving on these aspects of their pharmacy. Pharmacies/pharmacists may not be spending as much time on customer relationship management because of various time constraints. This may be an area that they can attempt to improve upon in order to enhance consumer perceptions. Whether the addition of more services and support will facilitate improvements in patient health, and/or pharmacy profitability and whether it will help change consumer perceptions related to 'value-added' services and to their pharmacy's overall quality is a question for future research.

Respondents also assigned relatively high importance to a number of items related to the outcomes of the pharmacy. Payers can take advantage of this and prompt pharmacies to appropriately align their outcomes so as to benefit through the 'pay for performance' reimbursement model. This may facilitate competition among pharmacies and thus, improve outcomes of the pharmacy possibly resulting in consumers receiving better quality care and being more satisfied with their pharmacy experience. Overall, payers may benefit through such a reimbursement model as it is envisioned that consumers will choose the providers that offer higher quality services which may in turn result in better health outcomes among them, thus, benefitting the payers in the long run.

Currently, report cards related to quality of care provided by physicians, hospitals and nursing homes are available on the Internet. Just over half the respondents indicated that they were likely to use pharmacy report cards if available on the Internet to determine the quality of the pharmacy they patronize and/or other pharmacies. Thus, if such report cards come into being for pharmacies, those that wish to highlight and distinguish their products and services over other competing pharmacies may have to develop a strategy to drive consumers to view and utilize such websites when making pharmacy patronage decisions.

Consumers most preferred that the information included in the report cards be provided by a consumer organization (vs. a government agency or an insurance company). Thus, organizations that develop such report cards in the future may be served well by keeping in mind the source of the information included in such report cards. Consumers continue to make pharmacy patronage decisions based on convenience factors. Thus, it may be important to highlight these aspects of the pharmacy when creating report cards in order to attract consumers to utilize them.

Consumers need to be educated that there are a number of other factors including service related factors that they should consider and may utilize when making patronage decisions. Creators of pharmacy report cards may keep this in mind when designing them and include information that is easy to comprehend and utilize by the consumers. Such report cards thus, may serve as an appropriate mechanism to educate a large population.

In the past there have been scant efforts to appraise the pharmacy in terms of its environment, operations and outcomes. Certain attempts in this direction include patient satisfaction surveys, assessment of error rates, generic dispensing rates, and medication costs.

Thus, there is a lack of systematic measurement of the characteristics of the pharmacy at a national level. The question that needs to be answered is who will take on the responsibility to collect, analyze and report such data.

CMS and AHRQ have partnered to conduct the HCAHPS (Hospital Consumer Assessment of Healthcare Providers and Systems) survey which is the first national, standardized, publicly reported survey of patients' perspectives of hospital care. Additionally, CMS and the Hospital Quality Alliance (HQA) have created the Hospital Compare website which provides information related to quality of certain services provided by hospitals that can be used by any patients needing hospital care. Such information related to quality of care provided by hospitals may assist consumers in making better decisions about their health care and also encourages hospitals to improve the quality of care they provide. CMS compiles the information available on the website from claims and enrollment data for patients in Original Medicare and from the HCAHPS survey mentioned above.

CMS and PQA are organizations that are positioned to take on similar initiatives in the pharmacy arena. Such initiatives would help generate data related to patients' perspectives of their pharmacy experiences. Further, pharmacy claims data collected by CMS may be utilized to compute pharmacy performance on various clinical and process related measures.

Limitations of the Study

This survey depended upon the accuracy of self-reported information. The sample of respondents may not be representative of the general population based on the skewed number of male and Caucasian respondents that completed the survey. In order to appropriately complete the survey respondents had to read a number of directions and definitions. This may possibly be a limitation considering that respondents may have skimmed through or may not have read the directions and/or definitions altogether.

Order of profiles was designed to account for anchoring by presenting two profiles, deemed to be the approximate best and worst, at the beginning of the conjoint task. This does not eliminate the possibility that respondents might not review all the profiles carefully, and might anchor their responses based on an inappropriate and arbitrary standard. The twelve profiles required for an orthogonal design within the conjoint analysis may have been a barrier to accurate completion for some respondents. Using ratings over rankings as a profile assessment method may be criticized as ratings allow respondents to be 'less discriminating in their judgments than when they are rank-ordering'.[56]

While the structure of the hypothetical task with simulated report cards was carefully planned to make the experience as 'real' as possible, the scenario may not have been authentic to some. And so, while the 'usefulness of the report card' ratings recorded do indicate attitudinal intent, they may not perfectly predict reality. Also, the conjoint task may have been challenging to some respondents. The task may have been misinterpreted to mean "rate the pharmacy" instead of "rate the mock report card," even though the directions clearly stated otherwise.

Consumer perceptions were found to be negatively skewed on a number of items related to the environment, operations and outcomes of the pharmacy. This resulted in violations of the assumption of normality which possibly had an effect on the Box's M values calculated during multivariate assessment. Thus, the results of the multivariate assessments should be interpreted keeping this limitation in mind.

Suggestions for Future Research

Considering the fact that the sample of respondents used in the present study was skewed in terms of number of male and Caucasian respondents, another study utilizing a sample of respondents more representative of the general population is warranted. It is conceivable that such a study would yield different results from this more representative sample.

Objective 3 of this study explored the use of evaluative criteria applied by consumers to determine their preference for information on community pharmacy quality measures. It could be hypothesized that all consumer segments have similar preference structures regarding these evaluative criteria and this hypothesis could be tested in the future by carrying out post-hoc segmentation analysis. Cluster analysis can be used to derive segments based on the disaggregate preference structures derived from the conjoint analysis.

Payers are moving toward instituting the 'pay for performance' model for pharmacy reimbursement. It would be interesting to explore payers' perceptions regarding the various items related to the pharmacy's environment, operations and outcomes considered in this study. Further, it would be interesting to appreciate what information on community pharmacy quality measures payers perceive to be important for consumers to know and utilize when making pharmacy patronage decisions.

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LIST OF APPENDICES

APPENDIX A: DISCUSSION GUIDE

<u>Hosting:</u>

All participants should be received at the grove side entrance of the Thad Cochran Research Center and escorted to the waiting room (Pharmacy Lounge). Before seating the participants in the focus room (Faser 217) each of the participants should be asked to sign a consent form. In case a participant refuses to sign a form, they should be excused from the group.

The predicted size of the focus group is $6 - 8$ participants. Given that a few more were recruited for the focus group, any person who arrives after the maximum number have been seated in the waiting area should be offered refreshments and then dismissed.

The participants will then be lead into Faser 217, where name tents will have already been placed, indicating their seating arrangement.

<u>Introduction: [5 - 10 minutes]</u>

<u>Welcome</u>

"Good evening. My name is Zainab Shahpurwala and I am a graduate student at the Department of Pharmacy Administration. I would like to begin by thanking all of you for taking out the time to join us today. Today's discussion should last for no more than 2 hours. We are very interested in learning about your experiences, and your opinions and comments are invaluable to us."

<u>Purpose</u>

"The purpose of this discussion is for us to identify consumer attitudes toward quality in health care -- in community pharmacy specifically."

<u>Dynamics of discussion</u>

"As all of you can see name tents have been provided in front of everyone. Let's leave our titles aside and refer to each other with our first names during the discussion. Please feel free to address any one in the group; you need not direct all your queries or answers to me at all times. However, please avoid whispering anything to your neighbor; we are all interested in hearing your opinion. I will be present here throughout the session to pose questions to all of you and listen to your answers. I hope that all of you will contribute equally to this session."

"I would like to point out a couple of things. Please be completely honest while sharing anything with the group. Kindly speak up, we are interested in each and every one of your comments. However, please graciously await your turn. We are recording this session on tape so please speak audibly and clearly. We are really looking forward to hearing all of you during the session."

Ground rules

"I would like to request all of you to either turn off or at least put your cell phones on the vibrate mode and out of site so that there are no interruptions during the discussion. In case of an emergency please excuse yourself from the room and address your business using the students' lounge next door. We have placed some snacks and sodas on the tables on my right for your refreshment. Please feel free to get up during the session to help yourself. The restrooms are located at the end of the hallway (point toward them); you are free to use them as needed."

"So before we begin, do you'll have any questions for me?"

Questioning Route

Pre Warm – up [2 – 5 minutes]	1. Now I would like for everyone to begin by introducing themselves to each other. Please tell us your name, your occupation, and any other information about yourself that you would like to share with us. (Let us begin on my left.)
Warm – up Questions [5 – 10 minutes]	2. What did you consider when you chose your primary pharmacy and why?

General Questions [15 – 20 minutes]	3. Please make a list of the attributes of your ideal pharmacy **(PRE)** (Participants will hand these in) 4. What do you look for in order to determine the quality of care / services provided by your pharmacy? 5. What tells you that your pharmacy / a pharmacy is lacking in quality? Screen shots of the Hospital Compare website / or actually go online and browse the website. 6. What are your impressions of this website? 7. Is the information important to you? Is it easy to comprehend?
Focus Questions [30 - 40 minutes]	8. If similar information was available for community pharmacies would you use it? 9. Give examples of some measures you would be interested in. Provide list of measures to each participant (described in lay terms) … let them read for a minute or two … 10. What are your impressions of these measures? 11. Are these measures understandable / meaningful to you? Let respondents select their top 5 measures from the list … 12. What other measures related to pharmacy quality can you think of?

| | 13. We have discussed several measures … if you had access to such measures on pharmacy quality in a similar format to those we showed you on hospitals, how often would you access such information?
14. When comparing your pharmacy to other pharmacies using these quality measures, if you find that pharmacy X more closely fits your idea of an ideal pharmacy … how likely are you to switch?
15. Please make a list of the attributes of your ideal pharmacy. **(POST)**

6 pre-determined attributes will be presented to each of the focus group participants on cards (one attribute per card), gathered in an envelope.

- Verbal description of attributes by moderator followed by discussion among participants of general opinions regarding the various attributes and their subsequent inclusion in a pharmacy quality report card.

16. How important would it be to see each of these categories (6 attributes) of information in a pharmacy quality report card? (Participants will be asked to pile the cards in their rank order, with the top card being the most important and the bottom card being the least important attribute. Next participants will be asked to rate the attributes in terms of importance on a scale from 0 to 100, with 0 being "not at all important" and 100 being "very important.") |

<u>Closing Questions</u>
 	
[5 - 10 minutes]
	This evening we have talked about several aspects related to pharmacy quality measures and their usefulness to consumers. We have learned a lot from this very insightful discussion and I appreciate your willingness to share your thoughts with us.
	
	    17. Is there anything we have not discussed that is relevant to this issue?
	    18. How relevant / useful was the information derived from today's discussion to you?
	    19. How would you use this information to guide your pharmacy experience in the future? (if at all)
	
	Thank you once again for your participation. I am confident that your presence has helped us in advancing our research project.

APPENDIX B: LIST OF MEASURES

Structure-based measures:

Table 22: Structure-based Measures
The environment at the pharmacy is appealing.
The pharmacy has a drive-thru facility.
The pharmacy has a designated area for parking.
The pharmacy offers home delivery service.
The pharmacy offers preventive health services e.g. immunizations, vaccines etc.
The pharmacy offers services that help you manage your own health e.g. on-site blood pressure testing, information kiosks etc.
The pharmacy has a private area (or room) for pharmacist and patient interaction.
The pharmacy always has your medications in stock.
The pharmacy has a waiting area.
The pharmacy offers 24-hour service.

Process-based measures:

Table 23: Process-based Measures
The pharmacy staff talks to you about your medication(s)/condition(s) in a way that is easy to understand.
The printed information provided by the pharmacy staff is written in a way that is easy to read and understand.
The pharmacist is available to talk to you about any concerns you have when you visit the pharmacy or via telephone.
The pharmacy staff spends enough time talking to you.
The pharmacy staff is friendly.
The pharmacy staff treats you with courtesy and respect.
Time spent waiting in the pharmacy is minimal.
The pharmacy provides patient counseling services.
The pharmacy provides services that help patients get the best benefits from their medications by actively managing drug therapy and by identifying, preventing and resolving medication-related problems.
The pharmacy staff checks to make sure that your medications are covered by your insurance provider.

Outcome-based measures:

Table 24: Outcome-based Measures
The pharmacy staff dispenses medications with a high degree of accuracy.
The pharmacy helps to assure that the patients take their medications correctly.
Patients using the pharmacy do not receive a medication that may interact with their current medication resulting in an adverse drug event.
Elderly patients using the pharmacy do not receive a high-risk medication, which may result in an adverse drug event.
Patients using the pharmacy received an intervention(s) which resulted in a positive health outcome.
Patients using the pharmacy always receive medications that are appropriate for their condition.
Patients using the pharmacy are satisfied with the products provided by the pharmacy.
Patients using the pharmacy are satisfied with the services provided by the pharmacy.

APPENDIX C: MOCK REPORT CARDS

Figure 6: Sample Mock Report Card

Figure 7: Mock Report Card # 1

Figure 8: Mock Report Card # 2
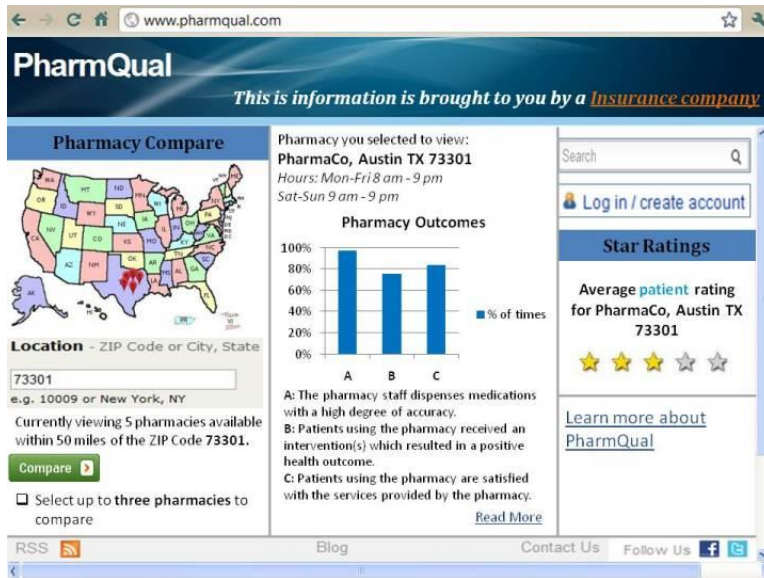
Figure 9: Mock Report Card # 3
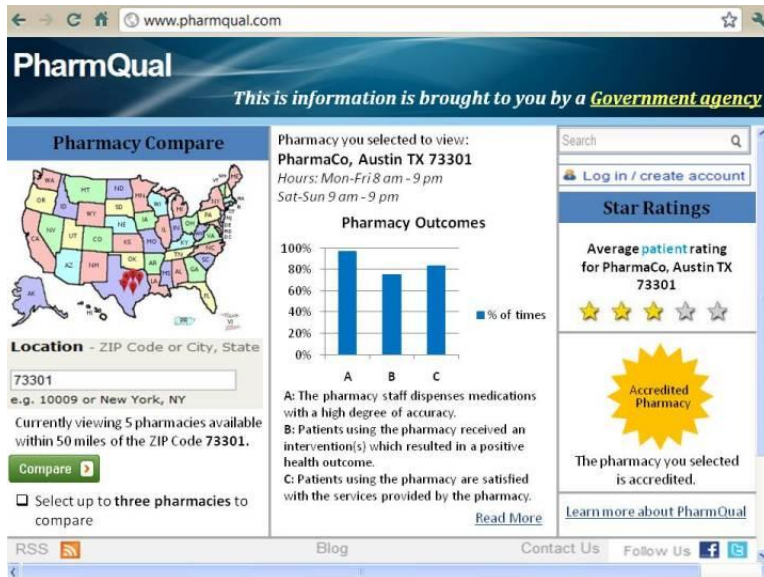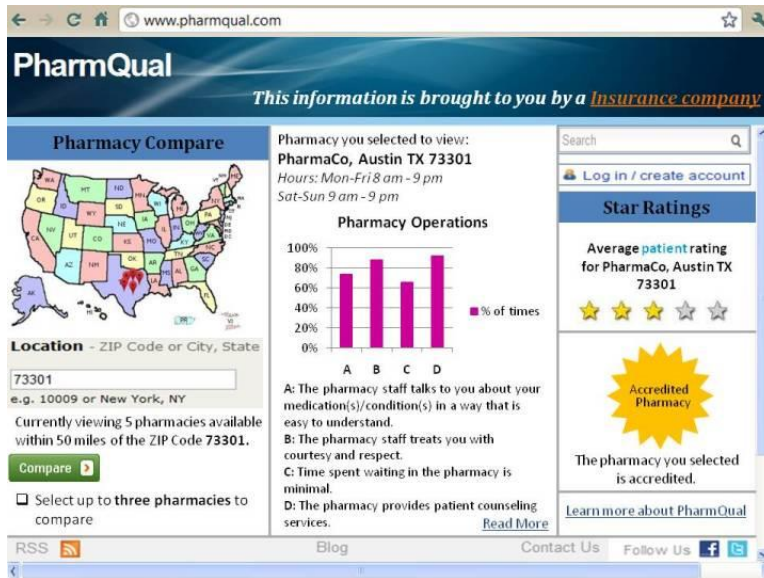

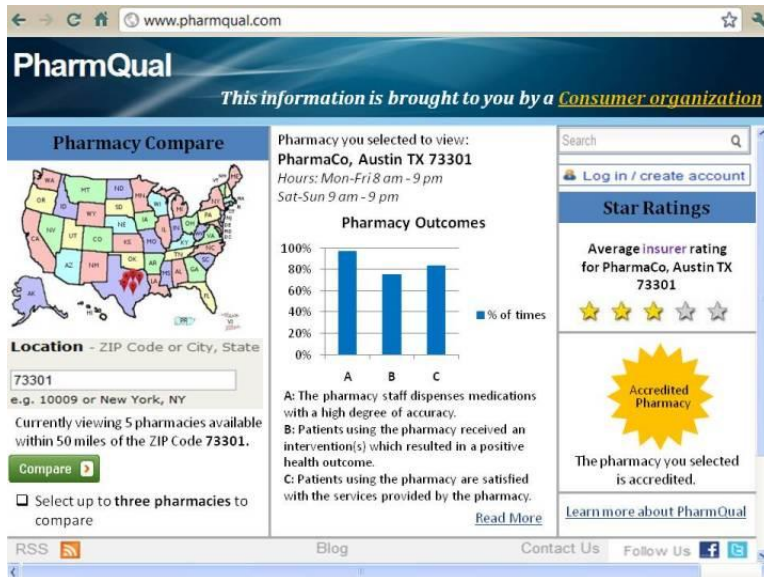Figure 10: Mock Report Card # 4

Figure 11: Mock Report Card # 5

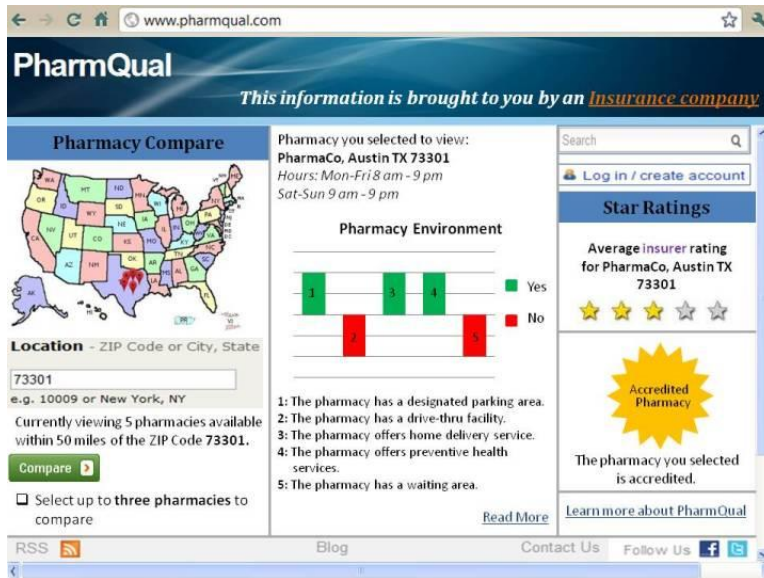Figure 12: Mock Report Card # 6
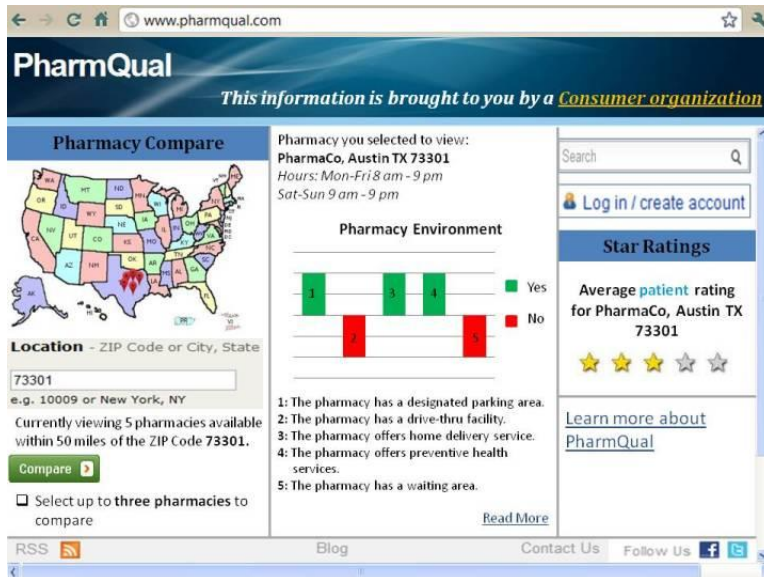
Figure 13: Mock Report Card # 7
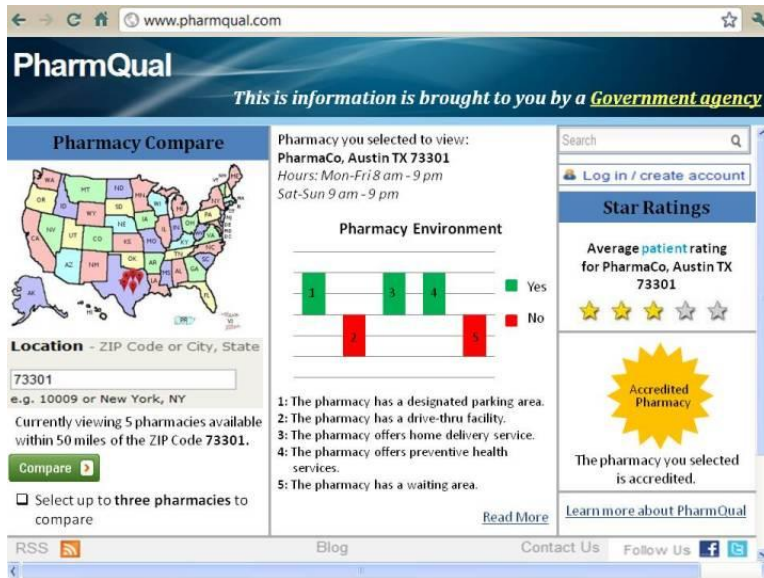

Figure 14: Mock Report Card # 8

Figure 15: Mock Report Card # 9

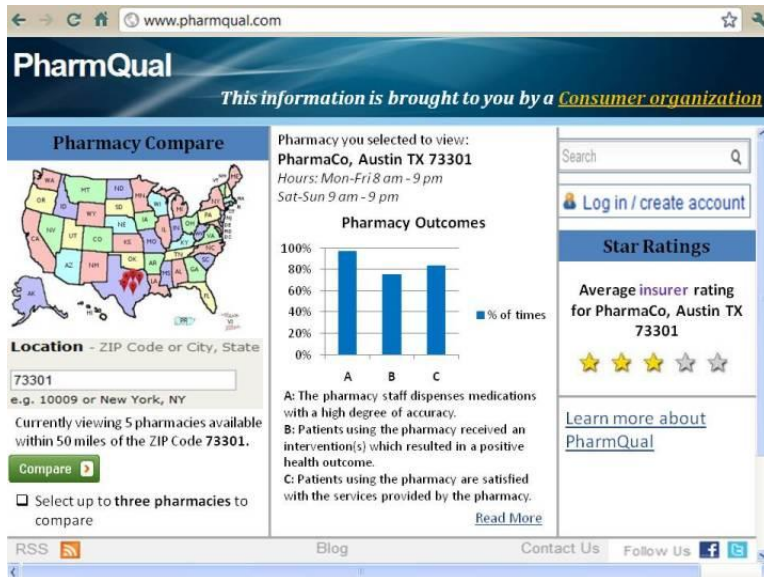Figure 16: Mock Report Card # 10

Figure 17: Mock Report Card # 11

Figure 18: Mock Report Card # 12

APPENDIX D: SURVEY INSTRUMENT

(Supplemental File)

VITA

Zainab S. Shahpurwala was born on June 5, 1986. After graduating from Jai Hind College in Mumbai, India, in 2004, she enrolled in the University Institute of Chemical Technology School of Pharmacy. In June 2008, Zainab received a Bachelor of Pharmacy degree with emphasis in pharmaceutical sciences and is a registered pharmacist in Maharashtra, India. In the fall of 2009, she began attending the University of Mississippi School of Pharmacy for graduate education in Pharmacy Administration.

Zainab has served as an assistant in both teaching and research capacities while completing the requirements of the Master of Science degree (November 2011), majoring in Pharmacy Administration. Her research interests include consumer and provider behavior, and health economics and outcomes research.

During her time in the graduate program Zainab has been invited to join a number of honor societies including Phi Kappa Phi, Rho Chi and Who's Who Among Students in American Universities and Colleges. She also plays an active role in a number of on campus organizations at the University of Mississippi.