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Patient perceptions of medication counseling provided by community pharmacists

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A Thesis

Entitled

Patient Perceptions of Medication Counseling Provided by Community Pharmacists

By

Andrew Brinkerhoff

Submitted to the Graduate Faculty as partial fulfillment of the requirements for

Master of Science Degree in

Health Outcomes and Socioeconomic Sciences

Dr. Sharrel Pinto, Committee Chair

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August 2016

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An Abstract of
Patient Perceptions of Medication Counseling Provided by Community Pharmacists

by

Andrew Brinkerhoff

Submitted to the Graduate Faculty as partial fulfillment of the requirements for the
Master of Science Degree in
Pharmaceutical Sciences, Health Outcomes and Socioeconomic Sciences

The University of Toledo

August 2016

Historically, the role of the pharmacist has been to dispense medications. Currently, this role has shifted to include more medication counseling with a focus on patient-centered care. However, various social and physical barriers exist in community settings that prevent effective medication counseling. These barriers create an environment that restricts the community pharmacist's ability to build relationships with patients' through medication counseling. It is vital for community pharmacists to more clearly understand what intrapersonal factors drive a patient to use them for medication counseling. If pharmacists better understood these factors, they could implement different strategies to engage patients. The application of the Health Belief Model could help pharmacists better understand their patients in order to improve medication counseling utilization. This study also provides a valid survey tool for community pharmacists to evaluate how these factors may predict the likelihood of individuals to participate in medication counseling. It is important to assess patients' perceptions of medication counseling provided by community pharmacists so pharmacists have a greater capability of increasing the

utilization of these services. This could aid pharmacists in building stronger relationships with patients, increasing the likelihood of patients to participate in more thorough; reimbursable counseling services in the future.

Objectives:

1. To explore relationships between factors that influence the likelihood to participate in medication counseling
2. To identify predictors of an individual's likelihood to participate in medication counseling provided by community pharmacists

Methods:

This cross-sectional study used a 38-question, 4 or 5-point Likert scale survey, which was developed using constructs from the Health Belief Model (HBM) to measure patient perceptions. This survey was created using elicitation interviews and previous research in patient perception. Each section of the survey represents a construct of the HBM. The validity and reliability of the survey was tested using post-hoc principal component analysis and Cronbach's alpha. This survey was administered to a convenient sample in shopping malls located in Ohio, Michigan, Indiana, and across the United States online using Amazon Mechanical Turk (AMT). Survey responses were analyzed using descriptive statistics, Pearson's correlation and multiple linear regression.

Results:

Between February-March 2016, there were a total of 500 individuals who agreed to take the survey. There were 448 responses retained for analysis. Cronbach's alpha for each of the five constructs was between .686 and .910. Standardized factor loadings ranged from 0.34 to 0.83 in the component analysis. The perceived susceptibility construct had weak positive correlations with all constructs being measured. There were positive correlations between past experience and perceived benefits, ($r = .484$; $P < .05$), and between past experience and likelihood, ($r = .736$; $P < .05$). There were negative correlations between past experience and perceived barriers, ($r = -.298$; $P < .05$) as well as between perceived benefit and perceived barriers ($r = -.263$; $P < .05$). Multiple linear regression analysis ($F = 43.993$; $P < .0001$, $R^2 = 0.595$) identified perceived susceptibility, past experience, perceived barriers, perceived benefits, and race/ethnicity as significant predictors of an individual's likelihood to participate in medication counseling.

Conclusion:

This study provides a reliable and valid tool that could be used to assess how patient perceptions influence the likelihood of participation in medication counseling. Patient perceptions were shown to influence an individual's likelihood to utilize medication counseling. Community pharmacists may want to engage all individuals in medication counseling because when an individual experiences counseling, they will be more likely to continue to use it, improving their perceived benefits and reducing perceived barriers to the medication counseling interaction.

I dedicate this thesis to

My parents – Lori and James Walsh

My brother – Nicholas Brinkerhoff

My sister – Anna Walsh

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Throughout my academic journey there are a countless number of individuals who have deeply impacted my success. The gratitude I express to all that have supported me up to this point goes unmatched. My successes have been fueled by the encouragement and inspiration of my colleagues, mentors, friends and family. These are the people in my life that I will always hold truly close to my heart.

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List of Abbreviations

ACA.....	Affordable Care Act
AMA.....	American Medical Association
AMT.....	Amazon Mechanical Turk
APhA.....	American Pharmacist Association
ASHP.....	American Society of Health System Pharmacists
HBM.....	Health Belief Model
JCPP.....	Joint Commission of Pharmacy Practitioners
MMA.....	Medicare Modernization Act
MTM.....	Medication Therapy Management
MTMP.....	Medication Therapy Management Program
NACDS.....	National Association for Chain Drug Stores
OBRA 90'.....	Omnibus Budget Reconciliation Act of 1986
PCA.....	Principal Component Analysis
SK&A.....	Specialized Knowledge & Applications
WHO.....	World Health Organization

List of Symbols

ρCalculated probability

Chapter 1

Introduction

1.1 Background

Since the passing of the Omnibus Budget Reconciliation Act of 1990 (OBRA 90'), the pharmacists' role has been primarily as a dispenser and counselor on medications.^{1,2} Recently, in 2013, the Affordable Care Act (ACA) placed an emphasis on quality of care and has required community pharmacists to adopt new roles and responsibilities providing team-based, patient-centered care to patients.³ In 2014, the Joint Commission of Pharmacy Practitioners (JCPP) determined an essential first step in this process is the establishment of a patient-pharmacist relationship that supports engagement and effective communication with patients.⁴ In general, community pharmacists have adopted and embraced these new roles.⁵ However, community pharmacists continue to experience challenges when providing medication counseling to patients at the pharmacy counter.⁶⁻¹¹ These challenges often cause patients to underutilize medication counseling in community pharmacy settings. This creates a challenging environment that inhibits the pharmacists ability to build relationships with patients through medication counseling.^{7,12-}

In order for a pharmacist to be effective in delivering medication counseling, the patient must first be aware of their role, and positively perceive the value of the intervention on their health. Due to previous experiences, many patients recognize the medication counseling role as primarily a physician responsibility.¹⁵ Beyond this, the lack of participation in medication counseling by patients' has been attributed to numerous social or physical barriers that exist.^{9,14,16-18} These barriers include but are not limited to: fear of asking the pharmacist questions, a lack of initiative, perceiving no need for medication counseling, lack of privacy, or the lack of a relationship with the pharmacist. These barriers cause disconnects in the expectations of both patients and pharmacists' in the medication counseling interaction; discouraging participation by patients. Studies have indicated that when patients participate in medication counseling they experience a higher quality of care and improved satisfaction with their pharmacy.¹⁶⁻

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While several barriers have been identified in the literature, the likelihood of a patient to participate in medication counseling has yet to be explored. In regards to medication counseling, patients with more severe diseases or multiple medications have an increased risk of incorrectly taking their medications. The Health Belief Model (HBM) has been used to explain why an individual will take action to prevent, screen for, or to control illness conditions. The model consists of six constructs; perceived susceptibility, severity, benefits, barriers, cues to action, and self-efficacy. The model proposes that if an individual regard themselves as susceptible to a condition, believe the potential consequences are severe, and believe the anticipated benefits of taking action

outweigh the barriers to action; they are likely to take action that they believe will reduce their risks.¹⁹

It is vital for community pharmacists to more clearly understand what intrapersonal factors influence a patient to participate in medication counseling. The application of the HBM could be used to explore the effect of these perceptions on the likelihood of an individual to seek medication counseling. Pharmacists must first build strong relationships with patients using more familiar counseling roles, such as medication counseling, in order to meet the needs of the current healthcare environment.²⁰⁻²² A failure to understand these perceptions may compromise pharmacists' ability to provide a full-range of counseling services.^{7,9} The misunderstanding of what drives patients toward medication counseling limits the pharmacists' ability to influence patient perception. The inability to influence patient perception restricts the pharmacist's ability to provide the roles they are expected and capable of providing.

1.2 Rationale

There is an expectation for community pharmacists to have a more proactive role in patient care. Patient perceptions of the community pharmacist have a direct impact on medication counseling. Recent findings suggest that patients continue to view the pharmacist solely as a medication advisor.¹ However, disconnects exist in this relationship, which have been attributed to patient perceptions of the community pharmacist, and barriers that exist in the relationship. These factors contribute to the underutilization of medication counseling by patients.

1.3 Goal

To study reasons patients underutilize medication counseling offered by pharmacists in community settings

1.4 Objectives

The objectives of this study are to:

- 1 To explore relationships between factors that influence the likelihood to participate in medication counseling
- 2 To identify predictors of an individual's likelihood to participate in medication counseling provided by community pharmacists

Chapter 2

Literature Review

2.1 History of the Community Pharmacist

1990-2000

In 1990, Dr. Linda Strand and Dr. Douglas Hepler laid the framework for how pharmaceutical care is delivered today.² Pharmaceutical care is defined as the “responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient’s quality of life.” These outcomes include: (1) cure of a disease, (2) elimination and reduction of a patients’ symptoms, (3) arresting or slowing of the disease process, and (4) preventing a disease or symptoms.² Ideally, pharmaceutical care should be provided to all patients receiving pharmacy products or services.³ In 1992, Strand et al. used the term pharmaceutical services to represent all of the services that pharmacists require to resolve a patient’s drug therapy problems. These services can range from providing medication information, to patient counseling, to medicine distribution.³ The World Health Organization (WHO) and the International Pharmaceutical Federation have both stated that counseling services should be

incorporated into standard daily interaction with patients in the community pharmacy setting.^{3,4}

The next major step toward the expansion of pharmacists into more direct patient-care roles occurred when The United States federal government enacted the Omnibus Budget Reconciliation Act of 1990 (OBRA 90'). This act went into effect January 1st, 1993 and included three components that influenced pharmacy practice.³ These were that pharmacists must perform a prospective drug utilization review, new record-keeping requirements, and the requirement to offer counseling to Medicare and Medicaid recipients. This act effectively began to shift the pharmacist's role toward patient-centered care. These counseling services included the pharmacist discussing with the patient the name of the drug, use and expectations, dosage, administration, side effects, store, drug-drug interactions, refill information, and any additional action that needs to be taken. States began to use this as a model to create patient counseling regulations for non-Medicaid beneficiaries. This resulted in all patients being entitled to the benefits⁵ that are associated with patient counseling standards of care.

2000-2010

Following OBRA 90', the Medicare Prescription Drug, Improvement, and Modernization Act (also referred to as the Medicare Modernization Act, or MMA) was created and signed into law on December 8, 2003, but did not go into effect until 2006.⁶ This act included a voluntary entitlement program for Medicare Beneficiaries, which aimed to help cover costs and increase access to prescription drugs under a new Part D of Title XVIII of the Social Security Act. It also included a provision requiring Part D

prescription drug plans to offer Medication Therapy Management (MTM) Services for eligible Medicare beneficiaries.⁶ However, there were discrepancies between plans on how to determine criteria for beneficiaries, the types of services provided and by whom.

In September 2005, eleven national pharmacy organizations published a consensus definition of MTM, which has since been used interchangeably with pharmaceutical care. MTM is defined as “a distinct service or group of services that optimize therapeutic outcomes for individual patients. MTM services are independent of, but can occur in conjunction with the delivery of a medication product.” These organizations collaboratively created the original patient care process framework for pharmacists to enhance the delivery of coordinated care community practice, which were known as the Core Elements of an MTM Service (version 1.0).⁷ The core elements framework includes five core elements; Medication therapy review (MTR), A person medication record (PMR), a medication action plan (MAP), intervention and referral, documentation and follow-up.⁷

These core elements were revisited and developed further in 2008 by the American Pharmacists Association (APhA) and the National Association of Chain Drug Stores (NACDS), referred to as the Core Elements of an MTM Service (Version 2.0). This version contains the original five core elements but added elements to allow MTM services to be implemented in more diverse patient care settings and placed a greater emphasis on patient transitions of care, health care provider collaboration, and documentation requirements.⁸

2010-Present

The Affordable Care Act (ACA) brought consistency to MTM programs by requiring plans to offer a minimum set of MTM services for Medicare beneficiaries. One improvement was developing a standardized format for the written summary and action plan following a comprehensive medication review (CMR) (section 10328 of the ACA).⁹ These changes went into effect starting in 2013 and it was determined that part D plan sponsors must offer MTM services to target beneficiaries. These services must include, at a minimum, strategies to improve adherence to prescription medications or some other therapeutic goal. This expansion supported pharmacist involvement in healthcare reform.

In 2014, the Joint Commission of Pharmacy Practitioners (JCPP)¹⁰ laid out the patient care for standardization in the way pharmaceutical care is delivered. They outlined the framework for pharmacists' involvement in patient-care process to enhance the patient-centered approach and collaboration with other members of the healthcare team. The commission determined that an essential first step is the establishment of a patient-pharmacist relationship that supports engagement and effective communication with patients, families, and caregivers throughout the process. The commission proposed that pharmacists should adopt the five principles of evidence-based practice: collect, assess, plan, implement, follow-up (monitor and evaluate).

2.2 The Health Belief Model

Many theories have been developed using different aspects of an individual's perception in an attempt to better understand why patients or consumers make decisions. Models focusing on patient-centered communication and customer-service interactions have been frequently used to describe patient-provider interactions. Many involve perceptions and their influence on decision-making in health.

The Health Belief Model (HBM) predicts why people will take action to prevent, to screen for, or to control illness conditions. This model has been used since 1950 in health behavior research, both to explain change and maintenance of health-related behaviors (Figure 2-1).^{11, 12} The model takes into account 6 constructs of intrapersonal perception; perceived susceptibility, perceived severity, perceived benefits, and perceived barriers, cues to action, and self-efficacy. The “combined levels of susceptibility and severity provide the energy or force to act and the perception of benefits (minus barriers) provide a preferred path of action.”¹¹ If an individual sees themselves as susceptible to a condition, believe there are serious consequences, believe a course of action is available that would be beneficial to them is reducing susceptibility or severity, and believe the anticipated benefits of taking the action outweigh the barriers, they are likely to take the action that will reduce their risks. The concept of perceived threat includes the combination of both perceived susceptibility and severity, and is relevant in many health-related behaviors.

The HBM is limited, as it does not consider the emotional component of behavior, such as relationships with the provider, or fear of treatment. One aspect of the HBM often missing is the construct Cue to Action, which can include different stimuli, such as

your doctor making a recommendation or seeing an advertisement. This construct has been shown to most influence relationships where both perceived threat and benefit are high and barriers are low.¹²

Interpersonal aspects of the pharmacist-patient relationship have also been examined using Social Exchange Theory to help identify how perceptions influence the quality of the relationship, and utilization of counseling services. This uses a sociological perspective that explains social change as a process of exchanges between parties.¹³⁻¹⁵

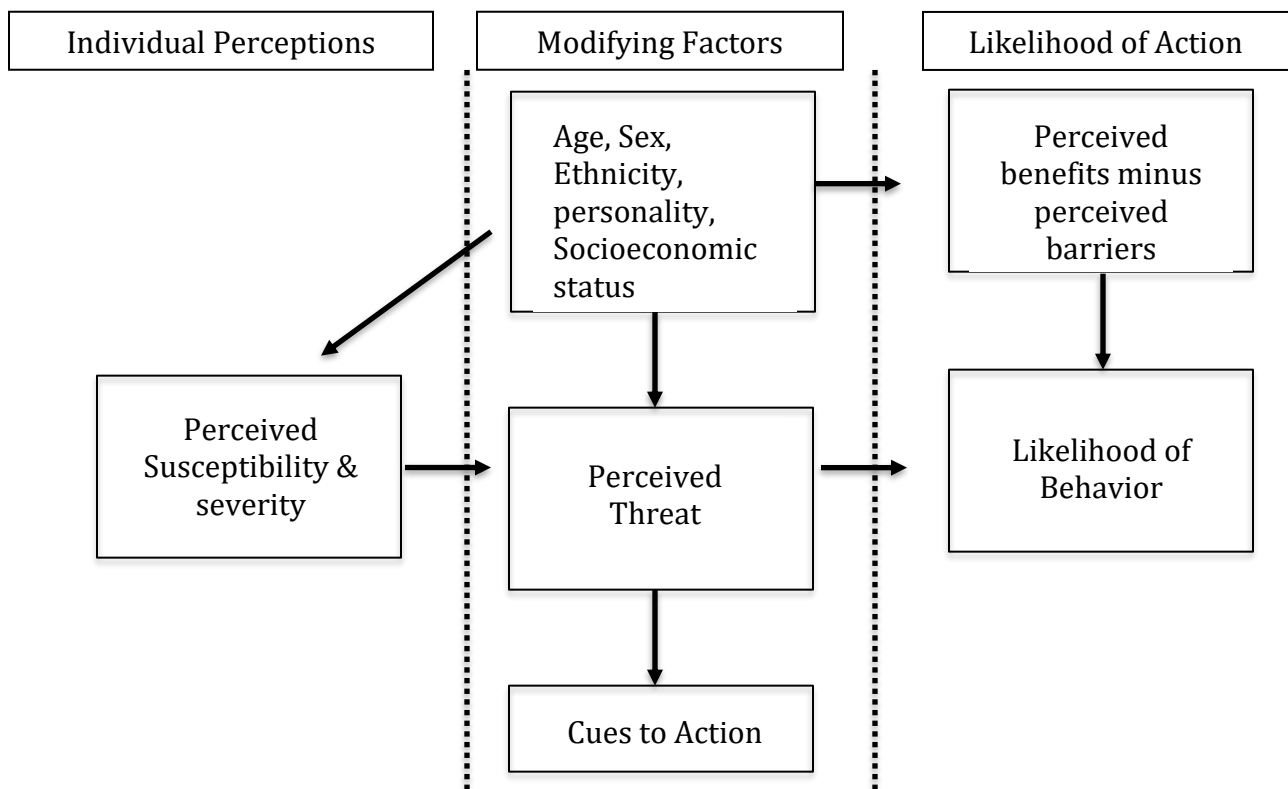


Figure 2-1: The Health Belief Model (Rosenstock, Glanz)

2.3 Patient Perceptions of the Role of the Counseling Pharmacist

In the past, patient perception and satisfaction were used interchangeably in literature.¹⁶⁻¹⁸ Multiple studies have attempted to identify primary areas of interest in patient perception with a only small variations in target areas. There is skepticism that exists, which claims patients do not know (or possibly care) enough about their medication or services to have a true perception.¹⁹ Several studies have examined whether patient characteristics such as age, race/ethnicity, gender, socioeconomic status, physical and mental health status, attitudes, and expectations of care may influence patient perception, but none have been shown to have a significant influence.²⁰⁻²² It is difficult to determine if these characteristics are what influence the patient perception of quality or if it could be more attributed to patient perceptions, expectations, or the care the patient actually received. One semi-consistent finding has been in regards to age, with older patients generally reporting more positively on perception of care.²⁰ The patients' view of pharmacy services has been categorized into different areas of importance to the patient. Worley et al. defined the three areas of perception of most importance as the Information Sharing role, Responsible behavior, and Communication related to taking an active role in their health care.²³ Other studies have broken down patient perception more specifically, citing aspects including access to care, communication and information, courtesy and emotional support, efficiency of care, and technical quality of services.²⁴ While these needs have been identified, patients have varying expectations for pharmacy services, which influences their perception.²⁵ There are two factors that have been found to strongly influence the perception of counseling

services. These are the professional communication with the pharmacist and the physical and emotional well-being of the patient.¹⁸

A study by Law et al in 2003²⁶ looked at physician, pharmacist, and patients' views of unmet needs in the healthcare process. It also examined which provider patients' perceived as responsible to provide these different needs. A key finding was that all of these groups perceived unmet needs in the medication use process. Neither physicians nor patients believed that pharmacists played a significant role in patient counseling and medication monitoring. In this study, patients recognized physicians as the provider of these roles.

A similar study measuring patient expectation of community pharmacy found that patients generally preferred to use physician-led services, but experiencing community pharmacy lead services resulted in an attitudinal shift toward the pharmacist. The results suggested that there would be benefit in developing the community pharmacists' role as a reviewer and advisor of patients' medications. There is evidence that supports patients' express interest in pharmacist involvement in their care, but are also reluctant to share personal information with the pharmacist.^{23, 25, 27} This may be due to communication barriers that may exist between the patient and pharmacist.

A study compared patient perception of whether patients felt various counseling services were more of the physician's role or pharmacist's role. Both pharmacists and patients disagreed on the responsibility for some of the counseling services that most pharmacists believe should be shared with the physician. Pharmacists also have been shown to place a stronger agreement than patients in their role of benefiting patients in their healthcare needs and concerns.^{14, 23, 28} This suggests future research might explore

how pharmacists can provide a full range of counseling services and how to inform patients of the extent of pharmacist education and training.

New community pharmacy models have also influenced patient perception. In some Medicare patient populations, it has been found that although there is a positive perception of community pharmacy, there is an underutilization of counseling services due to insurance diversification and the rise in the use of mail-order pharmacy.²⁹ This fails to create a perception that leads to a strong patient-pharmacist relationship. There are gaps in patient awareness of the importance of pharmacists within the healthcare profession, and conflicting perceptions on the importance of one-on-one counseling sessions improve medication use.^{30, 31}

2.4 Patient Perception of Barriers Associated with Counseling

There are various barriers identified in the literature that patients have noted as obstacles to receiving counseling services from their pharmacist. There are both personal and social barriers that may exist which inhibit a patient's desire to seek counseling from a pharmacist.^{27, 32, 33} Krueger et al.²⁷ performed structured interviews with a convenience sample of 600 patients frequenting community pharmacies in Wyoming, Colorado, Nebraska, Utah, Montana, and Arizona from 2006-2008.

While many of these patients desired information, they verbalized many common barriers for patients'. These patients were asked why people may choose not to ask pharmacists medication-related questions. The personal barriers that were cited include: fear or embarrassment, the patient lacks initiative, the patient perceives no need or has no questions, or the patient lacks time. The barriers patient's reported in regards to not

approaching the pharmacist included: seen as unapproachable, not seen as credible information source, not confident in their ability, more trust in physician to provide information, the patient does not know why, written information is adequate, and environmental barriers (i.e. a lack of privacy). Only 5% of patients in this study either trusted for pharmacist or asked questions.^{27, 34} These barriers along with the factors involved in “role ambiguity” contribute to the challenges associated with the utilization of community pharmacist provided counseling services.

2.5 Utilization of Medication Counseling in Community Pharmacy

As patients have become more aware of the benefits to pharmacist counseling, there have been varying levels of counseling reported in the literature. Community pharmacy faces both patient and provider barriers in providing counseling, which inhibit the ability for pharmacists to provide these services.

Technological advancements in adherence packaging, refill synchronization, and delivery services have been implemented and contribute to the reduction of barriers associated with counseling in community settings.³⁵⁻³⁸ Automation technologies, such as automatic refill, have begun to be used more frequently in community settings, but it has not increased the amount of counseling services provided to patients. One study compared community pharmacy practice workflow using and not using automation technology. Personnel at the automated site made significantly more offers to counsel patients, but the number of patients who received counseling did not differ significantly.³⁹ Recent (2014) findings suggest that half of this particular pharmacist population (total of about 750 pharmacists) still continue to report time pressures has a barrier to providing

advice to patients and roughly half a patients reported relying on a physician for these services.

There are several studies that examine how often counseling is provided in community settings. The level of participation by patients in these services has changed as transformations in pharmacy practice occurred. However, as it has been noted, there continues to be confusion in the pharmacists' role, which contributes to barriers and ultimately underutilization within the interaction. A survey distributed every three years from 1995-2010 detected no changes in pharmacist and patient attitudes role as a medication advisor.¹

Recent findings by Flynn, E. analyzed 100 random community chain pharmacies in Atlanta, GA.⁴⁰ Shoppers received (or were offered) verbal counseling from the pharmacist on only 43 of the 100 prescriptions, even though all shoppers legally should have been offered this service. Of these 43 counseling interactions, a pharmacist performed only 6. In addition, patients triggered counseling in 16 of these 43 instances. These findings were attributed to the pharmacist distance from patients', but the author suggested that the factors contributing to decreasing counseling rates should be explored further. In a similar study of community pharmacy measuring patient satisfaction, of the 55 pharmacies in the study, only six performed at or above overall expectation of the patient.⁴¹ These services gaps were attributed to failing to share decision-making, failure to discuss different treatment options, and a failure to ask about medical conditions.

One study considered differences that occur when the pharmacist hands the medication to the patient, and it was found to improve counseling services offered.

About 68% of these patients received oral communication with information being provided in 42% of encounters.⁴²

Patient perception of information received while beginning antidepressant and hypertensive treatment in community pharmacy was measured to determine gaps. It was found that generally, patients were unfamiliar with the counseling role of the pharmacist and regarded the information received there as limited.^{32, 43} Respondents did not have direct recommendations, but they felt pharmacists should try to assess patients' informational needs. This was suggested as a potential way to improve patient expectation of their counseling service.

Implementation of drive-through services in community pharmacy caused researchers to consider how this may influence the quality of the patient interaction and utilization of counseling services.⁴⁴ Pharmacists were found to spend less time (while technicians spent more time) with patients at the drive-through counseling area. Information provided varied significantly based on a new or refill prescription. However, there was a significant difference found in time spent counseling depending on whether the patient walked in or used the drive-through. Patients who used the drive-through also received a lower amount of information when counseled. Regardless of where the encounter occurred, pharmacy busyness influenced the amount of information translated. The author suggests that providing patient care at the drive-through counseling area may negatively influence the quality of patient care provided, and called for a standardization of drive-through services in pharmacy practice.⁴⁴

2.6 Amazon Mechanical Turk (AMT) Crowdsourcing Platform

This online service is hosted by Amazon, Inc. and began in 2005 as a method to “crowd-source” labor-intensive tasks that can be completed over the Internet. It has now been used commonly in social science research. Workers voluntarily sign up to use the service and complete tasks offered by ‘Employers’ for financial compensation. There has been research performed on both the demographics of the Amazon Mechanical Turk (AMT), and the quality of data reported by respondents using the service. It was found that in general the AMT population is younger, with 54% of the population being between 21-35 years old, compared to about 22% of the general population. There is also a disproportionate number of women using the service, at about 70%. In general, AMT workers have a lower annual income, with 65% at less than \$60,000 annually in comparison with about 40% in the general population. In general, the family size of AMT workers is smaller; with 55% not having children compared with 40% in general population. There was found to be equal geographic distribution across The United States and about equal race composition, although there was found to be a slightly higher Asian population.⁴⁵ The quality of data was assessed and it was found that experimenters should consider Mechanical Turk as a viable alternative for data collection. The author noted that the workers exhibit classic biases and pay attention to directions as much as subjects from traditional sources. This was supported by the fact that employers can reject payment to survey takers, which increases the accountability for AMT workers. Beyond this, the service was found to be practical in terms of cost and the reduction of threats to internal validity. There is risk of performing multiple experiments over time due to the risk of surveying the same subject, but there are methods to limit this risk.^{45, 46}

Chapter 3

Methodology

3.1 Study Design

This cross-sectional study was approved by the University's Institutional Review Board. A survey instrument was developed to meet the objectives of the study. Participants were surveyed face-to-face using convenience sampling in shopping malls located in the Ohio, Michigan, and Indiana area. In addition, surveys were administered on the Internet using the crowdsourcing service Amazon Mechanical Turk (AMT).⁴⁷ AMT invitations were sent to all users in The United States. All participants were offered a \$1.00 incentive via AMT or a \$1.00 scratch-off lottery ticket to participate. Study participants were approached between the dates of February 28th, 2016 – March 22nd, 2016. Before beginning the survey, participants were given a description of the survey, informed of their rights, confidentiality, and had the ability to withdraw participation any time before submitting responses.

3.1.1 Study Population

Patients in the study sample included any consenting, adult, English speaking persons willing and able to complete the survey independently. Any participant

completing the survey was required to be at least 18 years of age. For the purposes of this study, individuals were asked if they have filled or picked up any medication for themselves in the last year in order to be eligible to complete the survey.

3.2 Theoretical Framework

The theoretical framework used for this study was The Health Belief Model (HBM), which was been described in previous chapters. This model guided the creation of the study instrument. The original HBM includes perceived susceptibility, perceived severity, perceived benefits, perceived barriers, perceived threat, cues to action, self-efficacy and likelihood of taking preventative health action. For this study, the construct self-efficacy was not being measured. For the purposes of this study, perceived susceptibility was defined as a person's perceived risk to not take a medication correctly, this includes not understanding how to take it, the risk of side effects, potential drug interactions, or believing the medication does more harm than good. Perceived severity was defined as a person's perception of the consequences related to not taking medications correctly. This includes the medication not working correctly, the possible need for additional medications, negative consequences to their health (side effects), or financial consequences (emergency room, hospitalizations). Perceived benefits were defined as the benefits a person associates with speaking or interacting with a community pharmacist about their medications. Perceived barriers were defined as barriers a person experiences or associates with using a community pharmacist for medication counseling. Cue to action was defined as being involved or experiencing medication counseling with a community pharmacist in the past, or past experiences with medication counseling.

The likelihood to participate in medication counseling was defined as how likely a person is to participate in a medication counseling interaction with a community pharmacist in the future.

According to the HBM, the likelihood of a person to participate in medication counseling with a pharmacist may be predicted by perceived susceptibility, severity, barriers and benefits, and cues to action. It was hypothesized that perceived susceptibility and severity are what can drive a person to pursue medication counseling with a pharmacist, while perceived benefit and barriers also play a role. The past experience construct was hypothesized to influence an individual's perceived benefit and barriers. The combinations of these constructs were hypothesized to drive an individual to seek medication counseling from a community pharmacist (Figure 3-1).

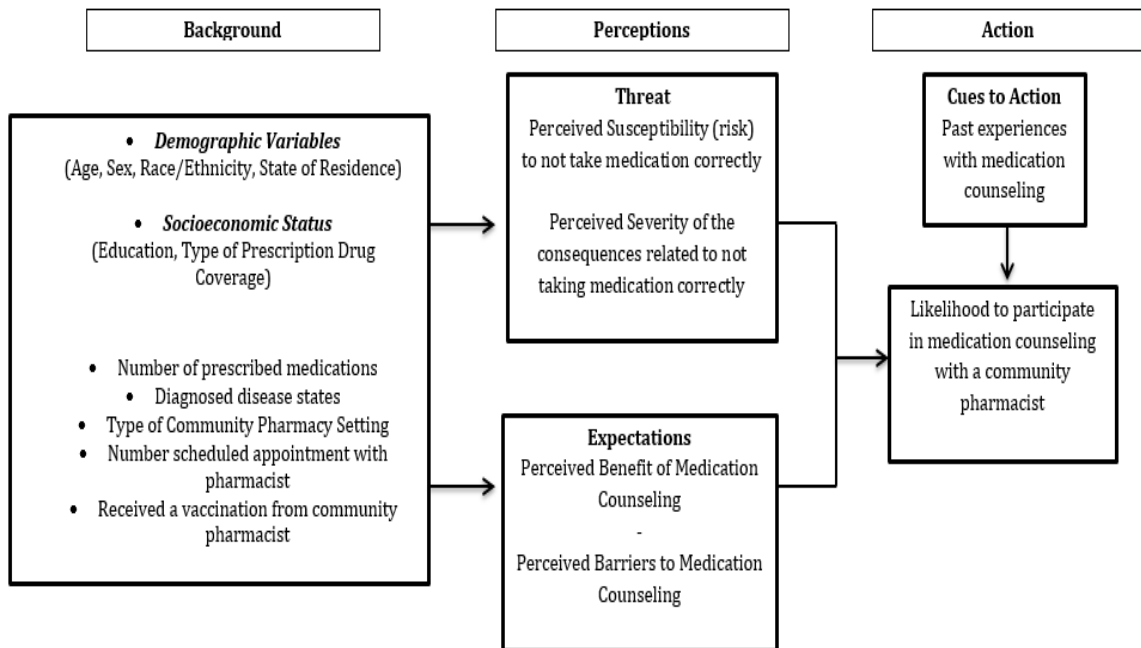


Figure 3-1: Adaptation of the Health Belief Model (HBM)

3.3 Survey Development

The survey was developed using the Health Belief Model as well as referencing previous research evaluating patient perceptions of barriers to counseling with a pharmacist. Prior to survey creation, elicitation interviews were conducted using two different populations. One population consisted of random individuals participating in a charity event in northeast Ohio. The second population consisted of random individuals attending an art show in northwest Ohio. Community pharmacists were defined for participants as “the pharmacist that you interact with when you visit your local pharmacy.”

The first population included a convenience sample of 30 participants at a charity event in Northeast Ohio. The population was engaged in open discussion by first asking if they had been to a community pharmacy in the last year, and then why they did or did not ask the pharmacist questions. The interviewer recorded notes during these conversations. The second population included a convenient random sample of 23 patients at a public art showing in Northwest Ohio. The population was engaged in open discussion by first asking if they were aware community pharmacists offered various counseling services, and also why they thought the pharmacist did or did not engage them in these counseling interactions. The layout of the questions that were asked is found in Appendix A. These findings suggested that many barriers patients shared aligned with barriers identified previous in literature, and that most participants had frequented a pharmacy within the last year.

A questionnaire was then created using the information gathered from these elicitation interviews, consulting with community pharmacy professionals, as well as referencing prior literature on community pharmacy counseling services, and barriers to

providing these services. The items that were created which assess perceived barriers were guided by the results of qualitative interviews by Krueger et al. The items that were created to assess past experiences and likelihood of medication counseling were guided by the results of a cross-sectional survey by Oyelami-Adeleye et al., which evaluated patients perspective of the pharmacists counseling role.⁴⁸ The survey was created using the SurveyGizmo software, a self-serve survey platform to deploy and analyze surveys through an online interface. The researcher was granted permission by SurveyGizmo to perform academic research with their platform. This permission letter can be found in Appendix B.

The survey instrument that was developed included eight sections with 43 items, and utilized the HBM. The first section provided participants with background information of the study and screened individuals for eligibility. The following sections were (2) “perceived susceptibility,” (3) “perceived severity,” (4) “past experiences,” (5) “perceived barriers,” (6) “perceived benefits,” (7) “likelihood of participation,” and (8) “demographic” section.

The introduction section screened for the eligibility of participants and collected consent. This section includes a description of what a community pharmacist is, and asks a participant if they have purchased (or picked up) a medication for themselves from a community pharmacy in the past year, and if they are at least 18 years of age. Participants are also provided a web link to the consent form for the study. Participants were also provided with examples of common community pharmacies.

The second section asks participants four questions on their perceived susceptibility to experiencing problems related to medication use, which were identified

in the literature. The responses were measured on a 5-point Likert-Type Scale ranging from Strongly Disagree, Disagree, Neither Agree or Disagree, Agree, or Strongly Agree. The third section asks participants four questions regarding perceived severity of the consequences to related to medication use. The responses were measured on a 5-point Likert-Type Scale ranging from Strongly Disagree, Disagree, Neither Agree or Disagree, Agree, or Strongly Agree. The fourth section consists of eight questions asking participants their past experiences with speaking with a pharmacist for medication counseling. The responses are measured on a 4-point Likert-Type Scale ranging from Never, Rarely, Sometimes, or Often.

The fifth section of the survey asks ten questions to participants, asking them to select their level of agreement with why they do not speak with a community pharmacist about their medications; and this is measured on a 5-point Likert-Type Scale similar to the scale in sections 1 and 2. This section also includes one open-ended question, in which participants have an opportunity to list any reason they feel they do not speak with a pharmacist. The sixth section of the survey asks nine questions to participants asking them to consider why they would speak with a community pharmacist; which was also measured in a 5-point Likert-Type scale of agreement. This section also includes one open-ended question, in which participants have an opportunity to list any reason they feel they do speak with a pharmacist. The seventh section of the survey asks eight questions to participants, asking how likely they will be in the future to use a pharmacist for various medication counseling services. The eighth and last section of the survey consists of items measuring demographic characteristics. The survey instrument can be found in Appendix C.

3.4 Survey Instrument Validity and Reliability

The survey was validated using face validity by the researcher and by consulting with professionals involved in community pharmacy practice. A post-hoc principal component analysis (PCA) was performed on the 43 item survey in order to determine if there were an appropriate number of constructs being utilized in the study. Following PCA, five items were removed for data analysis. Items were examined using content validity techniques by referencing professionals in community pharmacy practice and with experience in survey research. Internal Reliability was also tested using Cronbach's alpha for each construct being measured in the study. Each construct had at least an alpha value of .6, with some measuring as high as .9.

3.5 Data Collection

Study participants were identified in-person using convenient sampling in the Indiana, Michigan, and Ohio tristate area, and using the crowdsourcing utility Amazon Mechanical Turk (AMT) between the dates of February 28th, 2016 – March 22nd, 2016. The sample size was calculated using the population of the United States, which was found to be approximately 318.9 million. Projected sample size was estimated using publicly accessible Raosoft software using a 95% confidence interval at a 5% margin of error.⁴⁹ Three hundred eighty-five participants were needed to achieve a 95% confidence interval. In addition, to perform post-hoc validity testing, it is recommended to have a respondent to item ratio of 10:1.⁵⁰ The length of this survey required at least 430 responses for validity testing to be adequately performed. It is also recommended for survey research that 20% of individuals may not meet eligibility or decline participation. Due to these reasons, the projected goal sample size for the study was determined to be

500 participants. Upon the completion of data collection, there were 448 usable survey responses collected, meeting the recommended number for both post-hoc validity testing and generalizability.

The survey was administered using two different methods. The first method included 137 participants whom completed the survey in-person at the food court in three different shopping malls. Every third individual entering the food court was approached by the researcher and administered the survey on a computer tablet using a script. The second method consisted of 363 participants whom were surveyed online using AMT. Both groups were given identical surveys to complete. All participants were surveyed electronically using SurveyGizmo.

Those surveyed in-person were targeted in the food court area of the mall, and approached randomly. Participants were surveyed in Ohio on February 28th, March 5th, 6th, a mall in Michigan on March 12th and 13th, and Indiana on March 18th and 19th for 8 hour periods each. The researcher administered the survey at three different locations during data collection. There were two additional research associates that aided in the administration of the survey. Both of these associates were IRB trained, and also trained to administer the survey with a script (Appendix D).

Those surveyed using AMT were targeted on March 22nd throughout the day. The ‘batches’ of surveys administered were staggered throughout the day to attempt to allow participants in different time zones an opportunity to complete the survey. The first batch of 225 respondents was requested at 2:30pm EST and was completed by 8:30pm EST. The second batch of 138 respondents was requested at 9:00pm and was completed

by 11:30pm EST. Following this the study population reached the number requested during IRB approval.

At the conclusion of data collection, there were 19 participants who were disqualified for not meeting the study criteria. There was no information collected from non-responders. An additional 33 responses were “quarantined” and removed from data analysis. These responses were removed due to not passing the “Speed test” through the Data Cleaning utility offered by the SurveyGizmo software. This speed test “flagged” subjects whose item responses were answered at a rate significantly faster than the average, suggesting these respondents may not have answered the questions truthfully.

There was not any personally identifiable information collected from study participants, and all responses were completely anonymous. The data was stored in the SurveyGizmo software. A secure link (<https>) to the survey was provided to participants to ensure data was transported safely between the computer taking the response and the SurveyGizmo data servers. The date the survey was taken was removed from the data, and the order of respondents was randomized. Upon completion of data collection, all data was removed from the SurveyGizmo software and was stored under lock and key on a flash drive for the duration of data analysis.

3.6 Data Entry

The researcher exported the responses from SurveyGizmo and input responses into SPSS Statistics for Windows Version 22.0 at the conclusion data collection to evaluate and analyze patient survey responses.⁵¹

3.7 Data Analysis

Prior to data analysis, the survey was tested for validity using post-hoc principal component analysis (PCA). Following removal of items, the remaining items were tested for reliability using Cronbach's Alpha. Objective one was evaluated by using the responses of the items measuring perceived susceptibility, severity, cues to action, barriers, benefits and likelihood to participate in medication counseling using descriptive statistics and the mean score of each construct was reported. All demographic variables were also described. Objective one was also assessed using Pearson's correlation, which determined if there were relationships between the summations of scores for the constructs being measured. Objective two was assessed using multiple linear regression, which determined if the likelihood of a patient to participate in medication counseling with a pharmacist could be predicted by their perceived susceptibility, severity, cues to action, barriers, benefits and other demographic variables.

Chapter 4

Results

This chapter describes the analysis performed on the data that was collected during the study period, and also presents the results of the study. This chapter is divided into four sections. The first section described the validity and reliability of the questionnaire. The second section described the response rate and demographic characteristics of the study population. The third section described the responses for each section of the survey. The fourth section consisted of statistical analysis used to meet the objectives of the study.

4.1 Validity

The survey instrument was tested for content and face validity by having it reviewed by four members of pharmacy faculty. Two faculty members were involved in community practice, and two additional pharmacy faculties had experience in survey research within pharmacy practice. Their comments and suggestions were utilized for initial review of the survey.

Construct validity was assessed using post-hoc principal component analysis (PCA) was run on a 43-question survey for sections II, III, IV, V, VI, VII of the survey instrument. These sections measure patient perceptions of using a pharmacist for

medication counseling. The suitability of PCA was assessed prior to data analysis. It was determined that any factor greater than .32 would be retained for analysis. Items cross-loading at greater than .32 on multiple factors were removed from analysis. If the difference between the cross-loadings was .2 or less, the item was retained.⁵² Inspection of the correlation matrix showed that all variables had at least one correlation greater than 0.32. The overall Kaiser-Meyer-Olkin (KMO) measure was .903, which is considered ‘meritorious’ on Kaiser’s (1974) classification of measure values with individual KMO measures all greater than 0.7.⁵³ Bartlett’s test of sphericity was statistically significant ($p < .0005$), indicating that the data was likely factorable.⁵⁴

Table 4.1.1: KMO and Bartlett’s Test

Kaiser-Meyer-Olkin Measure (KMO) of Sampling Adequacy		.903
Bartlett’s Test of Sphericity	Approx. Chi-Square	10177.749
	Df	903
	Sig.	.000

PCA revealed 10 components that had eigenvalues greater than one and which explained 66.06% of the total variance in the data; respectively (27.49%, 8.66%, 6.00%, 5.62%, 3.88%, 3.32%, 3.18%, 2.86%, 2.68%, 2.37%). Based on the visual evaluation from the initial Scree plot, it was determined that five components should be retained (Figure 4.1.1). Due to this, a forced extraction was carried out for 5 factors. Results show a 5-factor solution for the data. These five factors are guided by the HBM: 1) Perceived susceptibility, 2) Perceived severity, 3) Experiences, 4) Perceived barriers, and 5) Perceived benefit.

All items loaded into their hypothesized scales, except for items 9-16 from section two that represented past experience and items 36-43 from section seven that represented

the likelihood of participating in medication counseling. These items loaded onto the same factor, 'experiences'. Due to this, the factor 'experiences' was divided into two subdomains, 'past experience' and 'likelihood.'

It was determined that these items were worded similarly, and this caused the items to load onto the same factor. The wording of the items explained that one set of items focused on past experiences, and the other emphasized the likelihood of taking action. The item, "It is possible that I may not take my medications as prescribed or directed because I don't understand how to take my medications correctly" did not have high factor loadings with the hypothesized factor, but was retained in the survey. It was determined that the low factor loading was due to the way the question was worded, as many individuals do not want to concede that they misunderstand how to take their medications. Together, the 5-factors accounted for 51.65% of the total variance.

The results of the PCA are found in table 4.1.2. All bolded factor loadings were considered for analysis. There were five items (17, 19, 20, 33, 35) that either did not load greater than .32 into the hypothesized factor, or loaded highly into multiple factors. These five items were removed when conducting data analysis.

Three of these items were removed from the perceived barriers factor. The items, "In general, I do not speak with a pharmacist about my medication(s) because I am not interested in discussing my medications", and "In general, I do not speak with a pharmacist about my medication(s) because I do not think I need additional information about my medications" were removed for loading on multiple factors. This may also be because of the wording of the items, and individuals being reluctant to acknowledge that they are uninterested in discussing their medications. The item, "In general, I do not

“speak with a pharmacist about my medication(s) because I trust my physician to provide me with all necessary medication information” also loaded on multiple factors and was removed because this item addressed an individual’s perception of their physician, not their pharmacist.

Two items were removed from the perceived benefit factor. One item, “In general, I would speak with a pharmacist about my medication(s) because my physician does not provide me with enough information about my medication(s)” was removed because it did not load into the hypothesized factor. While it did load highly into the factor, perceived susceptibility, it was determined that this item should be removed as it addressed the perception of their physician. The other item, “In general, I would speak with a pharmacist about my medication(s) because the pharmacist is interested in discussing my medications with me” loaded on multiple factors and did not strongly load into the hypothesized factor. This suggests that individuals may have an expectation for the pharmacist to have interest in discussing their medications, but do not necessarily perceive this as a benefit to medication counseling. Due to this, the item was removed from the instrument.

The use of the crowdsourcing service Amazon Mechanical Turk (AMT) strengthens the internal validity of the study.⁴⁵ By conducting the survey through AMT, there was decreased risk for experimenter bias, such as social desirability bias or subject crosstalk bias. However, there was an increased risk for extreme responding and acquiescence bias. To minimize this, the researcher utilized a data cleaning tool provided by the SurveyGizmo software. This data cleaning tool removed responses that were marked as repetitive, or responses in which items were completed far above the average.

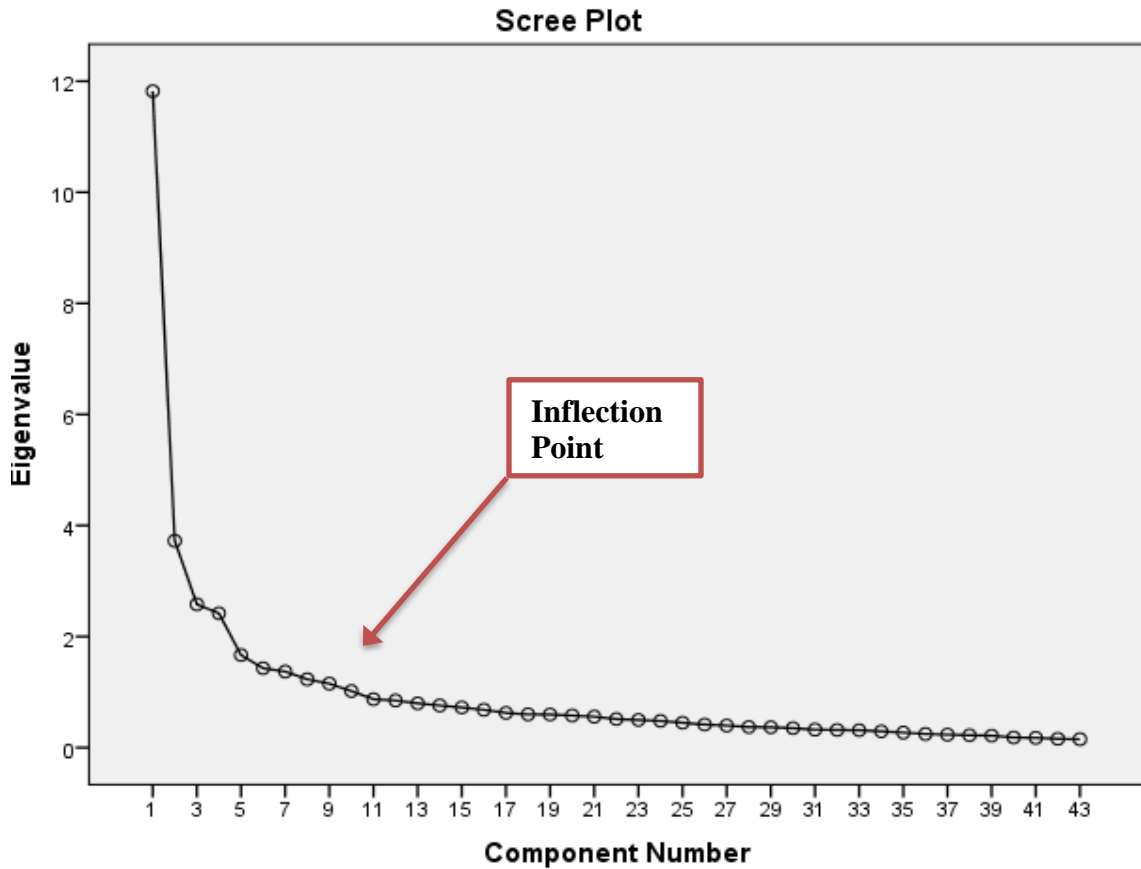


Figure 4-1: Scree Plot from post-hoc Principal Component Analysis

Table 4.1.2: Principal component analysis results for perceived susceptibility (items 1-4), perceived severity (items 5-8), cue to action (items 9-16), perceived barriers (items 17-26), perceived benefit (items 27-35), and future likelihood (items 36-43) (n = 448)

Item #	Items	Component ^a				
		Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
1	It is possible that I may not take my medication(s) as prescribed or directed because I don't understand how to take my medications correctly	.339	.007	.162	.136	-.028
2	It is possible...because I worry about harmful side effects I may experience from taking my medications	.687	.104	.140	.126	-.055
3	It is possible...because I worry about the possible risk of my medications interacting with each other	.687	.147	.154	.097	.059

4	It is possible...because I believe medications do more harm than good	-.555	.178	-.153	-.115	.057
5	If I do not take my medication as prescribed or directed my medication(s) will not be as effective for its purpose	-.064	.701	.038	.025	-.074
6	If I do not take...I may experience a need for additional medication(s) to treat my health condition(s) or disease	.109	.774	.032	-.028	.120
7	If I do not take... I may experience consequences to my health	.035	.832	-.022	-.044	-.047
8	If I do not take... I may experience financial consequences (examples: hospitalization or emergency room costs)	.073	.737	.115	-.027	.137
9	In the past, when I have picked up or purchased a medication, I have spoken with a pharmacist About what my medication is used for	.083	.035	.697	-.224	.154
10	In the past...I have spoken with a pharmacist about how to take my medication correctly	.073	.091	.714	-.141	.128
11	In the past... I have spoken with a pharmacist about common side effects or adverse events I may experience	.143	.084	.737	-.209	.151
12	In the past... I have spoken with a pharmacist about how I will know if my medication is working	.040	-.058	.732	-.014	.060
13	In the past... I have spoken with a pharmacist about medication interactions that I may experience (or what to avoid)	.146	.095	.684	-.236	.101
14	In the past...I have spoken with a pharmacist to learn if any alternative medications could help me	.142	.003	.617	.039	.087
15	In the past... I have spoken with a pharmacist about what to do if I miss doses of my medication	.019	-.023	.697	-.058	.128
16	In general, in the past how often have you spoken with a community pharmacist when you have picked up or purchased a medication?	.063	.146	.674	-.273	.084
17	In general, I do not speak with a pharmacist about my medication(s) because I am not interested in discussing my medications	-.147	-.078	-.391	.352	-.343

18	In general, I do not speak because... I do not have time to speak about my medication	-.021	-.081	-.094	.475	-.230
19	In general, I do not speak...because I trust my physician to provide me with all necessary medication information	-.466	-.018	-.060	.443	-.008
20	In general, I do not speak...because I do not think I need additional information about my medication	-.384	.048	-.311	.393	-.273
21	In general, I do not speak...because I would use the internet for additional medication information	-.059	.029	-.078	.344	-.177
22	In general, I do not speak...because the pharmacist is not accessible enough to discuss my medication	.416	.001	-.173	.621	.105
23	In general, I do not speak...because the pharmacist does not have time to speak to me about my medication	.415	.053	-.213	.659	.065
24	In general, I do not speak ...because the pharmacist thinks my physician provides me with all of the necessary medication information	.025	.038	-.108	.711	-.006
25	In general, I do not speak... because the pharmacist does not understand how my medication will affect my health condition	.261	-.112	-.011	.625	-.181
26	In general, I do not speak...because the pharmacist is not interested in speaking to me about my medication	.324	-.047	-.220	.710	-.039
27	In general, I would speak with a pharmacist about my medication(s) because It will help me improve my health, or get my disease under control	-.009	-.016	.325	-.107	.716
28	In general, I would speak... because I will feel more confident that I am taking the correct medication	.055	-.010	.281	-.113	.666
29	In general, I would speak... because I will feel more confident that I will take my medication correctly	.003	.048	.287	-.135	.677
30	In general, I would speak... because I will be less likely to experience a need for additional medication(s) to treat my health condition(s) or disease	-.064	.023	.281	.048	.761
31	In general, I would speak... because I will be less likely to experience consequences to my health	.036	.103	.222	-.028	.725

32	In general, I would speak... because I will be less likely to experience negative financial consequences (examples: hospitalization or emergency room costs)	.040	.059	.241	-.072	.719
33	In general, I would speak... because my physician does not provide me with enough information about my medication(s)	.461	.074	.048	.029	.258
34	In general, I would speak... because the pharmacist is the most reliable source for medication information	.136	-.057	.079	-.281	.488
35	In general, I would speak... because the pharmacist is interested in discussing my medications with me	-.165	-.013	.422	-.335	.371
36	In the future, when picking up or purchasing a medication, how likely are you to speak with a pharmacist about what my medication is used for	.006	-.054	.741	-.151	.228
37	In the future... about how to take my medication correctly	.054	.036	.742	-.075	.226
38	In the future... about common side effects or adverse events I may experience	.138	.128	.708	-.136	.257
39	In the future... about how I will know if my medication is working	.032	-.088	.724	.065	.240
40	In the future... about medication interactions that I may experience (or what to avoid)	.121	.141	.629	-.127	.311
41	In the future... to learn if any alternative medications could help me	.093	-.052	.578	.105	.157
42	In the future... about what to do if I miss doses of my medication	.058	-.023	.646	-.090	.199
43	In general, in the future how likely will you be to speak with a community pharmacist when picking up or purchasing a medication	.119	.072	.699	-.275	.243

^aExtraction Method: Principal Component Analysis
Varimax Rotation with Kaiser Normalization

Standardized factor loadings greater than or equal to .32 are in bold face type
Factors in red did not load greater than or equal to .32 (or loaded into multiple factors)
and were removed from analysis

Percentage of variance explained = 51.65%

The majority of the items loaded into their hypothesized scales, with the exception for some of the items (36-43), which represent experiences. Factor loadings for each item is described below:

1. Perceived Susceptibility: This factor was measured by items 1-4 under section I in the survey. All of these items loaded into factor 1. Item 1 loaded at .339, which is a slightly low factor loading. All other items factor loadings in this section were above .32 and were retained for data analysis.
2. Perceived Severity: This factor was measured by items 5-8 under section II of the survey. All of these items loaded into factor 2. The factor loadings were all above .32 and were retained for analysis, with all items greater than 0.70.
3. Experiences: This factor was measured by items 9-16 under section III of the survey and items 36-43 under section VI. Items 9-16 were meant to measure past experiences, and items 36-43 were meant to measure future likelihood as the outcome of the evaluation. All of these items loaded into factor 3. The factor loadings for these items were all above .32 and were retained for analysis. These items seemed to load on the same factor due to the similar wording of items regarding cues to action and future likelihood. Therefore, for analysis, the factor 'experiences' was divided into two subdomains, "cues to action" and "future likelihood to have experience." The scores for these items were summed and analyzed as separate constructs.

4. Perceived Barriers: This factor was measured by items 17-26 under section IV of the survey. Items 17, 19 and 20 were removed from data analysis due to cross loading. Due to this, the researcher determined these items did not accurately measure the construct. All other items in the section loaded into factor 4. The factor loadings for these items were all above .32 and were retained for analysis.

5. Perceived Benefits: This factor was measured by items 27-35 under section V of the survey. All items in this section loaded into factor 5 except items 33 and 35. This item was removed from data analysis because the researcher determined it did not accurately measure the construct, as it was measuring the perception of the benefits of the pharmacist, not the information exchanged during counseling. All other items in this section loaded into factor 5. The factor loadings for these items were all above .32 and were retained for analysis.

4.2 Reliability

The reliability of the survey was determined using Cronbach's coefficient alpha. The survey consists of eight total sections. Reliability was tested for six sections of the survey. The first section included instructional text and eligibility screening. The eighth section consists of demographic questions and was not tested for reliability. The six sections that were measured consisted of 38 total items, following the removal of items during post-hoc validity testing (Table 4.2.1). These sections will henceforth be referred to as sections I-VI.

Section I asked participants' four items related to perceived susceptibility. Following post-hoc PCA, 4 items remained for reliability testing. The reliability for this section of the survey was $r = 0.686$. The means of items in the factors perceived susceptibility and ranged from 1.75 to 3.72. Section II asked four items related to their perceived severity of the consequences of improperly taking medications. The corresponding reliability was $r = 0.773$. The means of items in this factor ranged from 3.56 to 3.93. Section III asked participants eight items related to their past experience with medication counseling with a community pharmacist.. The corresponding reliability was $r = 0.902$. The means of the items ranged from 1.91 to 2.61. Section IV asked ten items related to perceived barriers to speaking with a pharmacist about medications. The means of items on this factor ranged from 2.15 to 3.41. Following post-hoc PCA, seven items remained for reliability testing. The corresponding reliability was $r = 0.786$.

Section V asked participants nine items related to perceived benefits to speaking with a pharmacist about medications. The means of these items ranged from 3.20-3.83. Following post-hoc PCA, 6 items remained for reliability testing. The corresponding reliability was $r = 0.862$. Section VI asked eight questions on the likelihood to participate in medication counseling with a pharmacist in the future. The corresponding reliability was $r = 0.910$. Due to Section III and Section VI each being subdomains of the factor, 'experiences,' their reliabilities were also analyzed together, and the corresponding reliability was $r = 0.939$.

Table 4.2.1: Reliability Statistics using Cronbach’s Alpha

Section(s)	N	N of items	Factor	Item means	Corrected total-item correlation	Cronbach’s Alpha
I	447	4	Perceived Susceptibility	1.75-3.72	0.258-0.621	0.686
II	448	4	Perceived Severity	3.56-3.93	0.480-0.660	0.773
III	445	8	Past Experience	1.91-2.61	0.547-0.781	0.902
IV	444	7	Perceived Barriers	2.15-3.41	0.242-0.704	0.787
V	446	7	Perceived Benefits	3.20-3.83	0.409-0.708	0.874
VI	446	8	Likelihood	2.30-2.74	0.553-0.763	0.910
III + VI	443		(Experiences)	1.91-2.74	0.518-0.757	0.939

4.3 Response Rate

Responses from 500 individuals were collected during the study period. The total response rate, taking into account refusals, was 93.5% (500/535). There was no information collected on non-responders. There were 19 participants who attempted to take the survey, but were disqualified for not meeting the study criteria. The data-cleaning tool included with the SurveyGizmo software removed an additional 33 responses. This tool removed respondents whose item responses were answered at a rate significantly faster than the average, suggesting these respondents may not have answered the questions truthfully. In total, there were 448 responses retained for data analysis (Table 4.3.1).

Table 4.3.1: Response Description (N=448)

Respondents surveyed in-person	137
Respondents surveyed using AMT	+ 363
Total completed Surveys	500
Disqualified due to data cleaning tool	- 33
Disqualified due to study criteria	- 19
Total respondents for analysis	448

4.4 Respondents' Characteristics

Table 4.4.1 describes the demographics of the study population. The majority of the population was between 18-34 year of age (49.1%), and only a small portion were older than 55 (14.9%). The population had about an equal number of males (48.7%) and females (50.2%). A majority of the population was Caucasian (77.5%) and had at least an associate's degree level of education or greater (61.7%). Participants were primarily located in the Midwest or Southern parts of The United States (70.6%). The majority of the population had private or employer sponsored insurance (68.1%) and frequented a chain community pharmacy (65.8%). Most of the population had not received a vaccination from a community pharmacy (66.3%). The population was most commonly prescribed 1-2 medications (59.4%) and most participants either had one (37.3%) or two (18.3%) diagnosed disease states.

Table 4.4.1: Demographic characteristics of survey respondents (N = 448)

Characteristic	N (%)
Gender	
Male	218 (48.7)
Female	225 (50.2)
Other	2 (.4)
No response	3 (.7)
N	448
Age	
18-24	57 (12.7)
25-34	164 (36.4)
35-44	96 (21.3)
45-54	62 (13.8)
55-64	52 (11.6)
65-74	13 (2.9)
74-84	2 (.4)
No response	4 (.9)
Race/Ethnicity	
White or Caucasian	347 (77.5)
Black or African American	29 (6.5)
Hispanic or Latino	23 (5.1)
American Indian and Alaskan Native	5 (1.1)
Asian	32 (7.1)
Native Hawaiian or Other Pacific Islander	1 (.2)
Two or more races	9 (2.0)
Other	1 (.2)
No response	1 (.2)
Education	
Some high school	5 (1.1)
High school graduate/GED	57 (12.7)
Some college	108 (24.1)
Associate degree	51 (11.3)
Bachelor degree	173 (38.6)
Master's degree	44 (9.8)
Doctorate degree	9 (2.0)
No response	1 (.2)
Region of Residence (United States)	
Northeast	57 (12.7)
Midwest	175 (39.1)
South	141 (31.5)
West	73 (16.3)
Pacific	2 (0.4)

Prescription Drug Coverage	
Medicare / Medicaid	91 (20.3)
Private or Employer Sponsored Insurance	305 (68.1)
Veteran's Affairs	9 (2)
Cash / No Third Party Insurance	40 (8.9)
No response	3 (.7)
Type of Community Pharmacy	
Independent Community Pharmacy	60 (12.9)
Chain Community Pharmacy	295 (65.8)
Mass Merchandiser Pharmacy	71 (15.8)
Mail-order Pharmacy	19 (4.2)
Hospital Pharmacy	5 (1.1)
Vaccination from a Community Pharmacy	
Yes	139 (31.0)
No	297 (66.3)
Not sure	10 (2.2)
No response	1 (.2)
Number of Prescribed Medications	
1-2	266 (59.4)
3-4	69 (15.4)
5-7	21 (4.7)
More than 7	12 (2.7)
No prescribed medications	80 (17.8)
Number of diagnosed Disease States	
One disease state	167 (37.3)
Two disease states	82 (18.3)
Three disease states	44 (9.8)
Four disease states	13 (2.9)
Five disease states	4 (.9)
Six disease states	2 (.4)
Seven disease states	1 (.2)
Eight disease states	2 (.4)
Does not apply	81 (18.1)
Prefer not to answer	52 (11.6)

4.5 Item Responses

Items in sections I and II of the survey measure an individuals perceived susceptibility and perceived severity (Table 4.5.1, 4.5.2). In general, participants did not

report high level of agreement on the four items assessing susceptibility ($\mu = 11.57 \pm 2.44$, range 4-20). The items “I worry about harmful side effects I may experience from taking my medication” ($\mu = 3.13 \pm 1.26$), and “I worry about the possible risk of my medications interacting with each other” ($\mu = 2.97 \pm 1.25$) had the highest agreement. There was stronger agreement with the four items assessing perceived severity ($\mu = 14.89 \pm 3.41$, range 4-20). Participants most strongly agreed that failing to take medications as prescribed will cause “My medication to not be as effective for its purpose” ($\mu = 3.82 \pm 1.2$), and “I may experience consequences to my health” ($\mu = 3.93 \pm 1.00$).

Table 4.5.1: Survey items and responses – Perceived Susceptibility (Section I)^a (N=447)

Item #	It is possible that I may not take my medication(s) as prescribed or directed because...	SD	D	Neither	A	SA	Mean±SD
1	I don't understand how to take my medications correctly	231	150	17	43	6	1.75 (1.001)
2	I worry about harmful side effects I may experience from taking my medications	63	96	52	191	45	3.13 (1.263)
3	I worry about the possible risk of my medications interacting with each other	69	116	52	179	31	2.97 (1.248)
4 ^b	I believe medications do more harm than good	133	159	69	67	19	2.28 (1.165)
Overall ^c							11.57 (2.44)

^a Each item measured by 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neither Agree or disagree (Neither), 4 = Agree (A) 5 = Strongly agree (SA)

^b Reverse coded due to negative factor loading

^c Range of scale: 4-20

Table 4.5.2: Survey items and responses – Perceived Severity (Section II)^a (N=448)

Item #	If I do not take my medications as prescribed or directed...	SD	D	Neither	A	SA	Mean±SD
5	My medication(s) will not be as effective for its purpose	27	62	23	188	148	3.82 (1.204)
6	I may experience a need for additional medication(s) to treat my health condition(s) or disease	27	61	70	215	75	3.56 (1.104)
7	I may experience consequences to my health (examples: health condition gets worse, disease state uncontrolled, side effects of medication)	20	26	44	235	123	3.93 (1.002)
8	I may experience financial consequences (examples: hospitalization or emergency room costs)	23	70	62	212	81	3.58 (1.109)
Overall ^b							14.88 (3.41)

^a Each item measured by 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neither Agree or disagree (Neither), 4 = Agree (A) 5 = Strongly agree (SA)

^b Range of scale: 4-20

Section III of the survey represents items measuring past experience on a 4-point frequency scale (Table 4.5.3). Overall, participants did not report a high frequency of the eight items assessing cues to action, or past experiences with medication counseling ($\mu = 18.13 \pm 5.86$, range 8-32). The most common past experiences included items directly related to medication information, including speaking with a pharmacist “About what my medication is used for” ($\mu = 2.44 \pm .942$), and “About how to take my medication correctly” ($\mu = 2.52 \pm .993$). In general, participants reported “sometimes” speaking their pharmacist at some level during the interaction ($\mu = 2.62 \pm .881$).

Table 4.5.3: Survey items and responses – Past Experiences (Section III)^a (N=448)

Item #	In the past, when I have picked up or purchased a medication, I have spoken with a pharmacist...	N	R	S	O	Mean ± SD
9	About what my medication is used for (examples: itch, rash, insomnia, depression, high blood pressure, diabetes)	87	132	172	56	2.44 (.942)
10	About how to take my medication correctly (how many to take and the time of day)	84	127	156	80	2.52 (.993)
11	About common side effects or adverse events I may experience (or how to avoid them)	103	138	140	67	2.38 (.999)
12	About how I will know if my medication is working	189	141	84	32	1.91 (.945)
13	About medication interactions that I may experience (or what to avoid)	113	120	159	56	2.35 (.992)
14	To learn if any alternative medications could help me	191	118	106	33	1.96 (.979)
15	About what to do if I miss doses of my medication	169	149	99	31	1.98 (.936)
16	In general, in the past how often have you spoken with a community pharmacist when you have picked up or purchased a medication	29	178	175	65	2.62 (.811)
Overall ^b						18.13 (5.86)

^a Each item measured by 1 = Never (N), 2 = Rarely (R), 3 = Sometimes (S), 4 = Often (O)

^b Range of scale: 8-32

Section IV of the survey with questions measuring an individuals perceived barriers to speaking with a pharmacist about medications (Table 4.5.4). Overall, there were not a high number of barriers reported by the population ($\mu = 18.32 \pm 5.24$, range 7-35). However, there was one barrier that was most commonly reported by the population. Participants most commonly agreed to not speaking with a pharmacist about their medications because, “I would use the internet for additional medication information” ($\mu = 3.42 \pm 1.217$).

Table 4.5.4: Survey items and responses – Perceived Barriers (Section IV)^a (N=448)

Item #	In general, I do not speak with a pharmacist about my medication(s) because...	SD	D	Neither	A	SA	Mean ± SD
17 ^b	I am not interested in discussing my medication	73	151	65	131	28	2.75 (1.214)
18	I do not have time to speak about my medication	85	170	73	100	20	2.55 (1.159)
19 ^b	I trust my physician to provide me with all necessary medication information	19	51	84	216	78	3.63 (1.032)
20 ^b	I do not think I need additional information about my medication	37	112	56	196	47	3.23 (1.178)
21	I would use the internet for additional medication information	37	85	58	187	80	3.42 (1.217)
22	The pharmacist is not accessible enough to discuss my medication	91	177	72	83	25	2.50 (1.168)
23	The pharmacist does not have time to speak to me about my medication	89	148	89	90	31	2.61 (1.207)
24	The pharmacist thinks my physician provides me with all of the necessary medication information	61	97	153	116	21	2.86 (1.092)
25	The pharmacist does not understand how my medication will affect my health condition	127	183	86	44	7	2.15 (.995)
26	The pharmacist is not interested in speaking to me about my medication	116	181	88	45	17	2.25 (1.068)
Overall ^c							18.32 (5.24)

^a Each item measured by 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neither Agree or disagree (Neither), 4 = Agree (A) 5 = Strongly agree (SA)

^b Removed from data analysis due to post-hoc validity testing, only descriptive statistics reported

^c Range of scale: 7-35

Section V of the survey contains questions measuring perceived benefits to speaking with a pharmacist about medications (Table 4.5.5). In general, participants saw more benefit in medication counseling in comparison to barriers ($\mu = 21.16 \pm 4.66$, range

7-35). Participants most commonly agreed to speaking with a pharmacist about their medications because, “I will feel more confident I am taking my medication correctly” ($\mu = 3.83 \pm .931$), “It will feel more confident I am taking the correct medication” ($\mu = 3.67 \pm .997$), and “It will help me improve my health, or get my disease under control” ($\mu = 3.50 \pm .986$).

Table 4.5.5: Survey items and responses – Perceived Benefits (Section V)^a (N=448)

Item #	In general, I would speak with a pharmacist about my medication(s) because...	SD	D	Neither	A	SA	Mean \pm SD
27	It will help me improve my health, or get my disease under control	16	70	80	238	43	3.50 (.986)
28	I will feel more confident that I am taking the correct medication	19	50	55	258	66	3.67 (.997)
29	I will feel more confident that I will take my medication correctly	14	39	37	277	81	3.83 (.931)
30	I will be less likely to experience a need for additional medication(s) to treat my health condition(s) or disease	22	87	122	182	34	3.27 (1.017)
31	I will be less likely to experience consequences to my health (examples: health condition gets worse, disease state uncontrolled, side effects)	15	63	81	240	49	3.55 (.975)
32	I will be less likely to experience negative financial consequences (examples: hospitalization or emergency room costs) related to inappropriate medication use	19	86	104	192	47	3.36 (1.04)
33 ^b	My physician does not provide me with enough information about my medication(s)	59	176	75	107	31	2.72 (1.166)
34	The pharmacist is the most reliable source for medication information	26	87	149	144	42	3.20 (1.042)
35 ^b	The pharmacist is interested in discussing my medications with me	20	61	139	186	42	3.38 (.982)
Overall ^c							24.36 (5.17)

^a Each item measured by 1 = Strongly Disagree (SD), 2 = Disagree (D), 3 = Neither Agree or disagree (Neither), 4 = Agree (A) 5 = Strongly agree (SA)

^b Removed from data analysis due to post-hoc validity testing, only descriptive statistics reported

^c Range of scale 7-35

Section VI of the survey includes items measuring a respondent’s likelihood to speak with a pharmacist about their medications (Table 4.5.6). Participants responded with a moderate likelihood to participate in medication counseling ($\mu = 20.49 \pm 5.35$, range 8-32). Participants reported being most likely to speak with a pharmacist “about medications interactions I may experience (or what to avoid)” ($\mu = 2.74 \pm .858$), “about common side effects or adverse events I may experience (or how to avoid them)” ($\mu = 2.73 \pm .837$), or speaking with a pharmacist in general ($\mu = 2.71 \pm .795$).

Table 4.5.6: Survey items and responses – Likelihood to Participate (Section VI)^a (N=448)

Item #	In the future, when picking up or purchasing a medication, how likely are you to speak with a pharmacist...	VU	U	L	VL	Mean \pm SD
36	About what my medication is used for (examples: itch, rash, insomnia, depression, high blood pressure, diabetes)	60	157	182	49	2.49 (.859)
37	About how to take my medication correctly (how many to take and the time of day)	44	139	197	68	2.65 (.855)
38	About common side effects or adverse events I may experience (or how to avoid them)	36	124	211	77	2.73 (.837)
39	About how I will know if my medication is working	77	193	140	37	2.31 (.851)
40	About medication interactions that I may experience (or what to avoid)	41	115	211	80	2.74 (.858)
41	To learn if any alternative medications could help me	82	164	148	54	2.39 (.920)
42	About what to do if I miss doses of my medication	57	159	187	45	2.49 (.841)
43	In general, in the future how likely will you be to speak with a community pharmacist when picking up or purchasing a medication	27	145	208	68	2.71 (.795)
Overall ^b						20.49 (5.35)

^a Each item measured by 1 = Very Unlikely (VU), 2 = Unlikely (U), 3 = Likely (L), 4 = Very likely (VL)

^b Range of scale: 8-32

In addition to these items, participants were given the option to respond to two open-ended items (Table 4.5.7). One being, “Please provide any other reason you may not speak with a community pharmacist about your medication(s)” and the other “Please provide any other reason you speak with a community pharmacist about your medication(s).” The researcher intuitively placed these responses into various categories to represent the theme of the response. Quotations from responses for each of these themes are found in Appendix E.

Table 4.5.7: Responses to open-ended questions

Barrier Themes (N = 86)	Number within Theme	Benefit Themes (N = 38)	Number within Theme
No Privacy	8	To learn about Alternative Medications	3
Physician gives all needed information	8	Assistance with Therapy	5
Never asked / Did not know	3	Good Relationship with Pharmacist	8
Poor experiences with Pharmacist or Lack of Confidence	13	To gain additional information about medication (side effects)	12
Taking medication for a long time or low number	14	Pharmacist most knowledgeable	3
Embarrassment	7	To have more confidence / Double-check Physician	7
Do not need counseling	5		
Pharmacy / Pharmacist too busy	16		
Instructions on bottle	11		
Polypharmacy	1		

4.6 Factors affecting the likelihood to participate in medication counseling

A Pearson's correlation was used to assess the relationships that exist among perceived susceptibility, perceived severity, past experience, perceived barriers, perceived benefits, and likelihood (Table 4.6.1).

The perceived susceptibility construct had weak positive correlations with severity ($r = .189$), past experience ($r = .163$), benefits ($r = .181$), benefit ($r = .100$), and future likelihood ($r = .180$). This indicated that susceptibility had a weak relationship with all of the constructs. Perceived severity was found to have a very weak relationship with perceived benefits ($r = .093$).

Past Experience had a strong positive relationship with perceived benefits ($r = .484$). A strong positive relationship was also found between past experience and future likelihood to participate in medication counseling ($r = .736$). However, there was a moderate negative relationship found with perceived barriers ($r = -.298$).

A similar relationship was seen between perceived barriers and the future likelihood to participate in medication counseling ($r = -.282$), meaning as perceived barriers increase, the future likelihood to participate in medication counseling decreases.

Perceived benefit had a moderate positive relationship with likelihood to participate in services ($r = .546$). Benefit also had a moderate negative relationship with perceived barriers ($r = -.263$).

Multiple linear regression was conducted to determine if the likelihood of a patient to participate in medication counseling with a pharmacist could be predicted by the constructs of the Health Belief Model (Table 4.6.2). Regression analysis was carried out for one dependent variable, likelihood of participation. This model had a squared

multiple regression (R^2) of 0.595, indicating that the model explained 59.5% of the variance in patient likelihood. There were 15-predictor variables input into the model, and five were found to be significant predictors of likelihood. The five significant predictors included perceived susceptibility ($\beta = .064$, $p = .053$), past experience ($\beta = .582$, $p = <.0001$), perceived barriers ($\beta = -.067$, $p = .052$), benefits ($\beta = .225$, $p = <.0001$), and race/ethnicity ($\beta = .081$, $p = .009$).

Table 4.6.1: Pearson’s correlation coefficients among the variables (N=447)

Variables	S	PS	PE	BA	BE	L
Perceived Susceptibility (S)	-					
Perceived Severity (PS)	.189*	-				
Past Experience (PE)	.163*	.113*	-			
Perceived Barriers (BA)	.181*	-.055	-.298*	-		
Perceived Benefits (BE)	.097*	.093*	.484*	-.263*	-	
Future Likelihood (L)	.180*	.097*	.736*	-.282*	.546*	-

*Correlation significant at $P \leq 0.05$ (2-tailed)

Table 4.6.2: Multiple linear regression analysis of prediction of an individual's likelihood to participate in medication counseling (N = 446)

	b^a	SE	β^b	t	P value	Model R²
Perceived Susceptibility*	.139	.072	.064	1.94	.053	0.595
Perceived Severity	-.017	.049	-.011	-.345	.730	
Cue to Action*	.532	.033	.582	15.8	.000	
Perceived Barrier	-.068	.034	-.067	-1.95	.052	
Perceived Benefits*	.234	.037	.225	6.27	.000	
Age	.041	.131	.010	.315	.753	
Gender	-.017	.327	-.002	-.051	.959	
Race/Ethnicity*	1.036	.397	.081	2.606	.009	
Education	-.130	.124	-.033	-1.05	.295	
State of Residence	-.020	.011	-.057	-1.81	.071	
Prescription Drug Coverage	-.235	.219	-.034	-1.07	.285	
Type of Community Pharmacy	.249	.229	.034	1.08	.279	
Vaccination from Community Pharmacy	-.422	.325	-.040	-1.30	.195	
Number of Prescribed medications*	-.418	.220	-.066	-1.90	.058	
Number of Diagnosed disease states	-.007	.005	-.047	-1.45	.147	

* Statistically significant at $P \leq .05$

^a Unstandardized beta

^b Standardized beta

Chapter 5

Discussion

This chapter is a discussion of all findings reported in Chapter Four. The following discussion has been divided into the following broad categories:

1. Utilization of Amazon Mechanical Turk
2. Generalizability to the United States population
3. Perceived Susceptibility
4. Perceived Severity
5. Experiences with Medication Counseling
6. Perceived Barriers
7. Perceived Benefits
8. Implications
9. Limitations of the Study
10. Suggestions for future research
11. Conclusion

5.1 Utilization of Amazon Mechanical Turk

The study gathered a substantial number of responses given the duration of the study period between February 28th, 2016 and March 22nd, 2016. The total response rate,

taking into account refusals, was 93.5% (500/535). The high response rate was likely due to the method in which the survey was distributed. Some responses were gathered face-to-face, while others were gathered using a crowdsourcing online service, AMT. This allowed the researcher to gather multiple responses at once. The survey being electronic may have made potential participants more likely to participate because it was paperless, and appeared easy to complete. Beyond this, all participants were awarded a \$1.00 incentive for their participation in the study. Participants were found to have interest in participating in the research because of the familiarity with the topic, as most potential respondents had some understanding of the role of the pharmacist in medication counseling. The use of AMT along with the incentive caused there to be a high number of responses.

5.2 Generalizability to the United States population

The study was found to have some interesting characteristics that were representative of the U.S Census 2010 and is described below.⁵⁵ This census data was used to compare study findings in an attempt to see if the study population could be generalizable.

The study population was very comparable to the 2010 U.S Census, in regards to gender.⁵⁵ According to the census, there were slightly more females in the U.S. population than males. Data collected was representative of the general population. This may have been because the survey could be taken anywhere in the U.S. and each gender was equally likely to be administered the survey.

The majority of respondents in this study (about 70%) were 44 years of age or younger, which is comparable to the 2010 U.S. census (60.5%). This finding may have been because the survey was distributed in mall settings, as well as online. The literature has also cited an overall younger age of AMT users, which may be why the study population was slightly younger than U.S. population.⁴⁵ In regards to race/ethnicity, about 78% of respondents were Caucasian, which is comparable to the 2010 U.S. census (75%).⁵⁵ However, only 6% of the population was black or African American, which is about half of what is represented in the U.S. AMT has also been shown to have a slightly higher proportion of Asians in comparison with the U.S. census (4.8%), which was reflected in the study findings (7.1%).⁴⁵

There was at least one response from most states in the country, but the majority of the study population (39.1%) came from the Midwest, while only 21.7% of the U.S. population lives in the Midwest. This was likely because surveys were distributed face-to-face in parts of this region. However, a proportionate number of study respondents came from the Southern region of the U.S. (31.5%), it was still less than what is found in the U.S. population (37.1%). Although about 70% of the study population lived in either the Midwest or Southern regions, the results of this study are applicable to medication counseling across the U.S. because the role of the pharmacist, in regards to medication counseling, is similar in each region.

The majority of the population had either private or employer sponsored insurance (70%), which is slightly higher than the US population (56%). In this study, only about 20% of respondents reported having either Medicare or Medicaid insurance coverage, which is half of what was reported in the U.S Census. This finding was likely

due to the overall younger age of the population. In addition, the elderly or patients eligible for state Medicaid programs may not have access to the Internet, limiting their ability to complete this survey.

According to a report by SK&A (Specialized Knowledge & Applications), a leading provider of healthcare information, about 62% of all pharmacy locations in the U.S. are a chain pharmacy. In this study, a majority of respondents used chain pharmacy (66%). According to that same report, independent pharmacy makes up 35% of the community pharmacy market, however, only 12% of the study population reported using an independent pharmacy. This could be because respondents had the option to select mass merchandiser pharmacy, which is unspecified in the SK&A report. In addition, respondents in this study were only allowed to select one option, so some respondents may have been using two different settings for their medications. Beyond this, the report by SK&A does not signify how many Mail-order pharmacies currently exist and are being utilized in community pharmacy practice.⁵⁶

In regards to pharmacy services, the CDC reported that in 2010 about 18.4% of influenza immunizations were completed in either a supermarket or drug store setting.⁵⁷ In this study, the percentage of patients who received a vaccination from a community pharmacy (31%) could indicate that more individuals are receiving vaccinations from community pharmacies since 2010.

Participants in this study were not prescribed a large number of medications. According to the 2006 Medical Expenditure Panel Survey (MEPS) about 63% of the population purchased one or more prescription drugs during that calendar year.⁵⁸ In this study, 60% of respondents reported having at least 1-2 prescribed medications, with

about 15% being prescribed 3-4 medications. There could have been a low number of prescribed medications reported because of the overall younger age of the study population.

According to a report by the Center for Disease Control (CDC), about half of all adults in The United States were diagnosed with one or more chronic health conditions. In addition, 25% of adults in the U.S. had two or more chronic conditions. In this study, about 37% of the population was diagnosed with at least one disease state, and about 33% of the population reported having two or more.⁵⁹ In this study, about 18% of respondents reported that they were not diagnosed with any disease states, which could be supported by the fact that 20% of the study population was not prescribed any medications. It is worthwhile to note, however, that 12% of respondents did not answer this item. This could have been due to the discomfort of reporting this type of information in a public setting or skepticism with providing this information on an electronic survey.

5.3 Perceived Susceptibility

In this study, patients did not agree with being susceptible to taking medications incorrectly. The literature states that an individual may find themselves more susceptible when taking a high number of medications, use alternative medications, have low health literacy, or are exposed to direct-to-consumer advertising.⁶¹ While these are reasons individuals would perceive themselves as more susceptible, the literature indicates that all individuals are susceptible to taking medications incorrectly.⁶¹ Participants may not have reported being susceptible because the population was not prescribed a high number of prescription or over-the-counter (OTC) medications. These findings suggest community

pharmacists might consider targeting patients who are taking a low number of medications. The literature states that these individuals are unlikely to acknowledge their susceptibility, and the results from this study suggest that this would limit their likelihood to seek medication counseling.^{20, 24}

However, when participants reported being susceptible, it was due to medication interactions or side effects. They may have felt susceptible to these items because the literature states these are topics commonly addressed during interactions with the physician, or are found in the media.⁶⁰ Community pharmacists could educate patients on different ways medications are taken incorrectly, such as forgetting to take a dose, taking it at the wrong time, or stopping a medication too soon. The results from this study suggest that when an individual understands they are susceptible, their likelihood to seek medication counseling improves.

5.4 Perceived Severity

In this study, the majority of patients perceived that failing to take medications as prescribed or directed would have negative consequences associated with it. This may be because individuals have a general understanding that there are undesirable consequences associated with taking medications incorrectly. Although many individuals understand that incorrectly taking medications has consequences, they do not see themselves as susceptible to doing it.⁶⁰⁻⁶²

Interestingly, this study found that when an individual agrees that inappropriately taking a medication has consequences, that individual would be more likely to perceive the benefits of speaking with a pharmacist, but not more likely to seek counseling.

Findings from this study are similar to what has been found in other studies, in which an individual's perceived susceptibility was generally found to be a stronger predictor of behavior than severity.¹¹ This indicates that community pharmacists might consider helping patients understand the potential consequences of incorrect medication use, including costs and disease complications. Consequently, this may lead individuals to perceive more benefits in speaking with a pharmacist.

5.5 Experiences with Medication Counseling

This study's findings indicate that an individual's experience with medication counseling is an important predictor of their likelihood to seek counseling. The results show that when an individual has some level of experience with medication counseling, they are likely to perceive more benefits to the counseling interaction, fewer barriers, and continue to seek counseling in the future. Previous research has shown that often limited medication counseling experiences are provided during medication pickup, particularly for refill prescriptions.^{21,41,63} This lack of experiences prevents an individual from perceiving the benefits of medication counseling.

However, when individuals had experiences with medication counseling, the conversation was likely to include standard medication information, such as what the medication is used for, how to take it, side effects, and interactions. Participants had fewer experiences discussing alternative medications or what to do if doses are missed. These results were similar to what was found by Schommer et al., who reported the primary topics of medication counseling included directions for use, administrative elements, and purpose of the medication.^{9,12}

Furthermore, in this study, race/ethnicity was found to influence an individual's likelihood to experience medication counseling. Caucasians were more likely to seek medication counseling, which is what has been reported in the literature. Caucasians also receive care that is of higher technical and interpersonal quality than blacks or Hispanics.⁶⁰ Community pharmacists might consider including all patients in medication counseling. If an individual is not included in medication counseling, their lack of experience may reduce their likelihood of participating in the future.

Community pharmacists might consider providing additional information during medication counseling, which increases their variety of experiences. Due to lack of experience with medication counseling, individuals may not be aware of the pharmacists' ability to provide this information during counseling. Pharmacists might make an effort to engage all patients in some level of medication counseling, regardless of that individual's intention to participate, as this increases the patients' number of counseling experiences. This is particularly important for refill prescriptions, as the literature states there is often limited medication counseling provided during these interactions.³⁹ There are many opportunities to suggest alternative medications to patients, due to cost, aligning the patients' drug regimen with insurance formularies, or suggesting chemical equivalence.

5.6 Perceived Barriers

In this study, an individual's perceived barriers were shown to decrease the likelihood of seeking medication counseling. In general, there were a low number of

barriers reported by the study population, which implies individuals in this study did not strongly perceive many intrapersonal barriers to the medication counseling interaction.

The one frequently reported barrier that may influence community pharmacy practice was using the Internet. In a study by Huston, S., similar results were found when patients frequently named both the physician and the Internet as primary sources of medication information.⁶¹ If patients begin primarily using the Internet for medication information, it may be increasingly difficult for pharmacists to engage patients in medication counseling, limiting an individual's potential experiences. While this trend may continue, community pharmacists have the ability to influence this barrier. They could communicate with patients that the internet may not be sufficient for all medication information. This could either be done directly during medication counseling, or indirectly through public awareness within the pharmacy.

In addition to this, community pharmacists could explain to patients that medication counseling provides more comprehensive information than what is found on the Internet. Pharmacists can clarify that counseling includes the patients' entire medication regimen and medical history, and is not limited to one medication.

5.7 Perceived Benefits

There was a general understanding by study participants that there are benefits to speaking with a pharmacist about their medications. Many responded that speaking with a pharmacist improved their health. This is supported by evidence in the literature that shows communication with a pharmacist improves an individual's perceived ability to care for themselves.¹⁴⁻¹⁸ Results from this study suggest that improving communication

with the patient could increase counseling experiences, therefore improving the benefits that patient perceives. When pharmacists show an individual the benefits of medication counseling, they are more likely to seek this counseling in the future and perceive less barriers.

Conversely, the results from this study suggest that if an individual does not have an experience, they will be less likely to perceive the benefits of medication counseling. This is similar to findings in the literature, which states that after a patient has had conversations with a pharmacist, they are more likely to understand the benefits of the interaction.¹⁶⁻¹⁸ Community pharmacists have the ability to improve the benefit patients perceive by providing counseling experiences to patients.

5.8 Implications

This study's findings could help describe disconnects in the patient-pharmacist relationship that have been identified in the literature.⁶⁻⁸ There is an underutilization of medication counseling, caused by patient perceived barriers. This leads patients to misunderstand the benefits of medication counseling provided by the pharmacist. This dynamic contributes to the challenges community pharmacists experience when engaging patients in medication counseling. The current environment makes it difficult for the patient-pharmacist relationship to be formed and limits the pharmacists' ability to demonstrate the benefits of the interaction to the patient.

Consequently, there appears to be a bottleneck in community practice, revolving around the interaction with the pharmacist. Going forward, community pharmacists might consider engaging all individuals in medication counseling, regardless of the

medication or that individual's initial preference. When an individual has experience with medication counseling, they are more likely to continue to use it, see more benefit, and experience less barriers.

The pharmacist is often in a good position to influence these perceptions during the dispensing of medications. Furthermore, when medications are dispensed, pharmacists might consider initiating medication counseling for patients. Simply asking patients to indicate 'yes' or 'no' to accept counseling may not be sufficient as many individuals do not find themselves susceptible, or fail to recognize the negative consequences. This prevents the individual from having any experiences with medication counseling. Following pharmacist initiation, patients will always have the option of interrupting the experience if they are not interested. But, by allowing patients to make the choice voluntarily, pharmacists do not have an opportunity to influence patient perceptions.

The combination of these elements in practice would increase a patient's likelihood to participate in medication counseling. Consequently, the patient-pharmacist relationship could become stronger. This may improve the quality of information exchanged and increase continued participation in medication counseling, as well as the other services that community pharmacy might offer.

Ultimately, this may improve the likelihood of an individual to utilize community pharmacists for medication counseling and services beyond. The pharmacy counter gives community pharmacists the opportunity to keep patients engaged in healthcare services that are being increasingly provided in these settings. This will become progressively

more important as pharmacists begin to seek and acquire reimbursement for healthcare services provided in community practice settings.

5.9 Limitations of the Study

As with other studies, this study does have some limitations. First, because this survey measured individuals' self-reported behaviors, social desirability and recall biases are possible. A pilot study was not conducted, but elicitation interviews were used to improve both the face and content validity of the survey instrument.

Additionally, survey responses were collected using both convenient, face-to-face sampling and through the Internet. This was a limitation because each of these response groups were exposed to different levels of social desirability. To limit this, all surveys were completed electronically and the same instructions were provided to all participants, regardless of where that individual was surveyed. Next, due to the nature of the sampling, a non-response bias investigation was not conducted and thus it is possible that those who participated had different perceptions than those who did not participate. While the study sample did include respondents from forty-three states, the generalizability of this study may be limited due to the use of non-probabilistic sampling and a high representation of Internet users. It is possible that the opinions of non-internet users may differ from that of Internet users.

The Health Belief Model (HBM) framework used in this study did not include the construct self-efficacy. While this construct is not included in all applications of the HBM, self-efficacy may play a role in a patient likelihood to participate in medication counseling. In the future, adding this construct to the model may help assess a specific

patient population and may help to better explain an individual's likelihood to participate in medication counseling.

5.10 Suggestions for Future Research

Conclusions from the study suggest that if a patient is more accustomed to interacting with a community pharmacist in a familiar role, they will continue to participate in that interaction. It could be worthwhile to investigate how these perceptions may influence an individual's likelihood to participate in more thorough counseling services, such as MTM services.

It could be valuable to apply the model in a practice-based environment. If the model was applied in practice, it might be better understood how accurate the model is at predicting patient behavior. It may be practical to measure the "self-efficacy" construct, which is commonly found in the HBM, to better predict patient behavior.

5.11 Conclusion

This study found that perceptions could be used to predict patient behavior. This study also provides both a valid and reliable instrument for measuring intrapersonal factors that motivate an individual to seek medication counseling from a community pharmacist. Overall, this study provides a mechanism for community pharmacists to better understand their patients, measure their perceptions, and ultimately influence the utilization of medication counseling. Further research is needed on the application of this instrument and model in a practice-based research environment.

Chapter 6

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Appendix A

Elicitation Interview Questions

ELICITATION INTERVIEW 7-11-15

Introduction: "Hello! My name is Andrew Brinkerhoff I'm a graduate research assistant with The University of Toledo. I'm attempting to figure out patients' perception of the counseling pharmacist. I was wondering if I could informally interview you in an attempt to gather more information on your perspective of medication counseling services at your community pharmacy."

First Ask: Have you picked up or purchased a new medication recently? (Any medication you have not taken before)

A1) If Yes....

Do you do this **Often, Sometimes, Rarely?**

Where do you get your medications?

When picking it up, did anyone ask if you had any questions.....?

A2) If Yes or No....

Did you ask?

[Yes go to A3] [No go to B3]

A3) If Yes... **Pharmacist or Technician?**

Pharmacist:

Did you find it difficult to address the pharmacist?

Did you feel he cared about your situation?

Did you feel he listened to your concern?

Did you feel he answered your questions completely and accurately?

Did you feel like he had the time to speak with you?

Did you feel that your conversation was held in a professional environment?

B1) If No...

Have you ever purchased a medication for yourself?

←←←←If yes...go to (A1) ←←←←

B1) If No...

Have you ever purchased a medication for someone else from a pharmacy?

←←←←If yes...go to (A1) ←←←←

B2) If No..|

"Are you aware pharmacists offer counseling on your medications at no cost to you, this includes educating on side effects and taking the medication correctly?"

B3) If No...

"Why didn't you ask?"

Not enough time to ask

Pharmacist doesn't have time

The Pharmacist was too far away

The pharmacist doesn't care

Already feel confident in your ability to take medication properly, meaning on time and aware of side effects

Not enough privacy

Got enough information from Doctor

Last ask: "Do you feel the need to be

counseled on your medication?"

Appendix B

SurveyGizmo Permission Letter



SurveyGizmo
4888 Pearl East Cir. Suite 100
Boulder, CO 80301 USA

For more information check out our help page:
help.surveygizmo.com
or email support@sgizmo.com

Re: Permission to Conduct Research Using SurveyGizmo

To whom it may concern:

We are creating this letter in response to a request by a student at your institution who would like to conduct a survey using SurveyGizmo to support their research. The student has indicated that they require a letter from SurveyGizmo granting them permission to do this. Please accept this letter as permission. Students are permitted to conduct research through the SurveyGizmo platform as long as they abide by our Terms of Use (<http://www.surveygizmo.com/terms/>).

We are a self-serve survey platform where users can create, deploy and analyze surveys through an online interface. If you have any questions about this letter, please feel free to give us a shout at support@sgizmo.com.

Cheers,
The SurveyGizmo Team

Appendix C

Survey Instrument

Patient Perception of Medication Counseling Offered By Community Pharmacists

Introduction and Screening

Page exit logic: Do not qualify to take survey IF: ((Question "Are you at least 18 years of age or older?" is one of the following answers ("No") OR Question "In the past year, have you purchased (or picked up) a medication (prescription or over-the-counter) for yourself from a community pharmacy?" is one of the following answers ("No")) OR Question "Please indicate by checking the box below that that you have read and agree to the above information. ") THEN: Disqualify and display: "Sorry, you do not qualify to take this survey."

Greetings! Thank you for your interest in completing this survey. The information collected in this survey will be used as part of a research study. There will not be any personally identifiable information collected in this survey, and all responses will be kept in the strictest confidence. Prior to analyzing the data, the order of respondents will be randomized to ensure your responses remain anonymous. The survey consists of 43 multiple choice questions and will take approximately 7 minutes to complete.

Your participation in this survey is voluntary. You may stop your participation in this survey at any time if you want.

The purpose of this study is to evaluate how often you use a community pharmacist for medication counseling. Many patients use or do not use medication counseling offered by community pharmacists for different reasons. This survey will be asking you to identify reasons you use or do not use a community pharmacist for various medication needs.

A community pharmacist is a person who is prepared to formulate, dispense, and provide clinical information on drugs or medications to both patients and healthcare professionals. They also participate in patient counseling outside of medication use.

Community pharmacy settings include independent, chain (such as CVS, RiteAid or Walgreens), mass merchandiser (such as Walmart or Target), and mail-order (such as Express Scripts or Medco) pharmacies.

Are you at least 18 years of age or older?

Yes No

In the past year, have you purchased (or picked up) a medication (prescription or over-the-counter) for yourself from a community pharmacy?

Yes No

Please indicate by checking the box below that that you have read and agree to the above information.

I have read and understand the previous information and agree to participate in this research study.

General Questions - Susceptibility

It is possible that I may not take my medication(s) as prescribed or directed because...

1) *I don't understand how to take my medications correctly*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

2) *I worry about harmful side effects I may experience from taking my medications*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

3) *I worry about the possible risk of my medications interacting with each other*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

4) *I believe medications do more harm than good*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

General Questions - Severity

If I do not take my medication(s) as prescribed or directed...

5) *My medication(s) will not be as effective for its purpose**

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

6) *I may experience a need for additional medication(s) to treat my health condition(s) or disease*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

7) *I may experience consequences to my health (examples: health condition gets worse, disease state uncontrolled, side effects of medication)*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

8) *I may experience financial consequences (examples: hospitalization or emergency room costs)*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

Past Experiences

In the past, when I have picked up or purchased a medication, I have spoken with a pharmacist...

9) *About what my medication is used for (examples: itch, rash, insomnia, depression, high blood pressure, diabetes)*

Never Rarely Sometimes Often

10) *About how to take my medication correctly (how many to take and the time of day)*

Never Rarely Sometimes Often

11) *About common side effects or adverse events I may experience (or how to avoid them)*

Never Rarely Sometimes Often

12) *About how I will know if my medication is working*

Never Rarely Sometimes Often

13) *About medication interactions that I may experience (or what to avoid)*

Never Rarely Sometimes Often

14) *To learn if any alternative medications could help me*

Never Rarely Sometimes Often

15) *About what to do if I miss doses of my medication*

Never Rarely Sometimes Often

16) *In general, in the past how often have you spoken with a community pharmacist when you have picked up or purchased a medication?*

Never Rarely Sometimes Often

Barriers to Medication Counseling

In general, I do not speak with a pharmacist about my medication(s) because...

17) *I am not interested in discussing my medication*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

18) *I do not have time to speak about my medication*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

19) *I trust my physician to provide me with all necessary medication information*
 Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

20) *I do not think I need additional information about my medication*
 Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

21) *I would use the internet for additional medication information*
 Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

22) *The pharmacist is not accessible enough to discuss my medication*
 Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

23) *The pharmacist does not have time to speak to me about my medication*
 Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

24) *The pharmacist thinks my physician provides me with all of the necessary medication information**
 Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

25) *The pharmacist does not understand how my medication will affect my health condition*
 Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

26) *The pharmacist is not interested in speaking to me about my medication*
() Strongly disagree () Disagree () Neither agree or disagree () Agree ()
Strongly agree

Please provide any other reason you believe you may not speak with a community pharmacist about your medication(s). This question is not required.

Benefits to Medication Counseling

In general, I would speak with a pharmacist about my medication(s) because...

27) *It will help me improve my health, or get my disease under control*
() Strongly disagree () Disagree () Neither agree or disagree () Agree ()
Strongly agree

28) *I will feel more confident that I am taking the correct medication*
() Strongly disagree () Disagree () Neither agree or disagree () Agree ()
Strongly agree

29) *I will feel more confident that I will take my medication correctly*
() Strongly disagree () Disagree () Neither agree or disagree () Agree ()
Strongly agree

30) *I will be less likely to experience a need for additional medication(s) to treat my health condition(s) or disease*
() Strongly disagree () Disagree () Neither agree or disagree () Agree ()
Strongly agree

31) *I will be less likely to experience consequences to my health (examples: health condition gets worse, disease state uncontrolled, side effects of medication)*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

32) *I will be less likely to experience negative financial consequences (examples: hospitalization or emergency room costs) related to inappropriate medication use*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

33) *My physician does not provide me with enough information about my medication(s)*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

34) *The pharmacist is the most reliable source for medication information*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

35) *The pharmacist is interested in discussing my medications with me*

Strongly disagree Disagree Neither agree or disagree Agree Strongly agree

Please provide any other reason you speak with a community pharmacist about your medication(s). This question is not required.

Likelihood to Participate in Medication Counseling with Pharmacist

In the future, when picking up or purchasing a medication, how likely will you be to speak with a pharmacist...

36) *About what my medication is used for (examples: itch, rash, insomnia, depression, high blood pressure, diabetes)*

Very unlikely Unlikely Likely Very likely

37) *About how to take my medication correctly (how many to take and the time of day)*

Very unlikely Unlikely Likely Very likely

38) *About common side effects or adverse events I may experience (or how to avoid them)*

Very unlikely Unlikely Likely Very likely

39) *About how I will know if my medication is working*

Very unlikely Unlikely Likely Very likely

40) *About medication interactions that I may experience (or what to avoid)*

Very unlikely Unlikely Likely Very likely

41) *To learn if any alternative medications could help me*

Very unlikely Unlikely Likely Very likely

42) *About what to do if I miss doses of my medication**

Very unlikely Unlikely Likely Very likely

43) *In general, in the future how likely will you be to speak with a community pharmacist when picking up or purchasing a medication*

Very unlikely Unlikely Likely Very likely

Demographics

What is your approximate age?

18-24

25-34

35-44

45-54

55-64

65-74

75-84

Over 85 Years Old

What is your gender?

Male

Female

Other

Which of the following best represents your race or ethnicity?

White

Black or African American

Hispanic or Latino

American Indian and Alaskan Native

Asian

Native Hawaiian or Other Pacific Islander

Two or more races

Other

What is the highest degree or level of school you have completed?

Some high school

High school graduate/GED

- Some college
- Associate degree
- Bachelors degree
- Masters degree
- Doctorate degree
- None

What is your primary state of residence?

- Select your state of residence (dropdown menu)

What type of medical/prescription drug coverage do you currently have?

- Medicare / Medicaid
- Private or Employer-Sponsored Insurance
- Veteran's Affairs
- Cash / No Third Party Insurance

What type of community pharmacy do you most frequently use to fill your prescription medications?

- Independent Community Pharmacy (example: Privately owned)
- Chain Community Pharmacy (examples: CVS, Walgreens, Rite Aid)
- Mass Merchandiser Pharmacy (examples: Walmart, Target)
- Mail-Order Pharmacy (examples: Medco, Express Scripts)
- Other - Write In: _____

Have you ever received a vaccination (such as a flu shot) from a community pharmacist?

- Yes
- No
- Not sure

About how many medications are you currently prescribed?

- 1-2
- 3-4
- 5-7
- >7
- None

What, if any, disease states have you been diagnosed with by your primary care physician?

- Acne

- Asthma/COPD
- Attention-deficit/hyperactivity disorder (ADHD)
- High Blood Pressure
- Cardiovascular Disease (CVD)
- High Cholesterol
- Chronic Pain
- Depression
- Diabetes (Type I)
- Diabetes (Type II)
- Gastroesophageal Reflux Disease (GERD)
- Migraine Headaches
- Osteoporosis
- Peptic Ulcer Disease (PUD)
- Rheumatoid Arthritis (RA)
- Thyroid Disorder
- Other - Write In: _____
- Does not apply
- Prefer not to answer

Thank You!

Thank you for taking our survey. Your response is very important to us.

Appendix D

Survey Administration Script

Approved

Patient Perception of Barriers to Routine Counseling Script 02_02_16

Survey Administration Script

Researcher Greeting:

"Greetings! I am a graduate student from The University of Toledo surveying people at this mall today. I am surveying to gather general information about your overall health, how often you use various community pharmacist counseling services, and will ask you to identify reasons why you do or do not use these services. In order to participate in the survey, you must be an adult that has filled a prescription medication for yourself or another individual in the last year. There will not be any personally identifiable information collected in the survey. Your responses will be kept completely anonymous, and your honesty is appreciated.

After confirming you are eligible, you will be able to complete the survey. You will take this survey on a tablet and it will take approximately 5 minutes to complete. Should you be eligible and complete the survey, you will be provided with one scratch off lottery ticket valued at \$1.00 as a token of appreciation for completing the survey. Are you interested in participating in this study and completing this survey today?"

If No: "Thank you for your consideration and I appreciate your time! Enjoy your day!"

If Yes: "Thank you and I appreciate your participation. If you could please take a seat over here (reference to food court table) I will administer the survey to complete. If you are determined to be eligible, you will be able to take the survey. As I said, it should only take about 5 minutes to complete and you will be given a \$1.00 scratch off ticket following completion."

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Appendix E

Open-ended Responses

Barrier Themes	Quotes
No Privacy (N=8)	<p>Awkwardness of discussing medication in front of other people in the store</p> <p>lack of privacy at the counter</p> <p>There might be a long waiting line, and it would be awkward.</p> <p>Lack of private setting to discuss personal health problems</p> <p>I might feel uncomfortable if other people are waiting behind me.</p> <p>other people are behind me waiting in line</p> <p>Privacy reasons - sometimes there isn't enough of a privacy barrier while there are other customers around.</p> <p>I don't want to have that conversation in front of people in line behind me</p>
Physician gives all needed information (N=8)	<p>Their opinions may clash with my doctor's.</p> <p>I have already asked the questions I have to my doctor</p> <p>Just to be clear -- I completely trust, and am completely comfortable speaking to my local pharmacist (I generally always go to/see the same one). But it really just depends on whether or not I feel I need additional information or if I forgot to ask the doctor about something that occurred to me afterward as to whether or not I choose to consult with them. The times I have, I've always received considerate, thoughtful, helpful information.</p> <p>Not feeling well due to whatever medical issue is going on, and need to get home quickly</p> <p>I make it a point to ask my doctor everything when I am prescribed a medication so I feel no need to consult someone who has less expertise than my doctor.</p> <p>Main reason is my doctor will answer these anytime I need</p> <p>My doctor covers everything I need to know</p> <p>My Dr. Usually gives me the information needed</p>
Never asked / Did not know (N=3)	<p>Did not know I could</p> <p>I never asked.</p> <p>If I might have a problem I assume the pharmacist will let me know</p>

<p>Poor experiences with Pharmacist or Lack of Confidence (N=12)</p>	<p>My one pharmacist was extremely offensive to me. I was taking Femara for breast cancer and asked about OTC liquid calcium (which I ended up buying online). He snapped, "Just drink milk."... Femara causes bone NECROSIS. Milk wouldn't really help. I was already feeling sick enough without him being an <expletive>. My doctor recommended liquid calcium instead.</p>
	<p>The pharmacist is absent.</p>
	<p>Not sure how much knowledge they have about my medical problem and why exactly I'm taking the medication.</p>
	<p>He may not know enough.</p>
	<p>he is not approachable</p>
	<p>At the pharmacy nearest me that my insurance prefers, the pharmacist is the most disrespectful, judgmental, condescending healthcare worker I have ever met and I absolutely avoid going near there if he is working because I will be as big of a jerk to him as he was to me. Unnecessarily stresses me out and I don't appreciate the wild assumptions tossed around in front of the whole store, not even in the little consult room.</p>
	<p>I don't know how many of these people get certified. The error rate on quantity sold, insurance processing and general customer service is poor enough that there is no way I would trust their judgement on a medical issue. The majority of time they don't speak English, can't understand what I am asking or I have no idea what they are saying. I don't know how they pass the certification tests.</p>
	<p>The pharmacist is rude and acts annoyed when I interrupt what they are doing.</p>
	<p>There have been occasions where my local pharmacy was staffed by fairly young looking employees, possibly interns, which made me hesitant to speak with them about my medication</p>
	<p>They don't give accurate answers.</p>
	<p>They never have enough time. Some pharmacists haven't known the answers and/or were hesitant to commit to what they told me without using disclaimers.</p>
	<p>I avoid them like the plague. It is almost always a very frustrating exercise. I would not trust anything they say.</p>
<p>They don't know my body and particular condition as well as my physician.</p>	
<p>Taking medication regularly or low number of medications (N=14)</p>	<p>already discussed so I have the information needed</p>
	<p>Maybe they spoke with me about it the first time I filled the prescription and they don't when I do a refill</p>
	<p>If I have taken the medication before and have no other</p>

	<p>medications that may potentially interact with it</p> <p>I already know how to take my maintenance meds.</p> <p>Sometimes they have to ask questions if certain medications are involved. Every. Time. I've been on these two for years and they always question me about why I'm taking both.</p> <p>Getting same thing frequently</p> <p>I do not feel the need to. I am only taking one medication.</p> <p>I usually do once, if its a long term med, no need to again</p> <p>Have used the same medicine in the past.</p> <p>I have already used the medication before and am familiar with using it</p> <p>If it's a refill and we have already discussed the medication.</p> <p>It's something that I'm familiar with or have been taking.</p> <p>Take medication regular.</p> <p>The only time I do not talk with the pharmacist is if I am refilling a med with which I am very familiar.</p>
Embarrassment (N=7)	<p>Once I tried to ask about a changing dose of a steroid. I didn't understand and the pharmacist yelled at me. I don't want to appear dumb..</p> <p>I don't like speaking to anyone</p> <p>Sometimes chose to not speak about a medication because of how I feel, maybe too personal of a thing mainly.</p> <p>Embarrassment</p> <p>Anxiety</p> <p>Shy</p> <p>social anxiety, shyness about my condition</p>
Do not need counseling (N=5)	<p>Because I do not have any questions about the medication.</p> <p>It doesn't occur to me at the time.</p> <p>Can't think of any questions at the time of pick up.</p> <p>I already have existing health concerns that are ongoing and the issues are always being assessed.</p> <p>I am generally well-informed about any drug that goes into my body and tend to request and read the manufacturer's full prescribing information as well as first-hand experiential accounts of long-time users from the Internet.</p>
Pharmacy / Pharmacist too busy (N=16)	<p>There's usually a long line of people behind me.</p> <p>The pharmacist was too busy.</p> <p>Every time I've tried to ask a question, they do answer it but seem annoyed if they are busy with other things.</p> <p>i am pressed for time</p> <p>long line at the counter, the pharmacy is very busy</p> <p>Hours and availability</p> <p>Pharmacists are forced to be on the phone more often than in the past</p>

	<p>The drug store always seems busy and I don't want to make other people wait while the pharmacist talks to me.</p> <p>The technician always talks with me first, so I do not usually even see the pharmacist</p> <p>They are really busy</p> <p>They don't always seem to be very knowledgeable</p> <p>Time is probably the main reason. Shortage of time.</p> <p>too busy...in a hurry...</p> <p>Usually if short on time by either myself or the pharmacy is very busy and no time.</p> <p>Very busy at times</p> <p>Just want to get out</p>
<p>Instructions on bottle (N=11)</p>	<p>Basic info is on the bottle, don't typically have additional questions</p> <p>If I don't, it's because that they speak to me first about it (my usual pharmacist is very good about that) or because it comes with a detailed pamphlet with information and possible side effects listed that I can read later.</p> <p>I feel that the instructions to take the meds are clearing the label. I will call once I get home to speak with the pharmacist if I have any further questions on how to take it.</p> <p>I use the information packet that is always included in my rx package when I pick it up</p> <p>info is provided if i am interested in reading it</p> <p>I read the pamphlets the pharmacist gives me</p> <p>Sometimes I am not the one picking up my medication. A family member or significant other may do so for me given the circumstances.</p> <p>the medication comes with an informational packet that I can just read</p> <p>The medication comes with written materials covering any questions I might have.</p> <p>usually all the info i need is on the bottle or the written instructions that come with the meds</p> <p>Usually there is a sheet in your prescription that tells you the side effects of the medication</p>
<p>Polypharmacy (N=1)</p>	<p>I get my meds wherever they are cheapest so I don't think each pharmacist I see knows about my conditions</p>

Benefit Themes	Quotes
<p>To learn about Alternative Medications</p>	<p>I want to know if there's an OTC alternative. is there a less costly alternative prescription</p>

(N=3)	To understand any "extra-legal" policies they may have, particularly with respect to dispensing controlled substances. To learn about less expensive, generic alternatives or substitutes.
Assistance with Therapy (N=5)	<p>A pharmacist really helped me take the maximum Motrin for a ruptured disc while breastfeeding.</p> <p>I have called before if I pick my meds up mid-way through the day and I'm unsure if I should take the first dose or wait for the second dose (if it's a twice per day medication).</p> <p>Some meds are dangerous and some have bizarre side effects. One med I was given made me feel like I wasn't getting enough O2, then I end up dizzy from hyperventilating. Would have been nice to know ahead of time that the med caused this odd sensation.</p> <p>They can give you important reminders about the medication that you may have forgotten.</p> <p>to find out if I need extra potassium</p>
Good Relationship with Pharmacist (N=8)	<p>Friendly and knowledgeable</p> <p>I talk to joe all the time about how i can get off from them</p> <p>If he/she opened up the conversation.</p> <p>Just to get to know the person and their temperament</p> <p>My pharmacist cares about me, found mistake my doctor missed</p> <p>The pharmacist is living nearby and is friendly too.</p> <p>They often seem helpful when they have the time.</p> <p>They r very helpful</p>
To gain additional information about medication (side effects) (N=12)	<p>extra quick tips for side effects</p> <p>get knowledge</p> <p>I ask about refills</p> <p>I don't usually talk to the pharmacist unless I am unsure about the directions for taking my medication.</p> <p>If I had any additional ?'s to ask.</p> <p>Over the counter meds</p> <p>Side effects info</p> <p>They r very helpful</p> <p>They r very helpful</p> <p>to see if there is anything i can do to make sure i am not mixing medicines that can cause one medicine not to work</p> <p>Usually to verify if can/cannot be taken on empty stomach and why</p> <p>When something on the packaging is unclear</p>
Pharmacist most knowledgeable (N=3)	<p>In many respects they are more knowledgeable than physicians about drugs and alternatives/interactions etc.</p> <p>pharmacist is very knowledgeable about medications</p> <p>This is their specialty</p>

<p>To have more confidence / Double-check Physician (N=7)</p>	I forget what my doctor had told me
	I hardly see my doctor, it is usually a nurse so I get nervous when prescribed a new medication
	I like to double check the doctors.
	If I question the way the order is prescribed verses what my doctor's orders were given.
	If my doctor did not disclose enough information
	To be sure the doctor or pharmacy is giving me correct medication
	To gain more assurance.