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Technology Assisted Choice in Medicare Part D Plan Selection

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TECHNOLOGY ASSISTED CHOICE IN MEDICARE PART D PLAN SELECTION

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by

John H. Schmidt, Jr.

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To: Interim Dean William Hardin
College of Business

This dissertation, written by John H. Schmidt, Jr., and entitled Technology Assisted Choice in Medicare Part D Plan Selection, having been approved in respect to style and intellectual content, is referred to you for judgment.

We have read this dissertation and recommend that it be approved.

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Date of Defense: November 12, 2021

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ABSTRACT OF THE DISSERTATION

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by

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Professor Weidong Xia, Major Professor

In 2006, the Centers for Medicare and Medicaid Services (CMS) implemented a new drug benefit for Medicare enrollees - Medicare Part D. This new benefit covered prescription medications for enrollees in the Medicare programs. Medicare beneficiaries had to enroll in this new benefit to access this coverage. A website, the Medicare Part D Plan Finder, was developed as part of this rollout to allow Medicare beneficiaries the opportunity to view available plan in their area and enroll in those plans.

In 2019 a new version of the Medicare Part D Plan finder website was implemented. The new site incorporated feedback from enrollees, policy makers and health insurance experts. The intent was to create a tool that would allow consumers to better review and analyze information to assist them in making plan choices for Medicare Part D. This study used a discrete choice experiment to review and examine how individuals use the new site and if the information presented is helpful in determining the optimal plan choice. Participants used a defined set of information to establish a set of available plans. The Plan Finder tool was then used by the participants to select the optimal plan. A post experiment survey also collected information on the decision-making process and the confidence in the decision.

In the experiment, there were a total of 123 participants. The test of the measurement tool indicates the study measures are both reliable and valid. The ANOVA demonstrated significance for information processing on plan choice. A regression was completed and showed that decision confidence was predicted by information processing and decision making, and that information processing was influenced by age, employment status and ease of use. However, decision choice was not predicted by the variables. Only 35% of participants made an optimal Medicare Part D Plan choice. Individuals 65 or older, which is the target population for Medicare, only had a 21% successful selection rate. An individual's decision-making confidence was a predictor of successful plan selection and low decision-making confidence was also predictive of incorrect optimal plan choice. This study has important implications to both theory and practice.

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Chapter 1: INTRODUCTION

In 2006, Medicare Part D was introduced to improve access to prescription drugs for Medicare beneficiaries. It is now the primary source of prescription coverage for seniors on Medicare. Approximately 63% of eligible seniors are now participating in a Medicare Part D Prescription Drug program, with many of the remainder covered under other retiree benefit programs or through the Veteran's Administration (Henry J. Kaiser Family Foundation 2006). Despite the lack of full enrollment, Part D has achieved most of the enrollment goals set when the program was first rolled out. This enhanced coverage and access has also improved issues related to medication compliance and non-adherence. High drug costs often caused seniors to make choices related to purchasing and taking medications. After Part D was implemented, seniors who were uninsured prior to Part D roll out now used more prescriptions and paid less out of pocket costs (Henry J. Kaiser Family Foundation, 2006; Ketcham and Simon, 2008; Lichetenberg and Sun 2007; Schneeweiss et al., 2009; Yin et al., 2008). Non-adherence costs have also been reduced because of Medicare Part D, but these costs among the sickest patients continue to be high (Madden et al., 2008).

Despite the positive impacts of Part D, there continue to be some problems with the overall operation of the program. Part D Plan complexity continues to be the number one issue cited in beneficiary surveys. Having too many options and too many plan choices continue to be cited by beneficiaries as something they would like to see improved (Heiss, McFadden and Winter, 2006), and almost 75% of the beneficiaries want the selection process for Part D to be simplified (Cumming, Rice and Hanoch,

2009). This beneficiary confusion and angst can be tied to the large number of Part D plans and the complex selection process related to benefit assignment.

Because of the structure of the benefit, the plans are created and assigned at the state level. On average, each state has more than 50 prescription drug plans. In 2007, there were a total of 1,875 prescription drug plans available (Hoadley, Hargrave and Merrell, 2006). This means that seniors and potential enrollees must review and analyze a large amount of information on the various plans to make a choice of the optimal plan to meet their needs. The complexity of the selection task is difficult for the elderly beneficiaries because of the vast number of choices and options that are tied to such an important issue (John and Cole, 1986). Elderly people may have less cognitive ability to make informed choices. They often have less access to informal sources of information. Their decisions on Medicare Part D plan choices become worse over time (Buchmueller 2016).

Recognizing these issues, the Centers for Medicare and Medicaid Services attempted to intervene. New regulations issues in 2010 attempted to streamline the program and eliminate plans with low enrollment or organizational offerings that were duplicative of other plans in the same market. This helped to decrease the number of eligible plans down to a total of 1,031 and a per state average closer to 30 (Henry J. Kaiser Family Foundation, 2012a). While this is a significant improvement, it still leaves many plans for seniors to review and evaluate prior to selection a Part D enrollment.

Insurance and Pharmacy Benefit Providers have a great deal of flexibility when designing a Part D plan. While there is a standard set of guidelines issued by CMS that must be followed, there are also several variations permitted under these guidelines. The

provider creates a drug formulary, co-payment structure, out of pocket charges and a variety of member rules and processes. In many markets, a single organization may offer multiple plans that may seem similar but have very different structures and rules. As an example – a company like Humana or Blue Cross Blue Shield may have 10 plans in one county.

This creates an additional level of complexity for beneficiaries when evaluating their program. As a result, most plan providers prefer to offer customized plans that while actuarially equivalent to the CMS' guidelines, vary greatly from the standard plan (Hoadley, Summer, Hargrave, Cubanski & Neuman, 2012). For the average Medicare beneficiary, comparing all the various combinations and permutations of possibly 30 different Part D plans can be very difficult. Add into the evaluation process new and often unused and unfamiliar terms like drug formularies, cost sharing, co-pays and networks and the end process can be one that is both intimidating and confusing.

How do Medicare beneficiaries deal with this complicated process? Since 2006 they have dealt with it by not changing plans since their initial selection. Each year beneficiaries have the option to change plans or select a new plan in cases where there are new plans in the selection option. When the program was first rolled out in 2006 all beneficiaries had to select a plan. Failure to select a plan could result in a late enrollment penalty, and a Part D plan could be automatically assigned. In the initial year of enrollment, people needed to make these evaluations and choices. In subsequent years those pressures may not be there. All the effort required to evaluate plans may not be worth it for most beneficiaries. And while they are bombarded each year with marketing and plan information, most plan participants decided not to evaluate the information, or

more importantly, switch plans. There is about a 10% switching rate amongst plan participants (Heiss, McFadden and Winter, 2007; Kling, Mullainathan, Shafir, Vermeulen and Wroble, 2011).

Consumers will often end up spending more than they need to on insurance plans, and specifically Medicare Part D pharmacy plans. This can be a result of initially selecting the wrong plan, or because of continuing with the same plan after their own circumstances have changed, the benefit design of their plan has changed, or the availability of new and different plans in their marketplace has changed their available options. (Abaluck and Griber 2016). This lack of change inertia and the possible related switching costs all play a role in how a consumer may or may not decide to switch plans when the opportunity is available to them. (Abaluck and Gruber 2016)

Focusing more on plan premium rather than other plan attributes is what puts many consumers in the situation where they are paying more for their drug coverage than they need to because they have not selected an optional plan as their choice. When a person decides, it is not done in a vacuum. Their decision can be influenced by several different factors. Some of these decision factors are obvious, but others are not obvious. Some of these small things, such as the presentation of data, the font size or the order in which items are presented can influence a person's choice. The "choice architect" who creates these environments can have a major influence on how the end user's decision might be made, and if the decision is the best decision for that person in that situation. In this context, the architects who redesigned the Medicare Part D Plan Finder tool made decisions on the look, presentation and information related to the plan costs and ratings.

Those decisions in turn impact the future decisions of those consumers who use the tool. Those consumer decisions will impact healthcare costs for the individuals who are paying for the cost of care.

1.1 Objectives

There are several aspects to the research objectives in this study: 1) to review the changes and enhancements to the Medicare Part D Plan Finder website and its ability to improve search outcomes on Part D Plans, 2) to understand the individual factors that influence technology tool recommendation and use (in this case the specific Medicare Part D Plan Finder website) by an individual and how those factors affect a positive or negative optimal plan choice, 3) understand how decision aid tools might improve health insurance literacy and impact optimal plan choice outcomes, and 4) understand how information processing takes place regarding insurance plans and plan recommendations through the perspective of maximizing and satisficing behaviors.

1.2 Motivation

In 2019, the Medicare.gov website received a significant upgrade to improve the functionality and usability of the site. (NPR article and Forbes article.) These changes were designed so that consumers could better review, analyze and compare the various plans that were available to them in their geographic area. New features would provide additional information to help assist consumers challenged from the perspective of health insurance literacy. These changes included new help features, sections which provided definitions, examples, and plan overviews. It was also set up to allow for an easier comparison of plans, as well as the ability to filter plans to reduce the number of choices and options based on the variables for the consumer's location. The previous version had

been criticized by seniors, policy makers and healthcare advocates. The website was said to be confusing, difficult to use and in some cases, containing inaccurate information related to some of the plans presented in the options. The new version of the website was also made to be more "friendly" to those consumers who chose to view, analyze, and even select their Medicare Part D Drug plans using a mobile phone, smart phone, or tablet device. There is a still a standard desktop version that is available for consumers using that method of technology to view and review plan choices and enrollment options.

For the Part D plans, consumers could see which medications were covered, as well as information on the availability of brand medications and generic alternatives. Pharmacy locations, as well as the option and availability of mail order medications were another variable. The consumer had the ability to view the pharmacy location information as both a list as well as a map based on their specific address or location information. The plan comparisons allowed the consumer to look at several plans and key features side by side to compare the preferred options. One drawback is that the comparison tool now only allowed for the comparison of three plans at a time. In some geographic areas there were more than 30 plans available, so these changes in some ways made the comparisons more difficult or confusing.

The new medicare.gov tool does allow consumers the ability to sort the list of plans in a variety of ways. Plans can be sorted by cost (from high to low or vice versa), by consumer ratings (from high to low and vice versa) and they can also be sorted by insurance company name. This does give the consumer several different options from which to review and examine the plan options, and customize the list based on their preference and preferred evaluation method. For the Part D Plans, the tool allows the

consumer to enter in any medications that they may be taking. If they are currently enrolled in Medicare, they do have the option to enter in their Medicare number and medications that are paid on their behalf may automatically be entered as part of the evaluation process. This feature does not always work correctly, and it is advised during the entry process by the medicare.gov site that consumers review the medication list to ensure that all of their appropriate medications as well as the dosages are entered accurately. This can sometimes create an additional data issue as some Medicare enrollees may not have the specific dosage information or they may be challenged to enter the information accurately. This will impact the plan options and costs.

One of the main enhancements in the 2019 roll out was to integrate the Medicare Plan Finder website with Medicare payment data. This would allow a Medicare participant the option to log into the site using their Medicare ID number, and the Plan Finder tool would pull in their prescription history and current medication regimen. This assisted the consumer in not needing to enter all their current prescription medication into the site when conducting a plan analysis. The average Medicare plan enrollee uses 4.5 different or unique prescriptions monthly (MedPac 2017 Report), so this enhancement saved both time, and improved data accuracy. If the specific National Drug Code (NDC) numbers and dosage information were not entered correctly, the wrong plan recommendations and incorrect pricing data would have been presented to the consumer. This could result in consumers selected the wrong Medicare or Medicare Part D plan based on a data entry error that they might have made.

The new features also eliminated some of the parts of the prior site that were deemed to be confusing. This included removing some of the options around putting in

plan prices such as ranges for copayments or coinsurance options which could be of a more limited value when trying to determine the total plan costs for a consumer. The new redesigned website also allows for a more integrated look at Medicare products to assist a consumer in getting a bigger picture for potential benefits. This means not just looking at traditional Medicare by itself and Medicare Part D by itself but looking at a variety of plans that might be Medicare, Medicare Advantage, Medicare with Part D Plan options or just a Medicare Part D Plan by itself. This additional information could assist some consumers with a better set of options across a wider spectrum of insurance products, but it could also have the potential to provide too many choices and options that could lead to more questions for certain segments of consumers.

One of the additional changes that was made on the Medicare Part D Plan Finder site in the 2019 roll out was to enhance and highlight the monthly premium amounts. While this is a significant and important amount for most consumers enrolling in Medicare Part D, it is not the only item that they need to consider. How this information is viewed, and potentially prioritized in a choice architecture for a consumer, can lead to a decision that is not considering the full picture of the total plan costs, which might include drug deductibles, copayments, and non-covered medications. There is a feature that allows for the comparison based on several factors, but the new plan design prominently features the premium costs. The plans are also sorted and displayed based on premium costs from lowest to highest, which may also make some consumers make the wrong choice by not fully scrolling through all the options or using only one component of price based on an incomplete picture of pricing for these plans. Once all

this information has been entered the key variables have been selected, the plan choices will be presented.

The Medicare Part D Plan Finder tool will show the consumer a variety of information to assist them in their choice. In addition to the Part D Plan name and ID number, the site will show the following additional information for each plan – monthly premium; yearly drug and premium cost; retail or mail order annual drug and premium costs; consumer ratings; drug deductibles; pharmacy locations both in and out of network; plan details; specific drug and cost information; and finally, an option to enroll.

Advances in technology have changed the way that medicine, insurance, and other healthcare decisions can be personalized to the individual. Through internet search technologies now available to wider populations, there has been a "democratization" of healthcare and insurance information in a way that not possible using previous technologies. Consumers can now search for prices of all sorts of items, and they have taken these same concepts of search, use, acceptance, information processing and decision making that they have exhibited in general consumer searches to health insurance and healthcare. Patients as consumers are more informed through the information available to them. To the best of my knowledge, this is the first study to use the new and enhanced Medicare Part D Plan Finder website to determine how the use of the tool, and the information provided, is influenced by specific user characteristics, and understanding how those characteristics influence optimal place choice.

Just like the user's goals and abilities determine technology use (Leonardi 2011; Markus and Silver, 2008), the material elements around technology also determine use, which is why the 2019 Plan Finder site changes are important. The technology needs to

keep changing to meet the changing needs of the user (Leonardi 2013; Markus and Silver 2008), an example of which in this scenario is enrollee's needs to use a mobile device to view plan information, which was a significant change from when the site was first introduce in 2006. These perceived and actualized affordances, influencing both perception and use of specifically technology, is part of what drove some of these changes to the Plan Finder website.

Mobile devices are now equally important for the elderly groups. Although people in this group have lower level of IT proficiency, some people can, under certain circumstances, be among the most extensive users and find the greatest usefulness of these devices to improve their health outcomes. Elderly people groups may be slower learners of IT or more apprehensive when it comes to use because of less exposure and experience. However, these people usually have more free time at their disposal. One of the major benefits of mobile devices is their versatility because they can be used for multiple purposes, such as collecting information relating to a certain disease, maintaining commutation with their healthcare providers, discussing the disease with their relatives and friends, and watching online programs for entertainment and education. This was evident in the COVID-19 pandemic when there were large numbers of patients taking advantage of telemedicine options to interface with medical providers. Physically restricted patients due to government lockdowns were able to stay at home and still maintain connections with the rest of the world through devices iPads and technologies like Zoom and FaceTime to keep them connected with different people and places.

A simple taxonomy can be developed to categorize two types of IT that are used for mobile devices which benefit people's well-being. The first type is mobile devices, hardware and/or software, particularly developed for improving patient related health outcomes. These devices might have design and function to suit the needs for certain types of patient groups (e.g., Varshney, 2007). The second type is the mobile devices that are produced for general consumers. The fast-advancing technology is on the one hand continually adding new functionalities to general consumer products, such as the many health education related apps at the Apple App Stores which enables the Apple mobile devices to perform many healthcare related functions that were not available before, and on the other hand pushing the specialized devices to be more sophisticated and specialized to meet the increasing demand of healthcare needs. This was one of the major features of the Medicare Part D Plan Finder site redesign – make it more mobile user friendly recognizing the trend shift away from the use of desktop devices toward a greater use of mobile devices.

Healthcare service utilization is yet another health literacy outcome. For instance, (Wofford, E. D. Smith, & Miller, 2005) reported a review result for multimedia computer for office-based patient education and used healthcare service utilization as one indicator for the effectiveness of the educational programs. Leveraging technology can be a method to improve health literacy, and more efficiently utilize healthcare resources. Kickbusch (2001) contented that health literacy is a key factor affecting public health. Since public health is a rather broad domain, the focus here is on the immediate public health and social outcomes such as reduced transmitted disease and improved the health wellbeing of the whole population. In addition, Kickbusch, drawing from the social capital framework,

stated that the improvement of healthcare related social network benefit the public by promoting a more integrated public health agenda.

1.3 Current Study

The research context is a sample of a population who would be either a) the primary user of the Medicare Part D Plan Finder website or b) someone who assists a person who might be using the Medicare Part D Plan Finder website. Participants for the experiment were targeted from a variety of locations and backgrounds to participate in the experiment.

For this experiment a positivist confirmatory approach was used. As described (Orlikowski and Baroudi 1991) there is a single and tangible phenomenon of interest and there is a unique a unique best description of that phenomenon. The study will use deductive logic to discover unilateral, causal generalized relationships that can possibly predict patterns of behavior across situations. The research is value free, and the appropriate general laws are known the relevant conditions can be manipulated, which is in line with McCarthy 1978.

Studies that are premised on the existence of *a priori* fixed relationships within phenomenon that are investigated through structured instrumentation (Landry and Banville 1992.) The authors note four requirements for positivist research which are present in this research as well. The four requirements are 1) the use of controlled observations, 2) the use of controlled deductions, 3) replicability and the desire for generalizability.

For a positivist approach, all knowledge must be based on logical inference from a set of basic observable facts. As knowledge is synthesized together by verifying

results, inferences can be made. Specific hypotheses were developed and tested against existing theory. Survey research and case studies are appropriate categories for a positivist approach. Two key factors drive a confirmatory research method approach. One is how the researcher addresses the potential weaknesses of the method and the other is the relationship between theory and method. This method requires three elements to be present: 1) the research must begin with hypotheses developed by theory 2) the research design must be logical and systematic, and 3) the findings must be independently evaluated.

This study focuses on the use of technology and recommendations provided by that specific technology to make a choice and understanding how individual factors can influence that choice. Through a discrete choice analysis experiment, as well as a pre-experiment survey to determine background, decision style and behavioral intentions, and a post experiment survey to determine technology impact, choice rationale and decision confidence, I identify factors and information that influence these choices, the success of making the optimal choices, and the impressions of the assistance of the technology in making this plan choice as well as how the recommendations on the plan choice were interpreted.

There have been several social science studies that focus on the aspects and elements of choice. Many of these studies have focused on specific items from a marketing perspective. These aspects revolved around tangible items related to color, packaging, tastes or placement. There have also been several studies that have focused on the aspects of choice from a voter or political perspective. Factors that influence behavior and choice in several settings have been reviewed. There is limited study of the

specific factors that may influence the insurance choice in a healthcare setting, more specifically for pharmacy plan selection in the Medicare Part D benefit program. More specifically, there is room for additional research in how technology can facilitate the presentation of additional data to influence patient choice of pharmacy plans when using the Medicare Part D Plan Finder tool, especially in light of the changes to the website made in 2019.

Neumark, et al (2007) did a detailed analysis of the impact of patient versus health plan choice of provider. Ellenberger (1992, 2000) focused on the issue of plan choice from the patient perspective. They reviewed the positive impacts when a patient is treated by someone that they trust and whose interests align with the patient. Durbin and Appel; Durbin, Corro and Helvacian (1996) were two studies looking at the health plan choice of medical provider and overall costs of medical claims and the impacts of medical fee payment schedules. This study will extend the prior research on these plan selection attributes, specifically when technology tools are used to assist in the decision-making process and choice selection.

The role of the consumer is driver by satisfaction. While not the traditional elements seen in marketing, consumer. Satisfaction in a healthcare context leads to favorable results for physicians, such as higher rates of patient retention, patient referrals resulting from positive word of mouth and higher profits (Peyrot et al., 1993; Zeithaml, 2000). Patient satisfaction also influences the rate of patient compliance with physician advice and requests (Calnan, 1988; Pascoe, 1983). This demonstrates how satisfaction can affect the outcome of medical care. As a result, healthcare organizations have

incorporated patient satisfaction as a key outcome measure and use it as a tool for organizational planning (Reidenbach and McClung, 1999).

With the increased use of technology, and applications and tools to support the use of technology, additional research and study can examine how technology can influence or impact the plan choices made. It is clear to understand how technology tools such as the Plan Finder website increases the numbers of choices available to a patient simply by increasing the size of the available market. We also know that the choices made may be influenced by technology based on the way that information may be presented, or ranked in its presentation, when given to the patient. Beyond the basic data of zip code, simply selecting the first option, or some other non-rational factor, can the technology be used as a vehicle to influence and improve the choices made or the satisfaction levels with plan choices made, by using website search and evaluation or comparison technology? There needs to be a greater understanding of the correlations between technology, marketing, and psychology to determine the interrelatedness of these areas and their impact on choice. These factors will assist in determining the critical elements to present to the patient to influence their choice of provider.

1.4 Contributions

Over the last four decades, health care spending in the United States has grown rapidly, typically more rapidly than the overall economy. Health care expenditures both in per capita terms and as a share of GDP are higher in the United States than those in other industrialized nations (CBO, 2019). Among other cost containment strategies, managed care and benefit programs and networks such as those available to enrollees on the Medicare Part D Plan Finder website have been extensively used to help control the

growing medical care costs. They were an essential part of the rollout of the benefit in 2006. Such managed care networks and plans are designed and managed to create and maintain the right incentives for both the patients and the providers to balance cost, efficiency, and quality in the delivery of health care. These insurance and benefit groups are selective and seek to add service delivery providers and pharmacies who meet specific criteria in terms. Health plans engage with these managed care networks to deliver better care at lower costs for their members.

The ongoing health care reform in the United States, besides other legislative changes, calls for a more coordinated health care service delivery between the patient and the provider. The role of the patient has become critical to solving the potential problems faced by the healthcare system. Patients need to become more engaged and educated in their healthcare journey. Being able to influence and improve the choice of medical providers made by employees could hold the key to changes in healthcare outcomes.

The United States spends the most money of all developed nations, yet only ranks 36th in terms of quality and outcomes. In addition, with the growing population and changes to the healthcare system as part of the Affordable Care Act, healthcare resources are becoming increasingly limited. Medicare will add over 15 million new members to its rolls as the population continues to age, and the "Baby Boomer" generation begins to become eligible to participate in the program. These additional constraints on the healthcare marketplace will require a more informed and effective utilization of resources.

Patients need to be effectively matched with health insurance plans to connect them with the medical providers and the right financial benefits based on their needs and

their resources. Despite the critical nature of the relationship, the selection of the insurance provider is often based not in a rational thought process and may be made using information that is to a certain extent, irrelevant to the medical treatment. The information that may assist the patient in making a more rational choice is readily available; however, it is not always presented to the consumer, or it is not presented in a format that makes the information easily processed. Use of the internet continues to increase. Patients of all ages and backgrounds have become more familiar with the use of technology as a resource. Patients conduct a variety of simple and complex searches for a variety of items such as plane tickets, hotels, restaurants, homes, or cars. The skill to conduct the search, analyze the information, and make an informed and rational choice has been demonstrated and studied. In addition, the use of technology to facilitate these searches and choices has also been studied. Applying similar logic to the healthcare setting has not been studied.

While there are several studies focusing on specific aspects of social behavior, there are limited numbers of studies that have reviewed the impact or influence of technology as a tool to modify behavior or expected outcomes of choice based on specific characteristics of information. The use of the online search tool will allow for the study of the insurance plan attributes important to specific patient or enrollee types, and how the presentation and availability of that data can be a factor in the choice of insurance plan.

Chapter 2 LITERATURE BACKGROUND

2.1 Medicare Part D Plan Selection

Studies have demonstrated that consumers were able to easily identify the least expensive Medicare Part D insurance plan when the number of choices was reduced (Hanoch et al 2009, 2011; Barnes et al 2012). These results would be supported by Simon's theory of bounded rationality (1955) by reducing the cognitive overload the consumer is faced with mare targeted information to avoid a suboptimal choice. A variety of determinants of health plan choices have been studied ranging from switching costs, framing and menu effects, limited consumer information and the number of choice options (Schram and Sonnemans, 2011; Abaluck and Gruber, 2011; Ketcham et al., 2012; Heiss et al., 2013; Schmitz and Ziebarth, 2016.) Heiss specifically looked at switching costs and inattention when it came to Medicare Part D plans. Consumers often do not understand the significant differences in pricing and savings when it comes to insurance plans, and this has been seen as an additional reason as to why consumers resist switching plans or selecting the optimal plan in the first place.

Abaluck and Gruber (2013) found that in the first year of the Medicare Part D program, only 20% of enrollees were selecting the lowest cost plan. That number of enrollees in the lowest cost plan continued to decline over the next three years due to a lack of switching amongst enrollees as new or better priced plans became available, or as medication regimes changed and different plans now had better formularies based on individual need. In 2009, Zhou and Zhang (2012) showed that most beneficiaries were

paying at least $350 more than they should be due to a selection of a suboptimal plan based on their needs, and the number of enrollees in optimally priced plans was only 5%.

The Medicare Part D Plan selection process is often viewed as too complex. Most seniors would prefer to have a single plan offered by the government and do not view the option to choose as a "benefit" (Kaiser Family Foundation 2006). When faced with complicated tasks, consumers will often take the default option, if available, or the choice that is viewed at the least risky (O'Donoghue and Rabin). Technology may be a variable that can influence the rationality of the decision, in both a positive and a negative way, and in turn, influence the outcome, or the choice (McKinley & Marceau 2002).

2.2 Choice

Simon (1955, 1956) created the first definition of satisficing and maximizing. The scale to determine individuals who are satisficers or maximizers based on individual traits was developed in 2002 (Schwartz et al.). Maximizers find the best solution, while satisficers find the solution that is good enough. The scales for determining the individual profiles have continued to evolve. What these new scales do not yet consider is how technology impacts the maximization constructs. Today's search makers have the advantage of using technology to change the way that they search and evaluate information. The ease with which today's searches can evaluate and review information is very different from pre-technology searches. The most recent maximization construct (Cheek & Schwartz 2016) does not mention the need to include the use of new modern search tools to achieve optimal choice.

There are two sets of choice rules. There are attribute based choice rules, which are sets where the individual understands at least one of the attributes for all of the alternatives. There are also alternative based choice rules, which is where the individual evaluates all of the choices sequentially rather than simultaneously, using one or more of the attributes as a guide. The potential determinants of health plan choices previously studied include things as varied as the number of choices, switching costs, myopic preferences, menu and framing effects, probability weighting and limited consumer information (Schram and Sonnemans 2011; Abaluck and Gruber 2011; Ketchum et al. 2008; Heiss et al. 2013; Barseghyan et al. 2013; Bhargava et al. 2013; Handel and Kolstad 2015; Schmitz and Ziebarth 2016).

The ability to choose consistently and optimally is seen as unlikely based on several studies in both the economic and psychological literature (Kahneman 1973; Kahneman & Tversky 1979; Hirshleifer and Teoh 2003; Kunreuther et al. 2013). Kling tested whether individuals make rational decisions regarding Medicare Part D plan choices. The provided consumers with personalized drug plan information in a letter to determine if those consumers make different decisions than consumers who are not provided with personalized information. The study was done with patients in just one hospital and the information that was personalized was just the information in the letter. It is difficult to generalize these results beyond this study. In the end, the choices may still be too complicated from the perspective of the chooser, even when presented with the personalized information.

The values, preferences and search or choice behaviors are unique for different age groups. (Parment 2013). These different generational age groups develop these

unique group attitudes and beliefs based on their common life experiences and history. (Meriac et al 2010). The different age groups each have their own unique experiences and perspectives, which cause them to develop these beliefs, attitudes, perspectives, and social norms that are distinct to that group. (Dries et al 2008; Kupperschmidt 2000).

To achieve better levels of care as well as improved efficiency in care delivery, increases in individual patient choice as part of the care delivery system, including coverage and insurance options, is an essential means to reaching that goal (Fotaki 2014.) Just as with other decision types, when a person feels empowered to decide, they will accept the results of that decision in a stronger way than if the decision or choice was forced upon them. With greater access to information, patients and healthcare consumers have a greater ability to become more informed decision makers, if that is their choice. These engaged and informed consumers are taking greater ownership and involvement in the approach to health. How they trust their abilities plays a key factor.

Trust can take on several different perspectives and contexts depending upon the point of view of the individual. The defining aspect of a social reality from a sociological point of view can be very different from the precondition of an economic exchange or the substitution for imperfect information as viewed by an economist (Fotaki 2014.) Patients have a desire to have increased levels of choice in the healthcare system. One of those important choices is the healthcare provider. Ultimately, connecting the patient and the provider is the key choice component to the medical relationship. The provider can be an individual physician, a hospital or medical facility, or even a healthcare plan. The patient has a unique relationship with all of them.

Because of the unique aspects of the healthcare system, there are varying degrees of choice. In some plans, the patient does have the ability to choose the medical provider with some limited restrictions. However, it is not a full choice. The choice may be limited to providers that are offered by the health plan. Even in situations where the health plan limits or restricts the choice, or possibly makes the choice, there may also be possible limitations to the available providers from which the patient or plan can select for treatment.

Technical competence, knowledge, and accountability influences patient's trust levels through their healthcare experiences (Baier 1986.) The sources of information can influence the levels of trust that a consumer may or may not have with recommendations that are made related to their healthcare. In this specific instance, levels of trust with the US government, who is the source of the information provided on the Medicare Part D Plan Finder website, may have an influence over a consumer's ability to accept or reject the recommendations made, or trust the accuracy of the information provided. These perspectives may not be rational, but they are an influence on the consumer even if they are not aware of it.

The levels of inclination to trust in a healthcare setting are influenced by factors such as race, religious affiliation, autonomy preference and acculturation (Tarn 2005.) The prior experiences that consumers may have had, both in the healthcare system and outside of the healthcare system, can influence their ability to trust and use the information that is provided. Because these characteristics are cultural, it requires an additional level of perspective when designing and structuring how information is to be

shared, based on the potential user's known and unknown biases that are brought to the decision-making process.

There have been several studies in the social sciences research that have looked at the theories of choice. From a psychological perspective, there have been several studies that have examined intuition and how it influences choice. These studies (Ellis, 1984; Hay, Young and Ellis, 1986; Dunning and Stern, 1994; and Bargh, 1997) reviewed the differences in intuition and rationality in choice, and how the two may be influenced by one another, and how individuals use one or the other when making a choice. It is the rational elements of decision making that will influence the choice for some, but not for others. Numerous studies have also demonstrated the link between the provision of choice and increases in motivation perceived control, task performance and life satisfaction. This availability of choice is seen positively in early psychological research. In addition, more recent studies looking into consumer preference further demonstrate that choice is viewed as attractive (Iyengar and Lepper, 1999).

A greater level of satisfaction is found when the option to choose is available. The relative difference in the perception between two goods increases when an individual can choose between them. Subjective evaluations increase during the process of making the choice. In the context of health plan choices, Szrek and Baron found that the preferred health plan was viewed more favorably compared to other alternatives than when it was looked at by itself. Too many choices can have a negative effect on both the objective and subjective aspects of decisions making. The choice overload can also increase regret, while at the same time decrease satisfaction and motivation (Iyengar and Lepper, 1999).

Consumers can be asked to choose between two or more alternatives with varying attributes. A Hypothetical choice experiment is one in which the individuals are presented with the same type of choice situation they would be facing in the real world. Behavior exhibited in the study is clearly related to the actual behaviors. The experiment would concentrate on the desired plan attributes or preferences as stated by the participant. In this instance, a hypothetical choice experiment would have the individual choose between different presentations of Medicare Part D plan options. Hypothetical choice experiments have been used in public policy, marketing, and psychology analysis (Louviere et al. 2000; Street and Burgess, 2007).

The relation of the number of options, perceived variety, choice satisfaction and decision quality when understood may lead to a better appreciation for how and when more choice can benefit individual's choice and decision making in a healthcare context. Some of the important determinants of healthcare choice are out of pocket price and quality. Price elasticity can be influenced by quality. Plans with low quality ratings are avoided by enrollees. Consumers who actively searched for health plan information increased their capacity to make better choices and were more likely to switch (Kolstad and Chernew 2009).

2.3 Health Insurance Literacy

Health insurance literacy is defined as "the capacity to find and evaluate information about health plans, select the best plan given the financial and health circumstances, and use the plan once enrolled" (Roundtable, 2012.) The concepts and terms around health insurance are not ones that are commonly used. As a result, many consumers are not familiar with the meaning and applicability. The monthly amounts

charged as part of a premium billing is an easy concept, but understanding when a coinsurance payment is applied, or how a deductible is calculated, is not. This lack of understanding, and limited resources to often explain these concepts, means that many consumers may not be as effective in their insurance purchasing or use decisions.

Alain Enthoven established the economic theory of managed competition for the US private insurance market. The insured is supposed to benefit from the efficiency in both the healthcare insurance and healthcare delivery market because of controlled or managed costs that are a product of increased competition. These forces also provide for high standard of equity and access for the marketplace (Enthoven 1978, 2007.) Consumers who are more numerate showed higher health insurance comprehension. Consumers with more health insurance comprehension made choices of plans that were more consistent with their stated preferences and were less likely to choose a non-optimal plan (Barnes 2015). Because of the lack of an association between price and quality in healthcare, an opportunity is created to encourage patients to shift to lower cost health plans and programs. (Whaley 2019 HA).

Lower levels of health insurance literacy were found in younger individuals. Overall, females of all age groups had self-reported lower levels of health insurance literacy, but they also could better compare health insurance plans and benefits. Individuals with lower quality of insurance coverage also had greater difficulty in understanding a variety of health insurance terminology associated with health insurance literacy. Identification of individuals with these lower levels of health insurance literacy, or the potential to have lower levels of health insurance literacy, may be a way to better

allocate resources to improve overall choices related to health insurance coverage. (Adepoju 2019).

The definition of the word deductible could not be correctly described by 42% of respondents in a survey of 18–64-year-olds. In addition, half of the respondents were not aware of the online exchange and enrollment options for consumers looking for a variety of plan options. (Barcellos et al 2014.) Shopping for health insurance plans and programs can be a challenge for consumers of all ages. One study found that close to 40% of survey respondents with limited self-reported literacy and numeracy found identifying and processing information on health plans difficult. (Long et al 2014.) Another study found that only 26% of all study participants were able to answer six basic health insurance literacy questions correctly (Wang 2016.)

When there is greater choice of health insurance options for consumers amongst a larger set of competitors who offer plans in a specific market, the price of those plans will become more competitive as companies look for ways to entice additional customers (Enthoven 1993.) In Medicare Part D Plans, this has been found in the advent of new benefits to enhance basic services. These benefits can include transportation services, wellness programs, home meal delivery and gym memberships. While these additional enticements and services can be of benefit, they sometimes mask the true cost of plans, and consumers may not fully understand the full picture of costs for a plan.

The issue remains that most consumers do not know enough about the specific differences between insurance plans when it comes to being able to effectively differentiate between high cost and low-cost plans and the essential benefits provided by these various options. While the market may be robust, being able to successfully

distinguish between the insurance products and their relative value to the consumer given their needs and expectations, especially regarding cost, the choice may be less than optimal given the limited knowledge (Erickson KM, Starc A. 2012.) Information on plan characteristics, including both cost and quality, are of high interest to consumers in their attempt to analyze and review insurance and healthcare information when making choices between plan options. The difficulty for most consumers is that they fail to understand the key terms and plan design items that will impact both cost and plan delivery. (Hibbard and Jewett 1996). The main factor that is related for most consumers is the monthly premium cost. Because this is a number and factor that is like other expenses that a consumer might have outside of healthcare, it is easier to process and use as a point of reference. Because the nature of some of the other expenses, such as deductibles or copays, can be variable and dependent upon the health of an individual or how that person uses the healthcare system, these expenses may be harder to quantify and calculate for the average person.

Increased competition amongst health insurance providers is one method to reduce cost and increase or improve the quality of care for individuals (Singer, Enthoven 2000.) When considering plans on the Medicare Plan Finder website, consumers must look through many private companies offering Medicare, Medicare Part D and Medicare Advantage plans. CMS now allows private companies to administer these plans and service enrollees. As a result, consumers can select from traditional Medicare programs operated by the government, or private plans run by both for profit and not for profit organizations. This increased competition has changed the way these plans are priced. Again, these enhanced benefits offered by some of the private sponsored programs, such

as transportation services, meals, and gym memberships, can be used to create an impression that the consumer is getting something for free, when they may be paying more than they should.

Because health status and impressions of health status can influence decision making, understanding health literacy in the context of health insurance literacy is also important. Health literacy plays an important role in the outcomes of health-related activities in society. A person's health literacy will influence activities and decisions such as medical procedure or drug choices, how communication with healthcare providers might take place, and more importantly, the understanding of medical information that is shared with a patient as part of their course of treatment. A consumer needs to have sufficient levels of health literacy for their actions to contribute positively to their overall health and wellness. This means that they must have an adequate level of health literacy (McQueen et al., 2007) to make effective decisions. A wide range of health outcomes are influenced and impacted by levels of health literacy. These include the actual appropriate use of health care services, taking steps towards improved health, general reduced costs of healthcare, and potentially reduced disparities in health care service use (Berkman, 2011).

The Federal Government, as well as insurance companies and managed care organizations have realized the significant role that health literacy plays in a person's wellbeing. As a result, many of these organizations are using identifiers such as social determinants of health to identify and drive increases in health literacy. This can be seen in public awareness campaigns sponsored by several public and private entities. It can also be seen in changes in care guidelines with standard questions that are part of routine patient intake processes to identify opportunities early in the care process.

The development of the concept of health literacy is closely related to the evolution of the concept of general literacy, which was promoted by governments and through public policy initiatives that appeared after the 1960s. As such, health literacy is generally considered a term derived, at least partially, from the concept of general literacy (Peerson & Saunders, 2009). Health Insurance Literacy has followed a similar evolution out of health literacy. As much of the healthcare system is tied to an individual's availability and use of health insurance, these two concepts are linked together. Research in this area is closely tied to the concepts around traditional literacy skills. These skills focusing on basic things, such as comprehension and writing. Health literacy, and health insurance literacy build off these fundamental concepts in the specific area of health and insurance. The American Medical Association began to use the term health literacy in 1998 in the context of patient literacy, demonstrating that it could be a barrier to effective patient treatment if health literacy issues were not addressed. Specific abilities were mentioned in healthcare context such as the ability to read written medical instructions or to fill out a health insurance form. This is part of the way that literacy, health literacy and health insurance literacy intersect. High levels of health insurance literacy can be differentiating factor in making choices (Tipirneni et al, 2018) in order to achieve successful optimal plan selection. Poor comprehension (Wang et al. 2017) can lead to more expensive plan choices and inefficient use of healthcare dollars.

2.4 Information Processing

Information processing examines how factors such as perception, attention, or reasoning influences how we use information in the context of making decisions (Miller 1956.) The information process framework has two theoretical ideas that are

fundamental to the information processing framework. The capacity of short-term working memory is the first. Miller presented the idea that short-term memory could only hold 5-9 chunks of information (seven plus or minus two) where a chunk is any meaningful unit. These chunks could be several different things. Some of the examples were digits, words, chess positions, or people's faces. In terms of short-term memory, the concept of chunking and the limited capacity of short-term memory became a basic element of all subsequent theories of memory. The computer as a model for human learning is the second concept of information processing. The human mind, like a computer, takes in information. When it does this, it processes on how to change its form and content so it can use it. Then it would store the information and locate it when needed and generate responses as appropriate. Processing information involves gathering, holding, and retaining information. From an information processing perspective, learning is viewed primarily through a study of memory.

When a person needs or seeks information relating to a problem, choice, situation, or artifact, they will conduct an information search. Once that person determines that they have enough information to decide, they will terminate the search. They employ their own version of the "stopping rule" (Browne and Pitts 2004) and move on to the next phase of the decision-making process. These stopping rules are sometimes difficult for some people to apply (Busemeyer and Rappoport 1998) and their inability to see the value difference of finding additional information compared to the cost of acquiring that information. Regardless of if they use the information or not, patients prefer more information rather than less. (Vick 1998)

How technology can change and influence these choices is a key question for this study. Consumer empowerment in healthcare has been dramatically increased by the availability of information on the internet via increased access to technology (McKinley & Marceau 2002). As more information is made available to enrollees through various channels on the internet, enrollees would be able to make more informed choices. They will have more knowledge of costs, deductibles, covered medications, quality ratings and participating pharmacies. This increased knowledge will also make patients more demanding in their role as both an enrollee and consumer (Coulter & Jenkinson, 2005; Neuberger 2000).

Several traits characterize active health care consumers, including seeking and using information on cost and quality variations, the consideration of a range of alternatives before choosing providers and treatments, the formulation of independent judgments about quality once services are rendered, and the willingness to choose practitioners based on these judgments (Hibbard and Weeks 1987; Lupton, Donaldson, and Lloyd 1991). Active health care consumers may be viewed as more skeptical about the competency of physicians and less confident in the ability of individuals to find good doctors through traditional trial-and-error methods using information from family and friends and the judgments of individual doctors (Hibbard and Weeks 1987). Lack of consumer activism is often blamed for the high cost of obtaining information with which to compare the quality of alternative physicians (Hoerger and Howard 1995).

Marketers are constantly challenged to increase the value of their product/service by improving the product/service benefits, reducing costs through productivity or both (Sheth et al., 1999). Superior value of a product/service represents a significant

competitive advantage for the firm in building profits and customer satisfaction (Naumann, 1995). In healthcare industry, value has not been a focus of strategic considerations for patients or physicians. Given the potential significance of value in health care management, there is a need to better ascertain the nature of its relationships with patient satisfaction and behavioral intention.

Perceived value is conceptualized as the consumer's evaluation of the utility of perceived benefits and perceived sacrifices (Zeithaml, 1988). In their minds, sometimes consumers will integrate their impressions of what they get and what they give up receiving services. In healthcare, benefits are largely the results of good quality service in both outcome and process domains. Sacrifices from the enrollee's perspective can be divided into two types: the price that enrollees must pay, and the nonmonetary costs such as time spent, and the mental and physical stress experienced in receiving the care or the benefit.

Functional affordances (Markus and Silver 2008) are potential uses originating in material properties of information systems that identify what individuals might be able to use the system for, given the user's capabilities and goals. Identifying functional affordances of information systems that relate to a goal of establishing work practices and assist in understanding how information systems can be designed that aid tackling challenges (Dedrick 2010; Melville 2010; Watson et al. 2010.) In this context, users may be influenced by the medical condition status or by their health insurance status. This is a lens that may alter the method of how they search for a Medicare part D plan, or ultimately choose a Medicare Part D plan.

Stopping rules are used by consumers in a variety of tasks to terminate information search processes. (Browne and Pitts 2004; Busemeyer and Rappoport 1998.) The number and quality of alternatives considered in an information search is directly impacted by the number of alternatives as well as the quality of alternatives. (Bazerman 2006). There are differences in the way that experts and novices conduct and evaluate information while using online search tools. The level of experience and confidence in using online tools will also impact the consumers ability to process and evaluate the information presented by online tools used for searches and comparisons. (Cothey 2002; Jaillet 2003.) The identity of the advice giver can shape how recommendations are received and accepted. (Banjeree et al 2013; Maertens, 2017)

For medicine and healthcare, the balance between costs and quality is constantly changing and improving as there are increases in medical research and technology (Donabedian, 1988). Because of the nature of medical treatment, it is difficult to correlate healthcare outcomes to levels of quality. Often, the outcomes of treatments or medications may not be seen immediately. In addition, there may be complications with the course of treatment, while necessary, may not be positive in terms of service, and that may have an indirect negative impact on the patient's perceptions. Prior research (Newcome, 1997; Williams, 1994) demonstrates patients may lack an ability to fully understand all the aspects of their care and treatment due to a lack of knowledge and expertise related to medical issues. Human decision making, and behavioral decision theory, looks at this process through a traditional view of rational decision making.

2.5 Decision Making

Thinking and decision making often are conducted on a continuum (Hammond 1996) and this decision tree approach is how the various elements that make up choice can be viewed. It is often a combination of intuition, rational analysis, and a combination of both that go into the actual choice. Because rational analysis is viewed as both precise and objective, it is often that this method of choice is applicable when the end decision is one that is viewed in the same way. This is not always the case.

Intelligence, design, choice, implementation, and monitoring are the phases of decision making. Everyone in the decision-making process approaches the decision with a different style, ranging from rational, dependent, intuitive, or spontaneous. (Sadovykh 2015). The structured and ordered decision making process as described by Simon takes place over three specific phases – intelligence, design, and choice. In the first phase the decision maker is collecting information related to the cause of the problem as well as the information about the problem. During the second phase, the decision maker is reviewing and analyzing all the potential options and alternatives that could occur as a result of the decision. For the final phase, the alternatives are narrowed down to better examine the ultimate outcome, which is the final choice. Some of the extensions to this model included additional phases of implementation and monitoring, which were proposed by Huber and McDaniel (1986). This extension examines the decision being put into effect (implementation) and analyzing the decision outcomes once that decision is made (monitoring.)

How a decision maker decides is part of an unconscious behavior that is applied to their actual decision making. Individual behavior in decision making is driven by this

style. In decision making, there are a variety of courses of action that can be taken to make a decision or choice. During information processing, the differences between how individuals explore alternatives and how options are identified and reviewed becomes clear. These differences in information processing and viewing of alternatives is argued (Driver et al 1993) as the point where these main differences become significant and can be identified. A decision maker's process can be influenced by experience, knowledge, or cognitive abilities. Understanding the pattern of the individual's decision making can provide insight into why the decision was made as well as evaluate the decision itself. There are five decision making styles as defined by Scot and Bruce (1995) – rational, intuitive, avoidant, spontaneous and dependent. For the rational decision maker, the search for alternatives is logical and thorough. The intuitive decision maker will look to other from whom they can obtain advice and direction. For avoidants, the individual attempts to avoid the process entirely. A spontaneous decision maker is one who implement their decision making immediately. Finally, the dependent decision maker is one who is dependent upon the advice and direction of others. Decision makers can rely upon more than one style, or some styles in combination. For the most part, the combined styles would act in terms of a primary and secondary style. Some of the styles are incompatible and it would be unlikely for them to act either simultaneously or in succession, such as the rational and spontaneous styles because of their obvious conflict in terms of approach.

Decision making can take two clear styles. There is a rational decision-making style and then there is an irrational decision-making style. In the rational style there is a sequential and structured process that takes place in an analytical environment. In the

irrational style, the environment uncertain and the process is unstructured and anarchical. Research in this area has created a variety of models and theories that seek to analyze and evaluate how decisions are made. While the frameworks look at the process from numerous perspectives, ultimately the decision-making models are designed to view the decision through the lens of rational and irrational.

Most of these decision-making studies have used Simon's theory as the basis for their examination. Researchers have sought to extend Simon's concept of rational decision making through a variety of extensions of his work. When making these choices, with the amount of information that is available to a consumer to review and consider, the individual must determine how much, or how little, information they might need to make that decision. The concept of satisficing, which is a combination of satisfaction and sufficing (Simon 1956) has been able to show choice in a different light, and one where the choice is merely made to meet an acceptability threshold. This ties in with the concepts of bounded rationality. Bounded Rationality shows that choice is limited by the individual's awareness of the limits of their choice, and in turn, operates off a more simplified set of choice rules. While some of the information available might be important to certain groups of consumers, it may not be of importance to others at all. Some may even find the information burdensome to review.

2.6 Knowledge Gap and Significance

The main research gap is that prior studies have utilized the Medicare Part D Plan Finder tool prior to the updates that took place in 2019. Significant changes were made to the site based on feedback from enrollees and plan administrators. This was an investment of over $19 million in new features designed to make the search process

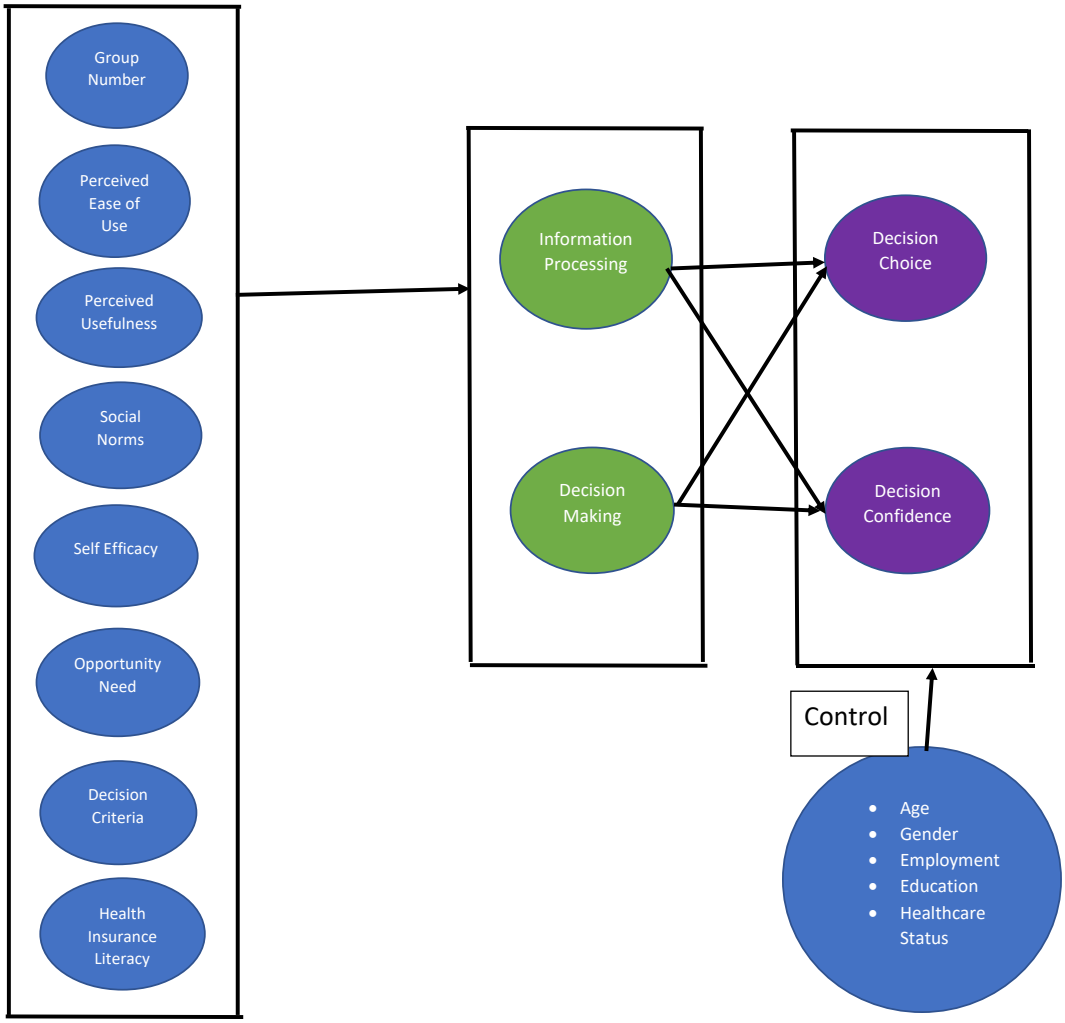
easier and more targeted. To date, it does not appear that there have not been simulation studies using the new enhanced website.

Most prior Part D studies have also focused on administrative data. The simulation studies have been limited. Discrete Choice Experiments in the health insurance and healthcare area have focused more on health insurance, and not specifically examining pharmacy benefits through the Medicare Part D plans. There are unique features and requirements related to Part D plans. This discrete choice experiment will examine the unique features of the pharmacy benefit and the Part D Plan options.

Chapter 3 MODEL AND HYPOTHESIS

This chapter provides a summary of the experiment and study design. The methods for the data collection are also contained in this section. Approval from the Florida International University Institutional Review Board was obtained prior to initiating this study.

3.1 Model



Since health literacy aims to make appropriate health decisions, we need to investigate how decision-making aids proposed are related to health literacy. Decision making aids also require relevant health information delivered. However, providing users with information alone does not affect treatment choices (Kennedy et al., 2002). Two aspects of decision-making aids are identified as special. One feature is to provide users with appropriately tailoring information. Information required varies across various diseases, which we have discussed before. Therefore, we found many decision-making aids providing tailoring features. For example, blood glucose meters are combined with software to visualize glucose levels before and after meals. Body mass index calculators are often available.

Choosing issues that require attention, finding adequate courses of action, and choosing an alternative as the final decision (Simon 1987). That cognitive process that results in a final choice is decision-making (Lendel 2008). The reason for doing something is what starts the decision-making process. The rational choices suggested to the decision maker are often a set of alternatives from which a person must make a binary choice, demonstrating a preference of outcomes from the alternatives (Orlovsky 1978). While decision making is theory has focused on choice (Beach 1993) it is an incomplete view of the decision-making paradigm. Ultimately, the three main characteristics of decision-making theory include the decision maker, the alternatives, and the decision (Sadovykh et al. 2015).

Another aspect is social interaction. Most of health information obtained from the Internet, which can be explicit knowledge, is not used for health decisions. Social support, especially communicating with healthcare professionals, would be the most

trustable way to build necessary tacit knowledge evoking actions. There are proposed health information technologies for specific population groups, especially for seniors, teenagers, and patients' groups. These population groups need to get attentions because they show lowest health literacy.

Some demographic groups, such as young people, might be in particular advantageous positions for acquiring knowledge using mobile devices. For instance, Tarn (2005) reported that young people view mobile devices are important symbols for them to stay current with trends, and their use of social networking through these devices were very high. This group has high utilization of regular computing devices as well. Research has demonstrated that social network is an important tool for promoting health life-style and maintaining people's general well-being (Kuo & Tsai, 1986). In the early introduction of mobile technology, young people were seen as more extensive users of mobile devices than some other demographic groups. That has changed as availability and use of mobile technology has become more extensive. With the availability of insurance and health related information on the internet, patients and consumers are better informed of health-related knowledge and information and can better utilize the information for their health benefits.

Satisfaction and service quality are unique constructs. The consensus in literature demonstrates that clearly. Marketing literature does not always clearly define the distinctions in their definitions (Ashforth and Tomiuk, 2000). The construct of satisfaction, as in the case of service quality, has largely been interpreted within the expectancy disconfirmation paradigm (e.g., Oliver, 1993; Johnston, 1995). Iacobucci et al. (1994) argue that both service quality and satisfaction are attitudinal constructs. Others

suggest that service quality and satisfaction are almost interchangeable (e.g., Kleinsorge and Koenig, 1991).

Service quality represents a cognitive judgment, whereas satisfaction is a more affect-laden evaluation (Oliver, 1993, 1997; Gooding, 1995). The cognitive status of service quality is strongly implied in the SERVQUAL scale, which assumes that consumers apply a mental checklist or calculation to reach an evaluation. Most past studies of satisfaction formation view it as a response to more of a disconfirmation of an expectation that involves a reasoning process (Oliver, 1997; Taylor, 1994; Tse and Wilton, 1988; Pascoe, 1983). Distinguishing between service quality as a cognitive construct and satisfaction as an affective construct suggests a causal order (consistent with the traditional multi attribute attitude model framework (Wilkie, 1986), that positions service quality as an antecedent to satisfaction. There is empirical evidence supporting this causal linkage between health care service quality and patient satisfaction (Bowers et al., 1994; Reidenbach and Sandifer-Smallwood, 1990; Woodside et al., 1989). Evidence for the significant impact of satisfaction on behavioral intention comes from a wide variety of service industries including health care (Anderson and Sullivan, 1993; Bitner, 1990; Reichheld, 1996; Woodside and Shinn, 1988; Woodside et al., 1989).

Understanding how self-efficacy impacts internet learning and use (Tsai 2019) is one of the factors examined as part of this research. Levels of confidence and beliefs in abilities can drive how information is both understood and accepted. If the task or the information seems too overwhelming to the user, the information or the tool may be of little value. There are three important factors that can drive self-efficacy in internet based learning and information processing environments - (1) learners' Internet self-efficacy,

assessing learners' confidence in their skills or knowledge of operating general Internet functions or applications in Internet-based learning; (2) the interplay between learners' general academic self-efficacy and their Internet based learning, and (3) learners' self-efficacy, particularly in terms of Internet-based learning. In general, a person's self-efficacy plays a positive role in their attitude towards, and their processes and outcomes derived from, Internet-based learning. There are demographic factors influencing knowledge awareness and confidence. These factors (Rhaman 2016), such as gender, work experience, education and employment status, can moderate knowledge sharing and confidence.

Cheung 2019 studied social norms and intentions and their relationship to intentions to use technology. As more information is collected and shared using internet-based technology tools, understanding how information can be both perceived and used is helpful. Part of the issues with the Medicare Part D Plan implementation and its accompanying technology tools was that the information was too overwhelming, and more importantly, not helpful in decision making. Examining these factors in the post experiment analysis will help to understand the impact of this factor on the participants. In addition, bias as it relates to information can also be at issue in the experiment. As studied by Choi 2017, shared social norms can mitigate, but not necessarily eliminate bias. This is significant when considering the source of the tool and the recommendations – the federal government and the Centers for Medicare and Medicaid Services – and how potential biases towards those entities might influence decision making or information acceptance and usefulness. Perceived usefulness, ease of use and trust (Beldad 2018) of the source and provider of the information shared in the

technology tools, such as the Part D Plan Finder, is part of the analysis discussed in the model. It is also part of the framework for both the pre and post experiment surveys.

3.2 Hypotheses

Is there a relationship between health insurance decision aids and the way that an individual can process the information presented to assist in the decision-making process using the online support tools and the ability to select an optimal plan choice? Group assignment and optimal decision choice is a function of the four groups and the characteristics of the information and support for each of the groups will influence the ability to make an optimal choice.

This level of experience, and the ability to decide which information sources to use or trust, will drive how much information a searcher uses or considers important, or in a sense, maximizes for importance. These decision aids, created by others or created by the searcher, assist in filtering and prioritizing the information. Designing a maximizing scale around a search with the reliance on online tools or other modern search strategies is fundamental to increase the relevance of the satisficing and maximizing concepts. Using decision tools as a strategy to achieve the best choices needs to be part of new maximization research (Anderson & Misuraca 2017; Misuraca and Fasolo 2018). Because of easier access to information and comparative data, decision makers today can make better decisions and be more rational decision makers (Simonson & Rosen 2014). In the past, consumers were often driven to the chose the easiest or less complicated choice because of the compromise effect. Consumers today are no longer biased by this compromise of taking the "easy way out". Online search tools eliminate many of the irrational effects of traditional decision and choice making

because the search tools provide easy access to information, they provide nearly perfect information and the online search tools make it easier to select the best option (Simonson & Rosen 2014). Online search tools improve the probability to find a detailed answer and reduce the amount of time to get the answer (Chen, Jeon and Kim 2014). In their study of the effects of providing personalized information on health plan choices, two new features were introduced to examine individual behavior – inertia and incentivized distraction (Kaufmann et al. 2018). They reviewed cost reduction and choice decisions in the context of decision time. They reviewed the final choice made and determined if it was an active or passive decision. The objective was to allow for a better understanding of the health plan choice and the mechanisms driving the decision. The ability to present this information in a usable and easily accessible format has only been recently achieved using online search tools and technology. It creates the opportunity for the enrollee that would not have existed in the past.

What are the key factors that influence decision choices when an individual is assisted with their decision-making process? Choice and optimal plan selection are impacted by an individual's ability to cognitively process plan benefit and financial information and select an optimal plan choice. In addition, the decision-making styles and abilities and influenced by preferences around information maximization and satisficing behaviors.

- Hypothesis 1 – Decision choices
    - 1A – Group assignment based on amount of information and support level positively affects decision choice
    - 1B – Information processing positively affects decision choice

- 1C – Decision making process positively affects decision choice

Because the Medicare Part D Plans are specifically designed for seniors, these potential opportunity costs related to switching become more significant. Seniors as a group tend to be more risk averse, have the potential to have more limited cognitive abilities and have already shown a propensity to be overspending on these Medicare Part D Pharmacy Plans. (Fang et al 2008; Zhou and Zhang 2012.) Lastly, there is a gap in understanding in how non-seniors may utilize and process information obtained from the Medicare Plan Finder site. Many seniors rely upon family or friends to assist with technology use. They also rely on family and friends to navigate healthcare information and decisions. The gap exists to examine how these different groups may use the same technology tools to determine the same information for an optimal plan choice.

Even though the old and the young have low health insurance literacy and need a special attention, we still lack understanding how they use technologies and what aspects of technologies are needed to effectively get health related information. Some researchers argue that health literacy technology is related to empowerment. For instance, Nutmeam contends that the improved access to health information and the increased capacity for people to use health information effectively will empower the patients. Similarly, Kickbusch (2001), attesting from the knowledge perspective, maintained that health literacy empowers patients because augmented health literacy increases capabilities, which enables patients to make their own informed decisions relating to their health and wellbeing. This notion is echoed by an empirical study by Samoocha, Bruinvels, Elbers, Anema, and van der Beek (2010) whose research results demonstrated that in contrast to the traditional interventions, the web-based interventions was more effective, measured by

several patient health indicator scales. Another way to empower patients is through the electronic health record (Eysenbach, 2000; Keselman, Logan, Smith, Leroy, & Zeng-Treitler, 2008). EMR is traditionally considered useful only for healthcare providers. However, the recent paradigm shift calling for more patient participated decision making and sharing medical records with patients is a viable avenue for achieving this goal.

The ability to process information related to insurance decision and the financial structures of insurance policies is part of the analysis that takes place when selecting a Part D plan. Insurance literacy skills and abilities are part of processing information to effectively evaluate options and select an optimal Part D Plan. Amounts of information, information framing, and an individual's ability and self-confidence to process that information influence choice making abilities. How do information processing attitudes and abilities influence an individual's ability to choose optimally and have confidence in the results of that choice?

- Hypothesis 2 – Decision confidence Decision confidence
    - 2A – Group assignment based on amount of information and support level positively affects decision confidence
    - 2B - Information Processing positively affects decision confidence
    - 2C – Decision making process positively affects decision confidence

The issues identified in initial studies (Abaluck; Zhang) related to incorrect plan choice and spending more than needed on benefits still exists. The intention for the website redesign was to improve the information shared, make the information more easily understandable, allow for better information processing, and improve the rate of optimal

plan choice. These technology changes do not address some of the broader problems impacting plan choice, such as health insurance literacy and technology self-efficacy. Understanding the actual perceived ease of use of the Plan Finder website, enrollees' perspectives on its ease of use, how they view recommendations from other consumers or are influenced by recommendations of other such as physicians or friends can help to determine the effectiveness of some of these changes. Is the information that is provided the right amount and how does the style of decision making, such as those of maximizers or satisficers, influence the decision criteria to make that plan choice. Many studies reported concrete findings which support that improved health literacy positively affects direct patient health or clinical outcomes. For example, (Schillinger D, 2002) found that health literacy improved type 2 diabetes outcomes. The simple act of sharing information, and making an individual connected to others with the same illness or injury can be seen as an improvement.

Decision making is influenced by decision styles. Decision confidence and the ability to effectively decide based on an effective evaluation of available information influences decisiveness and choice making. Maximizing and satisficing behaviors can drive amounts of information needed, time to complete a decision and confidence in that ultimate choice. Literary and numeracy kills are an essential element to effective information processing of plan documents and costs. Does an individual's decision-making style and approach change the possible optimal choice outcome of a decision and the confidence in that choice after the decision is made.

Hypothesis 3 – Information processing

- 3A – Group assignment positively affects information processing

- 3B – Perceived ease of use positively affects information processing
- 3C – Perceived usefulness positively affects information processing
- 3D – Social norms positively affects information processing
- 3E – Self efficacy positively affects information processing
- 3F – Opportunity need positively affects information processing
- 3G – Decision criteria positively affects information processing
- 3H – Health insurance literacy positively affects information processing

Even highly educated consumers or those with previous experience in these types of plans and insurance products do not always make rational decisions when selecting their plan, either for the first time or when it comes time to renew their enrollment. The complexity of the terminology, the variety of the choices, and the often-limited help available (along with an aversion often to ask) can influence a consumer's decision in the wrong direction. This can also be influenced by the design of the website. How the information is displayed may be the driving factor for some consumers. How the plans are initially sorted, which plan comes out on top first, the placement of the name of the plan or the prominence of the monthly premium amount (or the lack of other financial information) may unwittingly drive the way that consumers may select their plans. (Wang 2017; Wang 2020).

With greater decision confidence, enrollees can feel more engaged in their healthcare decisions and play a greater role in improved outcomes, both from a physical perspective and from a financial perspective. Optimizing all choices can improve

microeconomic issues at the individual patient level and macroeconomic issues for the greater healthcare and insurance system. Consumers will often express that they want more information when making insurance and healthcare decisions. Yet, while consumers mat say that they want this additional information to guide them in their choices, several studies show that they may ignore the information, become overwhelmed by it, or use other information that only confirms an already developed preference. Many consumers can feel overwhelmed when given too much information (Christoph, Tscheulin, Lindenmeier, Drevs and Seeman, 2014.) Individuals have shown an inability to choose optimally when faced with situations where there is risk and uncertainty. (Kahneman, 1973; Kahneman and Tversky, 1979; Hirshleifer and Teoh, 2003). The perceived significance of the decision maker regarding the decision itself will cause variance in the involvement intensity of the decision-making process. While there may be some unique decision types in healthcare, the core processes used by a decision maker, and how technology may assist that process, will have many similarities. An integrated healthcare information system is necessary for improving delivery performance (Ellingsen and Monteiro 2008). The unique issues related to healthcare will bring out the nuances of decision-making process.

Hypothesis 4 – Decision making

- 4A – Group assignment positively affects decision making
- 4B – Perceived ease of use positively affects decision making
- 4C – Perceived usefulness positively affects decision making
- 4D – Social norms positively affects decision making

- 4E – Self efficacy positively affects decision making
- 4F – Opportunity need positively affects decision making
- 4G – Decision criteria positively affects decision making
- 4H – Health insurance literacy positively affects decision making

Chapter 4 RESEARCH METHODS

4.1 Study Design and Rationale of Design Choice

Originating in mathematical psychology, the discrete choice experiment has been introduced in health economics to elicit preferences related to issues concerning health, healthcare, and health insurance choices (Thurston 1927; Luce and Tukey 1964). In health economics, discrete choice experiments (DCE) are a popular method of observation (Clark et al. 2014). A series of choice sets, or hypothetical scenarios would be presented to study participants to understand how or why a choice is made (Gates et al. 2000; Kesternich et al. 2013). Discrete choice experiments are grounded in random utility theory (Manski 1977; McFadden 1974). Whether the individuals behave as they state in a hypothetical context is how the external validity of the discrete choice experiment is defined (Ryan 2004). How accurately the preferences of the choice and outcome are measured – the internal validity – does not guarantee the external validity (Ryan et. al 2001). A random utility framework has shaped most discrete choice experiments in health care (de Bekker-Grob et. al 2012).

Comparing these hypothetical choices of Medicare Part D plans in this study would also fit into this theory and discrete choice experiment. Specific examples of health plan choice examined through a discrete choice experiment was conducted (Determann 2016; 2017) and participants chose between various insurance options considering a variety of options and choices. Eliciting patient or population preferences (Marjon van der 2008) are a key component of discrete choice experiments and help to determine biases present. The similarities to the Medicare Part D Plans in this

experiment and the Health Insurance plan experiments Determann and Marjon show applicability to the design.

In this discrete choice experiment, each participant will do an online session using the Medicare Part D Plan Finder tool. Each participant will do an online session where the participant will use the Medicare Part D Plan finder tool online. They will be observed via a synchronous online session via a WebEx GoTo Meeting or Zoom call session. The participant will be sharing their screen during the session so additional observations can be captured on their use of the tool and their duration of the task. The participant will be using the tool to make a hypothetical Plan selection as a possible new Medicare enrollee in finding a plan that is right for them. They will use the information provided for the enrollee from the sample sheet.

4.1.1. Description of Data to be Collected

The data to be collected include (1) subject's choice of a particular plan scenario among a set of hypothetical plans; (2) survey responses of subject's confidence of choice and perceptions of characteristics of the technology decision tools used to assist for making the choice; (3) measures of technology use captured in the system that a subject uses; (4) survey responses of subject's perceptual assessments of the characteristics of the information provided to the subject; and (5) basic demographical information such as age, gender, education, work experience, lengths of using Medicare insurance.

4.1.2. Data Analysis

Three sets of data analyses will be conducted.

(1) Survey method single-respondent bias analysis to ensure there is no single-respondent bias that affects the study results. A factor analysis of the survey responses will be performance to assess whether a single factor accounts for most of the variances explained. The lack of such a single factor indicates there is no significant survey method single-respondent bias.

(2) Reliability and validity of the survey questions will be assessed. Reliability will be assessing using Cronbach's alpha with the index greater than .7 indicating adequate reliability. Validity will be assessed using factor analysis. Convergent validity is confirmed if survey questions belong to the same variable load highlight together. Discriminant validity is confirmed if survey questions load higher to the intended variable than to those that these questions are not intended to measure.

(3) Hypothesis testing of the relationships between information characteristics, technology decision support tool use, demographic information, decision choice, and confidence of decision choice.

4.1.3 Survey Development

Survey questions were developed from an extensive literature review.

Table 1.

Variable	**Original**	**Survey**
Reasoned Action	Fishbein & Ajzen 1975	Dou 2017
Planned Behavior	Ajzen 1985	Seth 2019; Banerjee 2020
Information Processing	Miller 1956; Newel and Simon 1972	Karahoca 2018; Swar 2017
Self Efficacy	Bandura 1977	Rahman 2015; Tsai 2019

Perceived Usefulness	Davis 1989	Ozok 2014; Cheung 2019
Perceived Ease of Use	Davis 1989; Bagozzi, Davis and Warshaw 1992	Tubaishat 2018; Tsai 2019
Social Norms	Perkins and Berkowitz 1986	Beldad 2018; Choi 2019
Percevied Control	Rotter 1966	Hossain 2019; Griffin 2018
Opportunity Need	McClelland 1961	Dou 2017; Chen 2017
Percevied Risk	Bauer 1960	Karahoca 2018; Kamal 2020; Reychav 2019
Motivation	Hall 1943; Herzberg 1959	Cheung 2019; Asimakopoulos 2017
Decision Confidence	Simon 1976	Karahoca 2018; Dutta 2018

4.2 Survey Groups

The participants in the survey were collected from a variety of sources. Individuals were not compensated for their participation in the experiment. Survey respondents who were interested in participating sent an initial email expressing their interest in participating in the experiment. Contact information for each participant was recorded. The participants were randomly assigned to one of four experiment groups.

4.2.1 Survey 1 - Initial Assessment

All participants who signed up to participate in the experiment took the initial assessment survey. The survey was anonymous and no personal health information was shared. Participants were identified by a unique combination of gender code, the last four letter of their last name, the last four numbers of their telephone number and their age.

This identification information would be then matched to the name and phone number combination in the second survey assessment.

The initial survey consisted of a total of 29 questions. Many of these questions had different dimensions to the overarching theme of the subject question. In total, in the initial survey, the respondents answered 100 total questions. The survey was set up so that all questions had to be answered and the participants were not able to skip over any of the questions.

The questions in the initial survey were grouped into the following topics or themes –

- Demographic information (age, employment status, insurance status, education level)
- Making important decisions
- Making insurance and healthcare decisions
- How I view myself
- How I view my technical skills and abilities
- Important factors to me when it comes to insurance and healthcare
- Awareness and impressions around using the Medicare Plan Finder

4.2.2 Recruiting Participants

Recruiting for the survey and experiment was completed across several different areas. There are several specific groups from which survey participants were obtained. The first group were members of an online discussion group. This group is national social club whose members are fans and followers of a spiritual and religious poet and author. The group has over 1,000 members across the United States. Members in the

group represent a variety of ages, education levels and professional backgrounds. The group coordinator and moderator facilitated an introduction to the group members via an email sent out to the membership. Members were asked if they would participate in this voluntary exercise. They were provided with contact information if they were willing to participate in the experiment.

The second group from which members were recruited are customers of a local Fort Lauderdale bar and restaurant. The owners of the restaurant have been in the hospitality business for over twenty years. As such, they have a large clientele that comes from a large area across South Florida. They have a Facebook page with over 600 followers and an email list with close to two thousand members. The Facebook page followers and email list does include members who are outside of the South Florida area, but more than 80% of the people on those lists are from the greater South Florida area (Miami-Dade, Broward, and Palm Beach counties.) The owners posted a notification of the experiment and study on their Facebook page and sent out an email to their client list. This group has a variety of genders, ages, races, and educational backgrounds.

The third group for data collection was from a spa located in the city of Fort Lauderdale. This business has been in operations for over ten years. The owner has an extensive list of long-term clients. There are over eleven hundred followers on the spa's Facebook page. The owner placed a flyer with information regarding the experiment near the checkout area, and he discussed it with clients who were interested. Those clients who expressed interest were provided with specific contact information to learn more about the experiment and potentially join the study. This group is a mix of ages and genders.

The fourth recruitment group was with a local Pilates studio owner. The studio has been in operation for close to twenty years. The studio owner has a large local clientele, but also conducts training sessions around the country. As a result, she was able to provide additional contacts outside of the South Florida area. The studio owner shared the study information with her clients via Facebook and provided them with contact information to join the study. The demographics of the group are majority middle-aged females.

The final recruitment group was with a religious group affiliated with a temple in the Atlanta metro area. The group's facilitator shared the experiment information with the group during one of their meetings. She encouraged members to be a part of the experiment and provided them with participant information. In addition, the survey information was posted to the group's online Facebook page. This group has a mixed gender profile with over 500 members. There is a variety of ages within this group.

4.2.3 Conducting the Experiment

There experiment began with an introduction and overview of the process. The first step for all respondents was to complete a brief survey on how people make decisions and use information and technology to make those decisions. This survey was set up in the SurveyMonkey tool. The respondents were not asked any personally identifiable information in the survey. In addition, they did not use any personal health information. All the information used was sample data to produce a similar set of options from which to choose at the end of the process.

A copy of the initial survey can be found in the appendix section of this document.

After completing the initial survey, the respondents were instructed to send an email to jschm031@fiu.edu with their name, phone number and the person who got them connected to this experiment by sending you the message or sharing the information on the experiment. There was a total of 162 people who expressed interest in participating in the experiment.

The experiment took place in three parts –

- In the first step – the participants received an email with a link to a survey. It is from "Survey Monkey." The average time to complete the initial survey was 14 minutes. The initial survey asked questions about themselves, how they make decisions, and how they use different types of technology or internet sites to do that. There were a total of 141 individuals who completed the initial survey.

- The second step was the actual experiment. After completing the survey, the participants would do the experiment part of the process. They were instructed to send an email back to the investigator when they had completed the initial survey. At that point, the participants were assigned at random to one of four groups. The detail on these four groups is below. This step in the process had a wide range of times to complete – from 15 minutes to several hours. It was varied by the different groups. There were several reminder emails that went out over the two-week period of data collection to remind the participants to complete the experiment phase of the project. Ultimately, several the

participants who completed the first survey did not complete the experiment, so their initial survey results were not used in the analysis.

· The third and final part was the final survey and assessment. After the experiment was completed, the participants were instructed to send an additional email back to the investigator as a notification that the experiment was finished. At this point, the participants were sent an additional SurveyMonkey link for the final assessment. This contained questions related to the process, how they used the available information, their impressions of the technology and its assistance with the choice, and finally, their specific choice of plans. There was a total of 24 plans that were available based on the information input, but only one plan was the optimal choice when taking into consideration all the annual costs and expenses associated with the plan. The final survey took 14 minutes on average to complete. There were 123 total participants who completed all three parts of the experiment.

All Groups had the following information:

- Drug list for simulation. These medications are the most common medications used on the Medicare program in the most frequently prescribed dosages available for these medications. The average Medicare enrollee has 4.5 unique prescriptions filled each month. The participants were instructed to use the dosage amounts that were on the sheet that was provided. These were the default dosage amounts for the medications. It was designed to minimize the potential

data entry errors that could have caused additional problems or confusion when entering the simulated data.

  - Nexium – 40mg delayed release; 30 units; Every month
  - Advair – 250-50 dose aerosol powder; Dispensable pack of 60; 1 per month
  - Crestor – 10mg tablet; 30 units every month
  - Abilify – 2mg tablet; 30 units; every month
  - Cymbalta – 20mg delayed release; 30 units; every month
  - Spiriva – 18mcg; 30 units, every month
  - Januvia – 100mcg; 30 units; every month

- Preferred pharmacies for simulation (3 in total). On the Medicare Plan Finder website, there is an option to enter up to five pharmacy options. Many of the pharmacy listing are the same retail store, just a different location. As a result, those options would not change plan pricing because the same retail locations, as an example all Publix stores, would either be all in network with network pricing or all out of network with out of network pricing. The objective was to have some in network and some out of network pharmacy locations on each plan in order to have cost variation on the options so that participants would need to consider total plan costs and not just premium costs. Because some of the pharmacy locations were out of network on some plans, and in network on others, it meant that the pricing models would change depending upon the plan.
  - Publix
  - Walgreens

    - Garden Drug
- State and Zip Code for plan option. This information is important in that it needed to be entered consistently for all participants regardless of their home address or zip code. If they used their own state and zip code, it would have given them a different listing of plans and prices. Because the Medicare plans are administered at the state level, each state has different plans that are available, and the plans and their pricing are specific to those states. Some companies may offer plans in multiple states, for example, Express Scripts. However, those Express Scripts plans are unique to each state, and the pharmacy locations, drug formulary, and the plan pricing is different in each state.
    - FL and 33334

Group 1 – (Low Information and Low Online Support) – unaided decision

This group will have low information on the plans and on the decision tool to support using the website. They looked at the Medicare Part D Plan Finder tool with premiums and co-pays only. They did not have the decision aid information provided and will only use the online help and explanation tools that are found on the Plan D Finder tool website. This group received only a basic instruction sheet. It only contained information on how to get to the site and how to begin the process. There was no information in the decision aid on how to enter information. They were only provided with information on how to access some of the help functions on the website.

- Plan Premium (Monthly cost for plan enrollment)
- Plan Deductible and Co-pays (amounts paid by member prior to plan payments)

Group 2 – (High Information and Low Online Support) – unaided decision

Medicare Part D Plan Finder tool with premiums, co-pays, plan ratings and pharmacy listings - no online support. They will not have the decision aid information provided and will only use the online help and explanation tools that are found on the Plan D Finder tool website. Use "Plan Compare" feature. There was also a detailed support decision aid document that was provided to this group to help walk them through the process of entering the information to make their decision. They were instructed that they were not able to ask any questions or email the investigator for assistance with the process. They could use the online help features to support them in their decision making. This group was provided with information on possible suggestions on how to sort and compare information, but they were not provided with instructions on how to do that. Some of the data that group 2 were able to review:

- Plan Premium (Monthly cost for plan enrollment)
- Plan Deductible and Co-Pays (amounts paid by member prior to plan payments)
- Drug Coverage and costs
    - Brand, generic and specialty
    - Initial, gap and catastrophic coverage
    - Part B medications
- Plan star ratings
    - Customer service
    - Member complaints
    - Member experience
    - Drug safety and accuracy of drug pricing

- Pharmacy distance listing
- Link to plan website

Group 3 – (High information and High Online Support) – aided decision

Medicare Part D Plan Finder tool with premiums, co-pays, plan ratings and pharmacy listings. This group will be provided with a detailed decision aid guide that will walk them through use of the tool and how to enter and analyze information and will also have access to assistance with online "navigator" assistance in search and analysis process. These navigator style sessions were conducted both in person and over Zoom style meeting using cameras and screen share functions. The participants watched the navigator (the investigator) walk through the process first so that they could see the entire process from end to end. Once that was complete, then the participants completed the search on their own while the navigator was with them, answering questions, providing assistance and explaining information. This group did use the "Plan Compare" feature. They were encouraged to do this multiple times as an individual is only able to compare three plans at a time. When this group was complete – they were sent the link to the final survey while they were online with the investigator, and they completed the final survey before signing off.

- Plan Premium (Monthly cost for plan enrollment)
- Plan Deductible and Co-Pays (amounts paid by member prior to plan payments)
    - Brand, generic and specialty
    - Initial, gap and catastrophic coverage
    - Part B medications

- Plan star ratings
    - Customer service
    - Member complaints
    - Member experience
    - Drug safety and accuracy of drug pricing
- Pharmacy distance listing
- Link to plan website

Decision aide

- Detailed instructions for information location
- Screen shots to walk user through the input steps
- FAQ from Plan Finder tool and CMS

Group 4 – (Low Information and High Online Support) aided decision

No online Medicare Part D Plan Finder tool use. Pharmacy Plan marketing documents and overall cost sheet for available plans in geographic area. This group will be provided with a detailed decision aid guide to walk them through the analysis of the plans and the information provided. Online "navigator" assistance in search and analysis process will also be provided.

Questions asked by the participants in the aided decision groups during the analysis process, as well as assistance or clarification items will be recorded and tracked.

Plan information

- Listing of available plans in geographic area

- Links to plan websites

Decision aide

- Detailed instructions for information location
- Screen shots to walk user through the input steps
- FAQ from Plan Finder tool and CMS
- Assistance via email and online support
- Assistance via telephone support

Items desired for clarification or enhanced process information from the unaided group will be asked in the post process survey.

Table 2. Participant Assignment – Group Breakdown

Group Assignment	Participants
1 - Low Information and Low Support	30
2 - High Information and Low Support	33
3 - High Information and High Support	29
4 - Low Information and High Support	31

4.2.4 Survey 2 – Final Assessment

Upon completing the experiment, participants were instructed to send a follow up email to request their next assignment. Because there were two different final assessments – one for the three groups who used the technology tool (Medicare Part D Plan Finder website) and one for the control group who did not use the technology tool but instead used the paper materials and the traditional plan brochures and documents, the

final survey needed to be sent that corresponded with the experiment assignment group. The individual would receive an final email with a link to the survey, and a note thanking them for the assistance and participation in the experiment. Most individuals completed the final survey shortly after receiving the final email. For the participants in group three, which was the online or in person assisted group, these individuals were sent the final survey link during the session, and they would complete the final survey during the review session.

There was a total of 91 questions on the second survey assessment which were representative of several different dimensions related to the choice and decision making. The final survey asked questions in several categories. These included –

- Plan choice and time spent on experiment task
- Additional information that would have assisted in choice and analysis
- Impressions of the Plan Finder website
- Impressions of their decision-making process
- Impressions of the attributes of the specific plan choice made
- Impressions of the recommended plan options presented to them
- Recommendations for improvements to the Plan Finder website and process
- Intentions to use the site in the future.

Chapter 5 RESULTS

This chapter presents information from the findings of the initial survey, the completed experiments and the final survey and assessment. The data in this section relates to the four groups who were studied. Only those participants who completed the initial survey, the experiment and the final survey assessment are included in these results. Some participants did complete the initial survey but did not complete the subsequent parts of the experiment. As a result, their information and results are not included in this section.

5.1 Participants and Statistical Models

There was a total of 123 individuals who completed the initial survey, the experiment, and the final survey assessment. The respondents broken down by gender are 84 females and 39 males. Participants were given the option to select other genders which included an option for other and none of the above. While one of the initial survey participants did identify as non-binary, this person did not complete the experiment, so their results are not included. All other participants selected one of the two cisgender options that were available. While there are more women that participated in the experiment, there are also a greater number of women participating in the Medicare program (CMS 2020).

The racial and ethnic makeup of the group was 110 in the white/Caucasian category, 6 in the Hispanic/Latino category, 3 in the Black/African American category, 1 in the Asian or Pacific Islander category and 3 who classified as other. Those in the other category chose that option because they identified with multiple categories and did not

want to select only one, so they chose the other category and then put the specific items in the associated comments box.

5.1.1 Survey Participants

From an age perspective, the participants covered an age range from 18- 89 years of age. Because many of the consumers who make decisions on Medicare plans also rely on family and friends to assist them in their decision making, having age groups outside of just Medicare enrollees was applicable. There were 7 participants in the 18–30-year-old group. There were an additional 7 participants in the 31–40-year-old age range. For the 41–50-year-old group, there was a total of 16 participants. The largest age range group was the 51–60-year-old group. There was a total of 49 people in this age category. For 61-70 there were 19 people and there were another 25 people in the 71 year and older age group.

According to US Census data from 2019, the percentage of the US population with a college degree was 32%. For this survey group, the percentage of participants with a college degree was 37%. Using the same data, the percentage of the US population with a graduate degree is 13%. For this survey group, the percentage of participants with a graduate degree was 33%. While the percentage for the college degree group is close to the census data, the percentage with a graduate degree is much higher than the general population numbers. Some participants noted that their associate degree designation was also related to a professional certificate program such as those for a registered nurse.

The 2020 Health and Human Services report on the US Insured Population finds that 10% of the US Population is uninsured. The remaining 90% are covered by some combination of private insurance (either through an employer-based program, a self-employed and self-insured model, or through one of the programs available on the Federal Insurance Exchange healthcare.gov), a federal government sponsored plan such as Medicare, Medicaid, or Tricare (Department of Defense). In this group of survey participants, less than 3% of the participants are uninsured, so that is lower than the general population. For the participants in the "other" category in this group, they were identifying that they were self-employed or purchasing through healthcare.gov.

Department of Labor statistics for 2021 currently place the national unemployment rate at 4.8%. The percentage of the US population that is defined as "retired" 16.9% in 2020. For this survey group, the retired group is 25% of the total. The unemployed group in this survey set is 7%. Both numbers are higher than the current US population rates.

Table 3 Participant Overview

		What is your gender?	What is your age?	What is your race or ethnicity	Which of the following categories best describes your employment status?	Which of the following is your MAIN source of health insurance coverage?	In what state or U.S. territory do you live?	Which of the following best describes your current relationship status?	What is the highest level of school you have completed or the highest degree you have received?	Using any number from 0 to 10, where 0 is the worst health care possible and 10 is the best health care possible, what number would you use to rate all your health care in the last 12 months?	Using any number from 0 to 10, where 0 is the worst possible status and 10 is the best possible status, what number would you use to rate your current healthcare status?
N	Valid	123	123	123	123	123	123	123	123	123	123
	Missing	0	0	0	0	0	0	0	0	0	0
Mean		1.33	57.19	3.83	2.22	4.22		3.51	3.76	7.67	7.66
Median		1.00	57.00	4.00	1.00	5.00		3.00	4.00	8.00	8.00
Std. Deviation		0.470	14.199	0.649	1.910	1.687		1.528	1.224	1.863	1.769
Range		1	71	4	7	6		6	4	10	8
Minimum		1	18	1	1	1		1	1	0	2
Maximum		2	89	5	8	7		7	5	10	10

Table 4 Group Assignment

Group Assignment					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Low Info - Low Support	30	24.4	24.4	24.4
	High info - Low Support	33	26.8	26.8	51.2
	High Info - High Support	29	23.6	23.6	74.8
	Low Info - High Support	31	25.2	25.2	100.0
	Total	123	100.0	100.0	

Table 5 Participants by Gender

What is your gender?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	83	67.5	67.5	67.5
	Male	40	32.5	32.5	100.0
	Total	123	100.0	100.0	

Table 6 Participants by age group

What is your age?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18 - 30	7	5.7	5.7	5.7
	31 - 40	7	5.7	5.7	11.4
	41 - 50	16	13.0	13.0	24.4
	51 - 60	49	39.8	39.8	64.2
	61 - 70	19	15.4	15.4	79.7
	71 and older	25	20.3	20.3	100.0
	Total	123	100.0	100.0	

Table 7 Participants by race/ethnicity

What is your race or ethnicity					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Black	3	2.4	2.4	2.4
	Hispanic	6	4.9	4.9	7.3
	Asian	2	1.6	1.6	8.9
	White	110	89.4	89.4	98.4
	Other	2	1.6	1.6	100.0
	Total	123	100.0	100.0	

Table 8 Participants by employment status

Which of the following categories best describes your employment status?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Employed - FT	66	53.7	53.7	53.7
	Retired	31	25.2	25.2	78.9
	Disabled - Not Working	1	0.8	0.8	79.7
	Employed - PT	8	6.5	6.5	86.2
	Not Employed - Looking	3	2.4	2.4	88.6
	Not Employed - Not Looking	4	3.3	3.3	91.9
	Other	9	7.3	7.3	99.2
	None of the Above	1	0.8	0.8	100.0
	Total	123	100.0	100.0	

Table 9 Participants computer skills

How would you describe your computer skills?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Poor	5	4.1	4.1	4.1
	Fair	8	6.5	6.5	10.6
	Moderate	11	8.9	8.9	19.5
	Average	34	27.6	27.6	47.2
	Above Average	34	27.6	27.6	74.8
	Excellent	26	21.1	21.1	95.9
	Expert	5	4.1	4.1	100.0
	Total	123	100.0	100.0	

Table 10 Participants by health insurance type

Which of the following is your MAIN source of health insurance coverage?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Medicare	23	18.7	18.7	18.7
	Medicaid	2	1.6	1.6	20.3
	Not Covered	3	2.4	2.4	22.8
	Other	7	5.7	5.7	28.5
	Plan through Employer/Spouse	74	60.2	60.2	88.6
	Self Purchased Plan	13	10.6	10.6	99.2
	TriCare	1	0.8	0.8	100.0
	Total	123	100.0	100.0	

Table 11 Participants by state

In what state or U.S. territory do you live?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Alabama	7	5.7	5.7	5.7
	Arkansas	1	0.8	0.8	6.5
	California	2	1.6	1.6	8.1
	Delaware	1	0.8	0.8	8.9
	District of Columbia (DC)	1	0.8	0.8	9.8
	Florida	69	56.1	56.1	65.9
	Georgia	5	4.1	4.1	69.9
	Indiana	1	0.8	0.8	70.7
	Kentucky	1	0.8	0.8	71.5
	Maine	1	0.8	0.8	72.4
	Maryland	1	0.8	0.8	73.2
	New Jersey	4	3.3	3.3	76.4
	New York	13	10.6	10.6	87.0
	North Carolina	2	1.6	1.6	88.6
	Oklahoma	1	0.8	0.8	89.4
	Pennsylvania	1	0.8	0.8	90.2
	Rhode Island	2	1.6	1.6	91.9
	Tennessee	2	1.6	1.6	93.5
	Texas	4	3.3	3.3	96.7
	Virginia	3	2.4	2.4	99.2
	Wisconsin	1	0.8	0.8	100.0
	Total	123	100.0	100.0	

Table 12 Participants by relationship status

Which of the following best describes your current relationship status?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Divorced	9	7.3	7.3	7.3
	Domestic Partnership	7	5.7	5.7	13.0
	Married	77	62.6	62.6	75.6
	Separated	1	0.8	0.8	76.4
	Single - cohabitating	6	4.9	4.9	81.3
	Single - Never married	17	13.8	13.8	95.1
	Widowed	6	4.9	4.9	100.0
	Total	123	100.0	100.0	

Table 13 Participants by education level

What is the highest level of school you have completed or the highest degree you have received?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	High school diploma	8	6.5	6.5	6.5
	Some college - no degree	16	13.0	13.0	19.5
	Associates Degree	14	11.4	11.4	30.9
	Bachelor's Degree	45	36.6	36.6	67.5
	Graduate Degree	40	32.5	32.5	100.0
	Total	123	100.0	100.0	

Table 14 Participants by health care experiences

Using any number from 0 to 10, where 0 is the worst health care possible and 10 is the best health care possible, what number would you use to rate all your health care in the last 12 months?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	1	0.8	0.8	0.8
	2	3	2.4	2.4	3.3
	3	1	0.8	0.8	4.1
	4	1	0.8	0.8	4.9
	5	6	4.9	4.9	9.8
	6	11	8.9	8.9	18.7
	7	26	21.1	21.1	39.8
	8	34	27.6	27.6	67.5
	9	20	16.3	16.3	83.7
	10	20	16.3	16.3	100.0
	Total	123	100.0	100.0	

Table 15 Participants by health care status

Using any number from 0 to 10, where 0 is the worst possible status and 10 is the best possible status, what number would you use to rate your current healthcare status?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	2	3	2.4	2.4	2.4
	3	1	0.8	0.8	3.3
	4	3	2.4	2.4	5.7
	5	9	7.3	7.3	13.0
	6	6	4.9	4.9	17.9
	7	23	18.7	18.7	36.6
	8	39	31.7	31.7	68.3
	9	23	18.7	18.7	87.0
	10	16	13.0	13.0	100.0
	Total	123	100.0	100.0	

Table 16 Participants by technology tool usage type

Which of the following devices do you use the most when you need to search for information on the internet?					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Smart Phone	38	30.9	30.9	30.9
	Ipad	8	6.5	6.5	37.4
	Cell Phone	29	23.6	23.6	61.0
	Home Computer	24	19.5	19.5	80.5
	Lap Top	24	19.5	19.5	100.0
	Total	123	100.0	100.0	

Table 17 Plan choice outcomes - overall

Optimal Plan Choice					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Non-Optimal Plan Choice	91	74.0	74.0	74.0
	Optimal Plan Choice	32	26.0	26.0	100.0
	Total	123	100.0	100.0	

Table 18 Time spent on task

Time Spent - Minutes					
		Frequency	Percent	Valid Percent	Cumulative Percent
Number of Minutes	2	1	0.8	0.8	0.8
	5	3	2.4	2.4	3.3
	7	1	0.8	0.8	4.1
	8	1	0.8	0.8	4.9
	10	13	10.6	10.6	15.4
	12	2	1.6	1.6	17.1
	14	1	0.8	0.8	17.9
	15	31	25.2	25.2	43.1
	20	16	13.0	13.0	56.1
	25	10	8.1	8.1	64.2
	28	1	0.8	0.8	65.0
	30	22	17.9	17.9	82.9
	35	4	3.3	3.3	86.2
	40	1	0.8	0.8	87.0
	45	6	4.9	4.9	91.9
	55	1	0.8	0.8	92.7
	60	5	4.1	4.1	96.7
	90	1	0.8	0.8	97.6
	120	1	0.8	0.8	98.4
	180	2	1.6	1.6	100.0
	Total	123	100.0	100.0	

5.2 Measurement validation

The measurement was validated using reliability and construct validity. The construct validity was evaluated based on the convergent and discriminant validity. The reliability was tested using the Cronbach alpha and the construct validity was tested using factor analysis.

5.2.1 Measurement Reliability

For the pre-experiment and post experiment surveys, a seven-point Likert scale was used to record the participants answers. Cronbach's alpha coefficient scores are presented here to demonstrate the levels of internal consistency reliability for the scales

or subscales used. The interpretation follows George and Mallery (2003), who provide the following rules of thumb: "_ > .9 – Excellent, _ > .8 – Good, _ > .7 – Acceptable, _ > .6 – Questionable, _ > .5 – Poor, and _ < .5 – Unacceptable" when interpreting this data. The items with the strongest numbers were those related to health insurance literacy, opportunity need and perceived usefulness, which both rated at excellent scores. The item with the lowest, or scoring questionable using the George and Mallery standard, was the factor of self-efficacy. While scoring at .677, it was still considered a measure to be used. The remaining factors scored in the .7 to .8 range, which would place them in the acceptable to good level. We can see that those factors high numbers placing the majority of them in the acceptable, good and excellent category in their Cronbach's alpha scores indicate a high level of internal consistency for our scale with this specific sample.

Table 19 Reliability Statistics

	Reliability Statistics		
	Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
Decision Criteria	0.843	0.856	3
Health Insurance Literacy	0.934	0.936	4
Perceived Usefulness	0.941	0.942	5
Perceived Ease of Use	0.784	0.796	3
Social Norms	0.882	0.882	4
Self Efficacy	0.675	0.676	4
Opportunity Need	0.915	0.918	2
Info Processing	0.795	0.796	5
Decision Style	0.804	0.808	3
Decision Confidence	0.828	0.832	5

5.2.2 Measurement Validity

Table 20 Measurement validity – perceived usefulness

The sum of the Eigenvalue is greater than 1. For this variable, the percentage of variance is 81 which would indicate a very strong value.

Total Variance Explained						
	Initial Eigenvalues			Extraction Sums of Squared Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	4.056	81.123	81.123	4.056	81.123	81.123
2	0.442	8.849	89.972			
3	0.241	4.822	94.794			
4	0.137	2.746	97.540			
5	0.123	2.460	100.000			

Table 21 Perceived usefulness component matrix

The component matrix scores for these variables all demonstrate that they load meaningfully with component scores above .8 or .9.

Component Matrix[a]	
	Component
	1
Perceived Usefulness	0.853
Perceived Usefulness	0.933
Perceived Usefulness	0.905
Perceived Usefulness	0.917
Perceived Usefulness	0.893

Table 22 Perceived ease of use variance

The sum of the Eigenvalue is greater than 1. For this variable, the percentage of variance is 72 which would indicate a very strong value.

Total Variance Explained						
	Initial Eigenvalues			Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.161	72.023	72.023	2.161	72.023	72.023
2	0.702	23.389	95.412			
3	0.138	4.588	100.000			

Table 23 Perceived ease of use component matrix

The component matrix scores for these variables all demonstrate that they load meaningfully with component scores above .6 with two of the components scoring above .9.

Component Matrix[a]	
	Component
	1
Perceived Ease of Use	0.665
Perceived Ease of Use	0.927
Perceived Ease of Use	0.927

Table 24 Social norms variance

The sum of the Eigenvalue is greater than 1. For this variable, the percentage of variance is 73 which would indicate a very strong value.

Total Variance Explained						
	Initial Eigenvalues			Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.958	73.951	73.951	2.958	73.951	73.951
2	0.567	14.163	88.114			
3	0.282	7.039	95.153			
4	0.194	4.847	100.000			

Table 25 Social norms component matrix

The component matrix scores for these variables all demonstrate that they load meaningfully with component scores above .8 or .9.

Component Matrix[a]	
	Component
	1
Social Norms	0.809
Social Norms	0.911
Social Norms	0.827
Social Norms	0.889

Table 26 Self-efficacy variance

The sum of the Eigenvalue is greater than 1. For this variable, the percentage of variance is 50 which would indicate a good value.

Total Variance Explained						
	Initial Eigenvalues			Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.037	50.934	50.934	2.037	50.934	50.934
2	0.778	19.439	70.373			
3	0.707	17.673	88.047			
4	0.478	11.953	100.000			

Table 27 Self-efficacy component matrix

The component matrix scores for these variables all demonstrate that they load meaningfully with component scores above .6 or .7.

Component Matrix[a]	
	Component
	1
Self Efficacy	0.799
Self Efficacy	0.739
Self Efficacy	0.656
Self Efficacy	0.651

Table 28 Opportunity need variance

The sum of the Eigenvalue is greater than 1. For this variable, the percentage of variance is 92 which would indicate a very strong value.

Total Variance Explained						
	Initial Eigenvalues			Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.849	92.444	92.444	1.849	92.444	92.444
2	0.151	7.556	100.000			

Table 29 Opportunity need component matrix

The component matrix scores for these variables all demonstrate that they load meaningfully with component scores 9.

Component Matrix[a]	
	Component
	1
Opportunity Need	0.961
Opportunity Need	0.961

Table 30 Health insurance literacy variance

The sum of the Eigenvalue is greater than 1. For this variable, the percentage of variance is 83 which would indicate a very strong value.

Total Variance Explained						
	Initial Eigenvalues			Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.359	83.981	83.981	3.359	83.981	83.981
2	0.329	8.229	92.210			
3	0.205	5.134	97.343			
4	0.106	2.657	100.000			

Table 31 Health insurance literacy component matrix

The component matrix scores for these variables all demonstrate that they load meaningfully with component scores above .8 or .9.

Component Matrix[a]	
	Component
	1
Health Insurance Literacy	0.865
Health Insurance Literacy	0.943
Health Insurance Literacy	0.910
Health Insurance Literacy	0.946

Table 32 Decision criteria variance

The sum of the Eigenvalue is greater than 1. For this variable, the percentage of variance is 73 which would indicate a very strong value.

Total Variance Explained						
	Initial Eigenvalues			Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.335	77.839	77.839	2.335	77.839	77.839
2	0.480	16.004	93.843			
3	0.185	6.157	100.000			

Table 33 Decision criteria component matrix

The component matrix scores for these variables all demonstrate that they load meaningfully with component scores above .8 or .9.

Component Matrix[a]	
	Component
	1
Decision Criteria	0.904
Decision Criteria	0.927
Decision Criteria	0.812

Table 34 Information processing variance

The sum of the Eigenvalue is greater than 1. For this variable, the percentage of variance is 55 which would indicate a goo value.

Total Variance Explained						
	Initial Eigenvalues			Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.764	55.275	55.275	2.764	55.275	55.275
2	0.716	14.321	69.596			
3	0.676	13.517	83.112			
4	0.500	10.001	93.113			
5	0.344	6.887	100.000			

Table 35 Information processing component matrix

The component matrix scores for these variables all demonstrate that they load meaningfully with component scores above .6 or .7.

Component Matrix[a]	
	Component
	1
Info Processing	0.788
Info Processing	0.760
Info Processing	0.685
Infor Processing	0.794
Info Processing	0.682

Table 36 Decision style variance

The sum of the Eigenvalue is greater than 1. For this variable, the percentage of variance is 72 which would indicate a very strong value.

Total Variance Explained						
	Initial Eigenvalues			Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.169	72.290	72.290	2.169	72.290	72.290
2	0.499	16.644	88.933			
3	0.332	11.067	100.000			

Table 37 Decision style component matrix

The component matrix scores for these variables all demonstrate that they load meaningfully with component scores above .8.

Component Matrix[a]	
	Component
	1
Decision Style	0.878
Decision Style	0.808
Decision Style	0.863

Table 38 Decision confidence variance

The sum of the Eigenvalue is greater than 1. For this variable, the percentage of variance is 59 which would indicate a good value.

Total Variance Explained						
	Initial Eigenvalues			Loadings		
Component	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	2.993	59.862	59.862	2.993	59.862	59.862
2	0.816	16.329	76.191			
3	0.581	11.626	87.817			
4	0.379	7.575	95.392			
5	0.230	4.608	100.000			

Table 39 Decision confidence component matrix

The component matrix scores for these variables all demonstrate that they load meaningfully with component scores above .7 or .8.

Component Matrix[a]	
	Component
	1
Decision Confidence	0.810
Decision Confidence	0.793
Decision Confidence	0.758
Decision Confidence	0.788
Decision Confidence - Final Choice Confidence	0.716

5.2.3 ANOVA

For the four groups, a conclusion can be made that there is no statistically significant difference between the four conditions in terms of a) plan choice; b) time spent; c) decision confidence and d) decision making. The differences between means are likely due to chance and not likely due to the IV manipulation. The only factor that that did show significance was info processing with a significance level of .008.

Table 40 ANOVA Descriptive

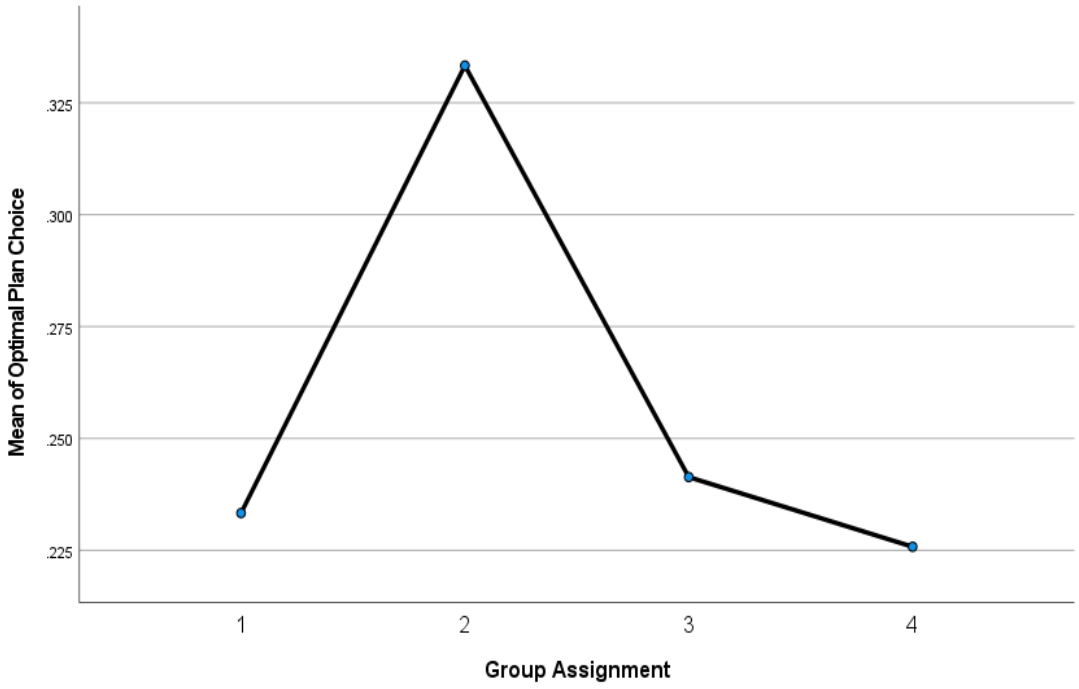
Descriptives									
						for Mean			
		N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minimum	Maximum
Optimal Plan Choice	1	30	0.23	0.430	0.079	0.07	0.39	0	1
	2	33	0.33	0.479	0.083	0.16	0.50	0	1
	3	29	0.24	0.435	0.081	0.08	0.41	0	1
	4	31	0.23	0.425	0.076	0.07	0.38	0	1
	Total	123	0.26	0.441	0.040	0.18	0.34	0	1
Time Spent - Minutes	1	30	20.60	10.457	1.909	16.70	24.50	2	45
	2	33	22.21	11.999	2.089	17.96	26.47	5	55
	3	29	32.24	34.964	6.493	18.94	45.54	10	180
	4	31	32.65	34.136	6.131	20.12	45.17	5	180
	Total	123	26.81	25.724	2.319	22.22	31.40	2	180
Q2_DecConfidence	1	30	5.1778	0.92012	0.16799	4.8342	5.5214	2.33	7.00
	2	33	5.2980	0.72380	0.12600	5.0413	5.5546	3.50	6.17
	3	29	5.0345	0.83378	0.15483	4.7173	5.3516	3.17	6.50
	4	31	4.9624	0.62466	0.11219	4.7332	5.1915	3.33	6.33
	Total	123	5.1220	0.78205	0.07051	4.9824	5.2615	2.33	7.00
Q2_InfoProcessing	1	30	5.4200	0.93122	0.17002	5.0723	5.7677	2.20	6.60
	2	33	5.5030	0.99010	0.17235	5.1520	5.8541	1.60	6.80
	3	29	5.3586	0.84748	0.15737	5.0363	5.6810	3.20	7.00
	4	31	4.7613	0.91713	0.16472	4.4249	5.0977	2.80	6.80
	Total	123	5.2618	0.96058	0.08661	5.0903	5.4332	1.60	7.00
Q2_DecMaking	1	30	5.3111	1.03921	0.18973	4.9231	5.6992	2.00	7.00
	2	33	5.1212	0.94214	0.16401	4.7871	5.4553	2.33	6.33
	3	29	4.7816	1.08845	0.20212	4.3676	5.1956	2.00	6.00
	4	31	4.8065	0.99916	0.17946	4.4400	5.1729	1.67	6.33
	Total	123	5.0081	1.02737	0.09263	4.8248	5.1915	1.67	7.00

Table 41 ANOVA

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Optimal Plan Choice	Between Groups	0.245	3	0.082	0.415	0.743
	Within Groups	23.430	119	0.197		
	Total	23.675	122			
Time Spent - Minutes	Between Groups	3765.577	3	1255.192	1.941	0.127
	Within Groups	76965.122	119	646.766		
	Total	80730.699	122			
Q2_DecConfidence	Between Groups	2.127	3	0.709	1.164	0.326
	Within Groups	72.488	119	0.609		
	Total	74.615	122			
Q2_InfoProcessing	Between Groups	10.709	3	3.570	4.170	0.008
	Within Groups	101.862	119	0.856		
	Total	112.570	122			
Q2_DecMaking	Between Groups	5.925	3	1.975	1.913	0.131
	Within Groups	122.845	119	1.032		
	Total	128.770	122			

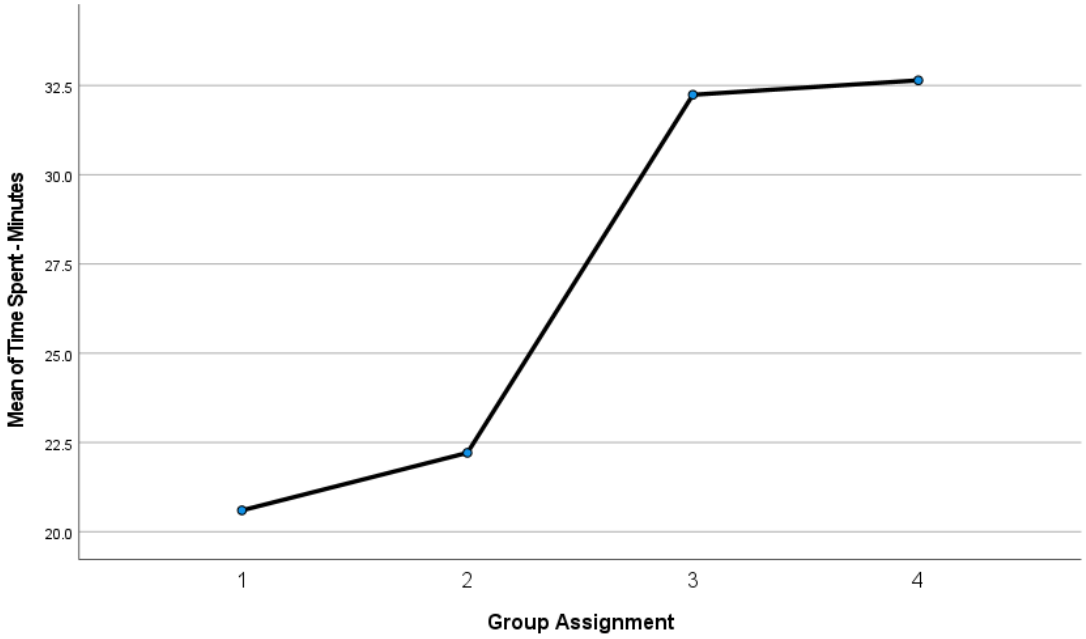
A one-way ANOVA was performed to compare the effect of Group Assignment on Optimal Plan/Decision Choice. A one-way ANOVA revealed that there was not a statistically significant difference in Optimal Plan/Decision Choice between at least two groups.

Table 42 Plan choice and group assignment



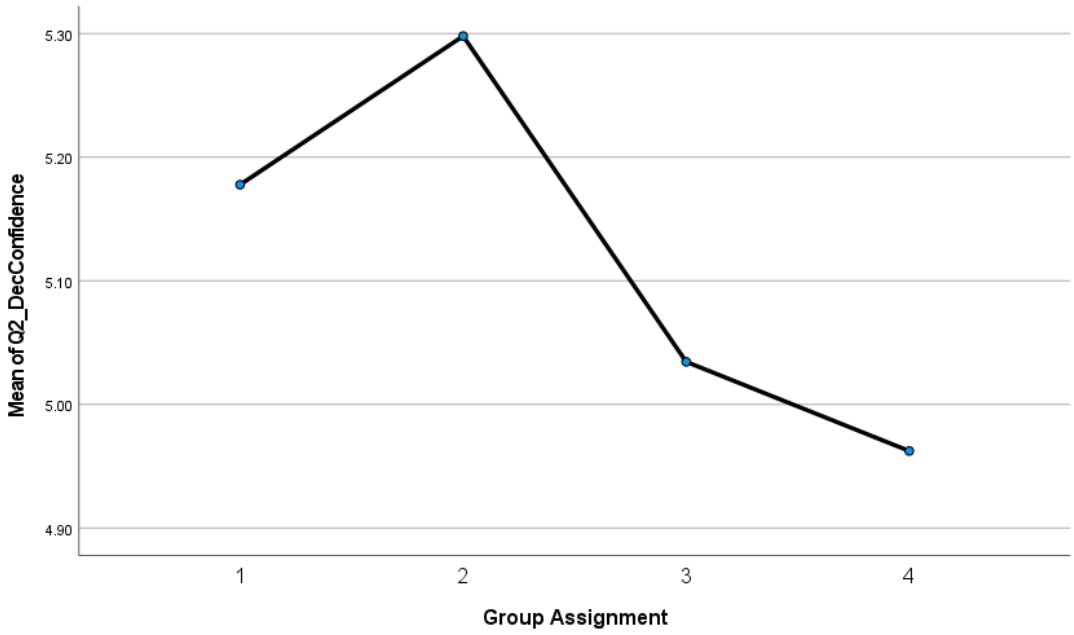
A one-way ANOVA was performed to compare the effect of group assignment on time spent on task. A one-way ANOVA revealed that there was not a statistically significant difference in time spent on task between at least two groups.

Table 43 Time spent and group assignment



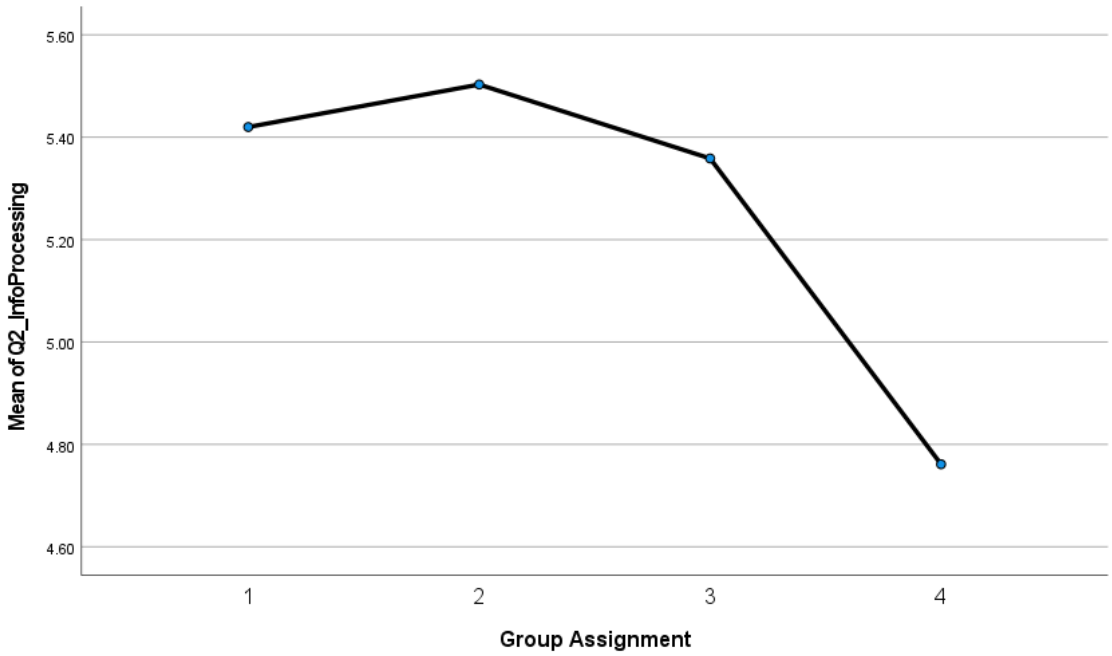
A one-way ANOVA was performed to compare the effect of group assignment on decision confidence. A one-way ANOVA revealed that there was not a statistically significant difference in decision confidence between at least two groups.

Table 44 Decision confidence and group assignment



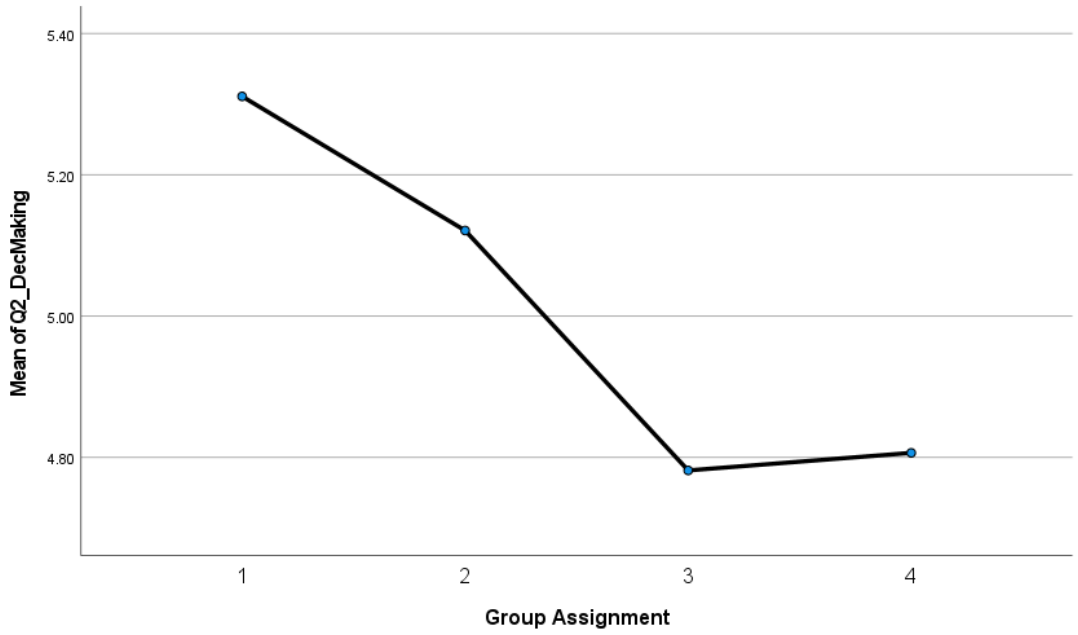
A one-way ANOVA was performed to compare the effect of group assignment on information processing. A one-way ANOVA revealed that there was a statistically significant difference in information processing between at least two groups.

Table 45 Information processing and group assignment



A one-way ANOVA was performed to compare the effect of group assignment on decision making. A one-way ANOVA revealed that there was not a statistically significant difference in decision choice between at least two groups.

Table 46 Decision making and group assignment



5.2.4 Regression

To approach the research question related to decision confidence, a multiple linear regression analysis was conducted to evaluate the prediction of Decision Confidence from multiple variables. The results of the multiple linear regression analysis for the dependent variable of Decision Confidence revealed that the Independent Variables of a) Gender, b) Employment Status c) Education Attainment, d) Health Status, e) Perceived Usefulness, f) Perceived Ease of Use, g) Social Norms, h) Self Efficacy, i) Opportunity Need, j) Health Insurance Literacy and k) Decision Criteria to not to be statistically significant predictors of the model ($p > .05$). However, the results of the multiple linear regression analysis revealed a statistically significant association between a) Group

Assignment (.23) b) Age (.012), c) Info Processing (.04) and d) Decision Making (.00). The R2 value of .736 associated with this regression model suggests that 74% of This would mean that the model explains 74% of the fitted data in the regression model. A .736 R2 value is high, suggesting a good fit for the model.

Table 47 Decision confidence – model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.858[a]	0.736	0.699	0.42889

Table 48 Decision confidence - ANOVA

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	54.933	15	3.662	19.909	.000[b]
	Residual	19.682	107	0.184		
	Total	74.615	122			
a. Dependent Variable: Q2_DecConfidence						
b. Predictors: (Constant), Q1_DecCriteria, Q2_SelEfficacy, Q1_HealInsuLiteracy, What						

Table 49 Decision confidence - coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.464	0.644		2.272	0.025
	Group Assignment	0.091	0.039	0.130	2.309	0.023
	What is your gender?	0.041	0.088	0.025	0.469	0.640
	AgeCategory	-0.091	0.036	-0.158	-2.569	0.012
	Which of the following categories best describes your employment status?	-0.010	0.023	-0.024	-0.434	0.665
	What is the highest level of school you have completed or the highest degree you have received?	-0.036	0.033	-0.057	-1.092	0.277
	Using any number from 0 to 10, where 0 is the worst possible status and 10 is the best possible status, what number would you use to rate your current healthcare status?	-0.020	0.028	-0.045	-0.712	0.478
	Q2_InfoProcessing	0.153	0.074	0.188	2.075	0.040
	Q2_DecMaking	0.376	0.054	0.493	6.929	0.000
	Q2_Usefulness	0.095	0.071	0.153	1.327	0.187
	Q2_EaseOfUse	0.049	0.043	0.074	1.129	0.262
	Q2_SocialNorm_2	0.063	0.057	0.109	1.113	0.268
	Q2_SelEfficacy	-0.050	0.038	-0.079	-1.305	0.195
	Q2_OpportNeed	-0.002	0.034	-0.004	-0.063	0.950
	Q1_HealInsuLiteracy	0.079	0.047	0.088	1.690	0.094
	Q1_DecCriteria	0.031	0.046	0.038	0.684	0.496
a. Dependent Variable: Q2_DecConfidence						

For decision choice, and the optimal plan selection, none of the variables proved to have significance.

Table 50

Variables in the Equation							
		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1[a]	Group Assignment	0.050	0.235	0.045	1	0.832	1.051
	What is your gender?	-0.576	0.522	1.215	1	0.270	0.562
	AgeCategory	-0.063	0.200	0.098	1	0.754	0.939
	Which of the following categories best describes your employment status?	0.052	0.131	0.161	1	0.688	1.054
	What is the highest level of school you have completed or the highest degree you have received?	-0.038	0.189	0.040	1	0.841	0.963
	Using any number from 0 to 10, where 0 is the worst possible status and 10 is the best possible status, what number would you use to rate your current healthcare status?	0.291	0.185	2.479	1	0.115	1.338
	Q2_InfoProcessing	0.823	0.506	2.640	1	0.104	2.276
	Q2_DecMaking	-0.491	0.325	2.279	1	0.131	0.612
	Q2_Usefulness	-0.133	0.432	0.095	1	0.758	0.876
	Q2_EaseOfUse	0.460	0.280	2.705	1	0.100	1.584
	Q2_SocialNorm_2	-0.014	0.325	0.002	1	0.966	0.986
	Q2_SelEfficacy	0.142	0.214	0.443	1	0.506	1.153
	Q2_OpportNeed	-0.153	0.204	0.559	1	0.455	0.859
	Q1_HealInsuLiteracy	0.385	0.302	1.628	1	0.202	1.469
	Q1_DecCriteria	-0.295	0.266	1.233	1	0.267	0.745
	Constant	-5.999	3.853	2.424	1	0.119	0.002

An additional analysis was completed to examine the DV Information Processing. To approach the research question related to information processing, a multiple linear regression analysis was conducted to evaluate the prediction of information processing from multiple variables. The results of the multiple linear regression analysis for the dependent variable of Information Processing revealed that the Independent Variables of a) Group Assignment, b) Gender, c) Educational Attainment, d) Health Status, e) Social Norms, f) Opportunity Need, g) Health Insurance Literacy, and h) Decision Criteria to not be statistically significant predictors of the model ($p > .05$). However, the results of the multiple linear regression analysis revealed a statistically significant association between a) Age (.044), b) Employment Status, (.003) c) Usefulness (.00) and d) Ease of Use (.00). The R2 value of .64 associated with this regression model suggests that 64% of This would mean that the model explains 64% of the fitted data in the regression model. A .640 R2 value is high, suggesting a good fit for the model.

Table 51 Information processing – model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.800[a]	0.640	0.597	0.61011
a. Predictors: (Constant), Q1_DecCriteria, Q2_SelEfficacy, Q1_HealInsuLiteracy, What is your gender?, What is the highest level of school you				

Table 52 Information processing - ANOVA

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	71.996	13	5.538	14.878	.000[b]
	Residual	40.574	109	0.372		
	Total	112.570	122			
a. Dependent Variable: Q2_InfoProcessing						
b. Predictors: (Constant), Q1_DecCriteria, Q2_SelEfficacy, Q1_HealInsuLiteracy, What is your gender?, What is the highest level of school you have completed or the						

Table 53 Information processing - coefficients

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	3.423	0.841		4.070	0.000
	Group Assignment	0.001	0.056	0.001	0.011	0.991
	What is your gender?	-0.047	0.125	-0.023	-0.378	0.706
	AgeCategory	-0.101	0.050	-0.142	-2.039	0.044
	Which of the following categories best describes your employment status?	-0.093	0.031	-0.185	-2.991	0.003
	What is the highest level of school you have completed or the highest degree you have received?	0.003	0.047	0.003	0.054	0.957
	Using any number from 0 to 10, where 0 is the worst possible status and 10 is the best possible status, what number would you use to rate your current healthcare status?	0.018	0.039	0.033	0.450	0.654
	Q2_Usefulness	0.417	0.093	0.552	4.507	0.000
	Q2_EaseOfUse	0.292	0.055	0.364	5.359	0.000
	Q2_SocialNorm_2	-0.019	0.080	-0.027	-0.234	0.815
	Q2_SelEfficacy	-0.194	0.049	-0.251	-3.948	0.000
	Q2_OpportNeed	-0.075	0.048	-0.116	-1.556	0.123
	Q1_HealInsuLiteracy	0.020	0.066	0.019	0.310	0.757
	Q1_DecCriteria	0.072	0.065	0.072	1.118	0.266
a. Dependent Variable: Q2_InfoProcessing						

An additional analysis was completed to examine the DV Decision Making. To approach the research question related to decision making, a multiple linear regression analysis was conducted to evaluate the prediction of Decision Making from multiple variables. The results of the multiple linear regression analysis for the dependent variable of Decision Making revealed that the Independent Variables of a) Group assignment, b)

Gender c) Education Attainment, d) Health Status, e) Social Norms, f) Opportunity Need, g) Health Insurance Literacy, h) Decision Criteria to not be statistically significant predictors of the model ($p > .05$). However, the results of the multiple linear regression analysis revealed a statistically significant association between a) Employment Status (.04), b) Usefulness (.006), c) Ease of Use (.051), and d) Self Efficacy (.00). The R2 value of .419 associated with this regression model suggests that 42% of this explains only 42% of the fitted data in the regression model. A .419 R2 value is not high, suggesting not a good fit for the model.

Table 54 Decision making – model summary

Model Summary				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.647[a]	0.419	0.349	0.82877
a. Predictors: (Constant), Q1_DecCriteria, Q2_SelEfficacy, Q1_HealInsuLiteracy, What is your gender?, What is the highest level of school you				

Table 55 Decision making - ANOVA

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	53.901	13	4.146	6.036	.000[b]
	Residual	74.869	109	0.687		
	Total	128.770	122			
a. Dependent Variable: Q2_DecMaking						
b. Predictors: (Constant), Q1_DecCriteria, Q2_SelEfficacy, Q1_HealInsuLiteracy, What is your gender?, What is the highest level of school you have completed or the						

Table 56 Decision making - coefficients

Coefficients[a]						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.953	1.143		3.460	0.001
	Group Assignment	0.027	0.076	0.030	0.360	0.720
	What is your gender?	-0.001	0.169	-0.001	-0.007	0.995
	AgeCategory	-0.096	0.067	-0.126	-1.426	0.157
	Which of the following categories best describes your employment status?	-0.088	0.042	-0.164	-2.082	0.040
	What is the highest level of school you have completed or the highest degree you have received?	0.001	0.064	0.001	0.018	0.986
	Using any number from 0 to 10, where 0 is the worst possible status and 10 is the best possible status, what number would you use to rate your current healthcare status?	-0.053	0.054	-0.092	-0.991	0.324
	Q2_Usefulness	0.353	0.126	0.437	2.808	0.006
	Q2_EaseOfUse	0.146	0.074	0.171	1.977	0.051
	Q2_SocialNorm_2	0.010	0.109	0.013	0.093	0.926
	Q2_SelEfficacy	-0.271	0.067	-0.328	-4.050	0.000
	Q2_OpportNeed	0.014	0.065	0.021	0.217	0.829
	Q1_HealInsuLiteracy	0.113	0.090	0.095	1.254	0.213
	Q1_DecCriteria	-0.001	0.088	-0.001	-0.008	0.993
a. Dependent Variable: Q2_DecMaking						

5.3 Usable Experiment Response Rate

A total of 162 people initially signed up to participate in the experiment. All the participants were sent the initial over email along with the link to the first survey. 141 of the participants who received the initial email with the survey link completed the first survey. This is a total of 87% of the original participants who completed step one and received an assignment for the experiment. Of the 141 individuals who received an assignment for the experiment, 123 individuals completed the experiment. Those individuals all completed the final assessment. This is a rate of 87% of the individuals who completed the first survey completed the experiment. The rate for the original group who signed up to participate in the experiment to the final group who completed the final assessment was 76%

5.4 Survey 1 Results

Both Survey 1 and Survey 2 used the same scale for answers to the survey questions. The full responses to all survey questions are in the appendix section of the

document. In addition, some of the qualitative answers, such as the narrative responses to the open-ended questions such as "What recommendations would you make to improve this website?" are contained in later sections of this document. The scale is as follows:

1	2	3	4	5	6	7
Strongly disagree	Disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Agree	Strongly Agree

Only the responses of the 123 individuals who completed the entire experiment are included in these initial survey results. Regarding making important decisions, the majority of the respondents demonstrated that they agreed with statements discussing using the internet to assist in making decisions (5.4), evaluating the information they find online (5.9) and having clear decision criteria presented to them (5.8). There was some concern around feeling secure sharing personal information online (3.5) and trusting the information found online (4.4). The group demonstrated greater traits of maximizers than satisficers. They showed little regret (2.3) and equivocation (2.9) in terms of decision making. Consideration of possibilities (5.4) and taking the time needed to make decisions (5.6) is consistent with maximizing behaviors. There was also consensus around if they give up easily (2.1) and avoidance of difficult decisions (2.5).

Most participants felt that they understood key insurance terminology (5.2) but also expressed concern about how easy it would be to select an insurance plan (3.5). From a technology perspective there was also agreement in the ability to easily use search tools (5.2) and using online help tools (5.2).

Most financial and plan design features were rated as important. This included items such as premium costs (6.0), deductibles (6.1) and out of pocket costs (6.1). There was

also general agreement that celebrity endorsements were not a valuable factor (1.8) when choosing a plan.

5.5 Survey 2 Results

The was some agreement in terms of the information that was provided. Finding the information provided good (5.2) and easy to follow (4.9) was results from the participants after completing the experiment. There was overall trust of the information that was recommended (5.2) and an evaluation of the information provided (5.5). Most disagreed that they understood all of the financial information that was provided (3.8) but they did not agree that they just selected a random plan based on a familiar name (2.8).

There was somewhat agreement that a good plan choice was made (5.4) but that number went down slightly when asked if it was better than the rest (4.7). Despite all of the information provided during the experiment process, the ratings for a hypothetical plan being around $150 per month in the pre-experiment portion (3.1) and post experiment (3.6) stayed consistent. The optimal plan on the selection would average $175 per month with total costs.

5.6 Plan Selections

For the optimal plan selection, there was only one option that was counted as the "optimal choice" plan. This was the Humana Walmart Value RX Plan. While there were some plans that were better than others, and some plans that were closer in total plan costs to the Humana Walmart Value RX Plan, the Humana Walmart Value RX Plan had the lowest total overall costs for a participant based on the medications available and the pharmacy locations selected. In this instance, it was a binary choice. The participant

either picked the correct plan or they did not. There may have been other factors that caused individuals to select other plans. Some of them shared these reasons during the online and in-person review sessions. They knew that they might be paying more based on some of the information that they viewed, but they still wanted to select a different plan even though they knew it might cost more.

Table 57. Plan Choice – Group Assignment

Group Assignment	Optimal Plan Choice - Yes	Optimal Plan Choice - No
1 - Low Information and Low Support	7	23
2 - High Information and Low Support	11	22
3 - High Information and High Support	7	22
4 - Low Information and High Support	7	24
	32	91

Table 58. Plan Choice – Age (Overall)

For the overall age group, 26% of the participants selected the correct plan. There was variation of the successful selection rate by age. The best performing age group was the 18–30-year-old group which had a 43% successful selection rate. This was followed by the 41–50-year-old group with a 38% successful selection rate. The worst performing groups were the 51–60-year-old group at 20% successful selection and 61–70-year-old selecting successfully at 21%. The 71 year and older group had a 28% successful selection rate.

Age Group	Optimal Plan Choice - Yes	Optimal Plan Choice - No
18-30	3	4
31-40	2	5
41-50	6	10
51-60	10	39
61-70	4	15
71-older	7	18

Table 59. Plan Choice – 65 and Older

This would be the target age group for the Medicare programs. This group had a 21% successful select rate. This number fits in closely with the age groups earlier defined. It still demonstrates that there is a concern with the ability of the Medicare target population to accurately and effectively select the optimal plan and ensure they are not paying more than needed for these benefits.

Age Group - 65 and Older	Optimal Plan Choice - Yes	Optimal Plan Choice - No
65 and Older	8	30

Table 60. Plan Choice – Educational Level Attainment

In terms of education level attainment and plan selection, the group that performed the best was the high school degree group. That group had a 38% successful selection rate. The associates degree group had the lowest successful selection rate at 21%. The graduate degree group had the second highest successful selection rate at 28%.

Education Level Attainment	Optimal Plan Choice - Yes	Optimal Plan Choice - No
High school degree or equivalent (e.g., GED)	3	5
Some college but no degree	4	12
Associate degree	3	11
Bachelor's degree	11	34
Graduate degree	11	29

Table 61. Plan Choice – Health Insurance Literacy Composite

This score was based on the answer to several questions related to knowledge of health insurance terminology as well as ease of selection of health insurance plans. The group that had the highest confidence in health insurance literacy also had the highest successful selection rate at 50%. That said, 50% of the group with the highest confidence in their abilities also got the plan selection wrong. The group with the lowest self-expectations also did the worst with 0% correct selection. The neutral group in the neither agree nor disagree in their abilities category scored the second highest with a successful selection rate of 32%.

Health Literacy Composite	Optimal Plan Choice - Yes	Optimal Plan Choice - No
Strongly Disagree	0	2
Disagree	2	7
Somewhat Disagree	4	10
Neither Agree nor Disagree	10	21
Somewhat Agree	9	24
Agree	4	24
Strongly Agree	3	3

Table 62. Plan Choice - Computer Skills and Technical Abilities – Self Rated

Self-determined computer and technical skills also provided interesting insights. Both the groups who rated themselves the lowest as well as the highest had a 0% successful selection rate. The two groups who did the best in this classification were the users who rated themselves as Fair (38%) and the group who rate themselves as Above Average (32%.).

Computer Skills	Optimal Plan Choice - Yes	Optimal Plan Choice - No
Poor	0	5
Fair	3	5
Moderate	3	8
Average	10	24
Above Average	11	23
Excellent	5	21
Expert or Professional	0	5

Table 63. Plan Choice - Potential to Use Plan Finder Website in the Next 12 Months

From a policy perspective, this is the group that should be of greatest interest to those policy makers. These are the individuals who are in the Medicare target groups. Overall, they scored below the general average. The somewhat likely and the very likely groups were at 20% and the likely group was at 25%.

Potential to Use Plan Finder in 12 Months	Optimal Plan Choice - Yes	Optimal Plan Choice - No
Somewhat Likely	2	8
Likely	2	6
Very Likely	3	12

Table 64. Plan Choice – Monthly Premium Importance

One of the factors that the experiment participants agreed as important (6.0 average score rating) was the monthly premium plan costs. This has been cited (Abaluck and Gruber) as one of the issues that can often lead enrollees in the wrong direction and cause them to focus only on the monthly premium costs for a plan, when there may be a plan option that has a better overall total cost for an enrollee. This was also true for this survey group. For the somewhat agree group in terms of monthly premium as an important factor, there was only a 19% successful selection rate. For the Agree group, it was a 26% successful selection rate and for the Strongly agree group it was a 32% successful selection rate. For those who felt that the monthly premiums were not an important criteria or factor (disagree and somewhat disagree) those groups had a 0% successful selection rate for the optimal choice plan.

Monthly Premiums - Important Factor	Optimal Plan Choice - Yes	Optimal Plan Choice - No
Strongly disagree	0	0
Disagree	0	1
Somewhat disagree	0	3
Neither agree nor disagree	1	3
Somewhat agree	3	13
Agree	16	46
Strongly agree	12	25

Table 65. Plan Choice – Self Described Quality as Best Choice Selected

Each of the participants answered a question if they felt that they had selected the best plan. Even though there were many participants who felt that they had selected the optimal choice plan, they in fact did not. The group who strongly agreed that they had made the best selection did have the highest successful selection rate at 40%. The other

two groups with confidence in their choice, somewhat agree at 29% and agree at 27%, were below that group.

Choice Quality - Self Described	Optimal Plan Choice - Yes	Optimal Plan Choice - No
Strongly disagree	0	0
Disagree	0	1
Somewhat disagree	0	0
Neither agree nor disagree	6	17
Somewhat agree	10	32
Agree	14	38
Strongly agree	2	3

Chapter 6 DISCUSSION AND CONCLUSION

6.1 Summary of Quantitative Findings and Discussion

- Hypothesis 1 – Decision choices. The following results were observed
    - 1A – The results found that it was not supported that group assignment based on amount of information and support level positively affects decision choice
    - 1B – The results found that it was not supported that information processing positively affects decision choice
    - 1C – The results found that it was not supported that decision making process positively affects decision choice
- Hypothesis 2 – Decision confidence
    - 2A – The results found that it was supported that group assignment based on amount of information and support level positively affects decision confidence
    - 2B - The results found that it was supported that information Processing positively affects decision confidence
    - 2C – The results found that it was supported that decision making process positively affects decision confidence
- Hypothesis 3 – Information processing
    - 3A – The results found that it was not supported that group assignment positively affects information processing
    - 3B – The results found that it was supported that perceived ease of use positively affects information processing
    - 3C – The results found that it was supported that perceived usefulness positively affects information processing

- 3D – The results found that it was not supported that social norms positively affects information processing
- 3E – The results found that it was supported that self-efficacy positively affects information processing
- 3F – The results found that it was not supported that opportunity need positively affects information processing
- 3G – The results found that it was not supported that decision criteria positively affects information processing
- 3H – The results found that it was not supported that health insurance literacy positively affects information processing

- Hypothesis 4 – Decision making
  - 4A – The results found that it was not supported that group assignment positively affects decision making
  - 4B – The results found that it was supported that perceived ease of use positively affects decision making
  - 4C – The results found that it was supported that perceived usefulness positively affects decision making
  - 4D – The results found that it was not supported that social norms positively affects decision making
  - 4E – The results found that it was supported that self-efficacy positively affects decision making
  - 4F – The results found that it was not supported that opportunity need positively affects decision making

- 4G – The results found that it was not supported that decision criteria positively affects decision making
- 4H – The results found that it was not supported that health insurance literacy positively affects decision making

6.2 Implications for Research

This work has several implications for research. It confirms and extends much of the work that has been done to date on plan selection. It can support the findings from several studies (Abaluck and Gruber; Zhou and Zhang) that demonstrate that seniors will select the wrong drug plan because they focus on the wrong components. The information is too overwhelming, and the easiest understandable element is the one that gets the attention. The individuals in this experiment, especially the over 65 group, had many of the same issues that had been previously identified in prior research.

In terms of maximizing and satisficing, this study also demonstrated that individuals have specific decision-making styles and information requirements. Providing the right amount, type and quantity of information can drive a successful decision, and a greater sense of ownership and acceptance of a choice. Misuraca and Fasolo looked at these specific maximizing and satisficing criteria in the context of digital and online searches. This study extends their research with similar findings around information use and choice impact.

Finally looking specifically at the work of Hanoch, there is related information on how much information is too much, specifically in the context of Medicare Part D Prescription Plan searches.

6.3 Implications for Practice

The representative of this study may be somewhat limited. They were only selected from several specific groups who volunteered to participate. Most of the participants were from the South Florida area which may not necessarily be representative of the larger US population. There were a larger number of participants who took the initial survey but did not complete the experiment part of the process. This could be the result of a variety of reasons. The initial survey could be completed on a phone, tablet, or computer. The process was easy. There may have been some respondents who thought that the initial survey was the entire experiment, and as such, did not follow the instructions in the subsequent email to work on the second step, which was the experiment.

Some of the participants may not have completed the second step because the experiment may have seemed to be too much work, or the task itself might have been overwhelming due to the nature of the task. For some participants who emailed after the survey was closed and the experiment was completed, they stated that they were afraid that they did not know how to effectively complete the task because they did not understand the insurance information. They expressed fear that they would not be able to "complete it correctly." This was even though they were told in the instructions that went with the second step experiment that they did not need to be an expert on these types of choices.

The generalizability of the study may be somewhat limited. The population in the study is skewed more female than male compared to the overall population. The final participants also have a higher rate of undergraduate and graduate degrees than the

general population. There was a cross section of ages in the study, and most of the participants would be either in Medicare or in the target population for enrolling in Medicare soon.

6.4 Policy Implications

The Federal Government, through the Centers for Medicare and Medicaid Studies, spent close to $20 million to upgrade and improve the usability and effectiveness of the Plan Finder tool. There is wide consensus that there are issues as to how consumers select their Medicare plans, that they often make poor choices initially and then stick with those plans despite changes. There is also agreement that many consumers are challenged in terms of their health insurance literacy. For the target population for Medicare Part D, seniors, it is also seen that they may not be as comfortable as other age groups when it comes to using technology. For all these issues, having a tool that can assist this vulnerable population make these choices for their healthcare plans is critical. Many seniors live with limited financial resources, so spending those resources efficiently and effectively is even more important to this age group.

In the initial evaluation and redesign of the Plan Finder website, many consumers expressed issues around the difficulties using the site. They also expressed concerns with how the information was presented and the usability of the information. Many viewed it as too confusing and not helpful in terms of making a plan choice. The purpose of the website redesign was to fix and alleviate these issues. Unfortunately, based on the information collected as part of this study, the redesign project failed to meet those objectives. Most of the participants found the information confusing, the choices, and

recommendations too numerous and the terminology too difficult to understand. Many said that they would not use the website in the future to assist or guide them in making a future insurance plan choice. From a policy perspective, it may mean that CMS needs to go back to the drawing board and redesign the website again.

In important consideration is that there were 35 people out of the 123 survey participants who said it was at least somewhat likely that they would be using the Medicare Part D Plan finder in the next 12 months. Given that only 19 were aware of the tool prior to the study and their participation in the experiment, this shows that there were some participants who learned about the tool and now will potentially use it in the next 12 months. Some of the issues around the website use (and potential additional user feedback) may just be an issue that the targeted audience does not know that the tool is available, and that the user population from which CMS receives feedback on the usability and effectiveness of the tool might need to be widened from a selection sample to find those people who don't use the tool today but might soon.

There were 98 survey participants out of the 123 total participants who provided feedback and comments on how to improve the website as well as the plan selection process. These comments will be shared with the applicable Federal legislators as well as CMS to provide insight into the user experience of using the Medicare Part D Plan Finder site as well as the plan selection process. While not a large sample group, many of the comments provide some simple and intuitive insights as to what might make things better in the future. These would most likely be feedback items that legislators with policy oversight to this process would be interested in, as well as the administrators responsible for running these programs.

In addition to some of the feedback questions and the usability issues, there also seem to be some communication and trust issues for the agency that runs the Medicare Part D Plan Finder site. 55% of the participants are unaware of the government agency (CMS) that runs and sponsors this website as part of enrollees Medicare benefits. 64% of the survey respondents said that they were either neutral or do not trust the information provided because it is provided by the US government. Only 37% of the respondents said the information was neutral and objective because it was provided by the government. This is a larger policy issue as it relates to the government management and sponsorship of this program. There may be other issues that are being manifested here from a policy perspective, but appropriate agency and oversight leaders should understand that there could also be a messaging and marketing issue that needs to be fixed in addition to the website functionality.

Developing effective communication strategies for plan choice is a contribution for this study. Many seniors are not aware of the plan finder tool. This tool was developed at significant expense by CMS to provide seniors with a decision aid to help them make an optimal choice of a Medicare Part D plan. However, if people do not know about the tool, they cannot use it. Frequent communications go out to seniors, both during open enrollment periods, as well as specific benefit periods throughout the year. There may be additional opportunities to communicate information about the tool. This study will identify some of the ways that seniors get their information on Medicare Part D today.

Develop specific strategies to overcome plan "stickiness" since it is a known issue with the general population. Because we know that there are satisficers and maximizers,

understanding their motivation, opportunity and ability issues will assist in addressing stickiness issues. The same issues will be addressed for switchers and non-switchers. The senior populations who are targeted to enroll in Medicare Part D also have a fear for regret. This may have a unique impact on stickiness.

Help participants to make informed choices. Most consumers focus on price. While they may list other attributes that they would consider to be important, price is what will typically drive the ultimate purchasing decision. In healthcare, and more specifically with Medicare Part D, there are several other financial components that need to be considered as part of "price" which are often overlooked. Most seniors focus only on the premium cost/price, while ignoring co-pays, deductibles, other out of pocket expenses and covered medications. While the perceived "price" may seem to be the lowest, it may not be when these other factors are included.

Consider for auto assignment of optimal plans. The Medicare Part D plan finder, when used correctly, will identify the optimal plan for an enrollee. This does not mean that the optimal plan is ultimately selected by the enrollee. In previous surveys, seniors have expressed interest in having only one plan available, or further limiting the number of options. The search, while seen as a benefit, may not be one, and the potential use of an auto assignment may benefit the payer (the US Government) and the enrollee (the customer.)

6.5 Limitations

The survey participants were limited. There were only 123 total participants in the full experiment. While they were somewhat representative of a larger population set,

expanding the number of participants would add to the richness of the data. There was a varied geography but having a wider distribution in other geographic locations outside of Florida would also add to future analysis. This would also include a greater mix of participants related to gender, race or ethnicity and educational background. The gender mix was not even and that was a limitation in the sample group.

Obtaining more information on why specific choices were made would be an enhancement. While there were some questions that were asked about the confidence in the choice made, there was limited information around the actual choice made when it was a suboptimal choice. This limits the amount of information available as to why those specific choices were made. This is true around some of the questions of trust and future use. Additional information in these areas would have provided more insight around the possible reasons for the choices made.

The experiment only focuses on the plan choices in one zip code area. Each state, and many unique zip code regions within each state, would have different plan choices and options available. While the search tool would provide similar data points, the potential to have different plans with different pricing methodologies, as well as plans that may have less familiar name brands, could have provided additional insights into the choice process.

6.6 Future Research

There are several areas for potential future research. Because the Medicare Part D Plan Finder website was just updated in 2019, there are additional studies that could look at a variety of areas related to plan search, intention to use the tool, user acceptance of the

technology and the recommendations, and how different factors might influence an individual's choice. Many of the original studies that looked at enrollment and switching patterns have the potential to be updated and reviewed. The Part D benefit plan is now 15 years old, so there is much more data available on plan choices and their impacts over time.

Older adults may not be fully aware of all the financial terms and implications of the various options (Cline and Gupta). Despite expressing confidence in their abilities to understand and process these concepts, based on the results of this experiment, they were not always able to do that effectively. Most of the participants ended up selecting a suboptimal plan. Future research might examine how that can be corrected. Is it through navigator programs like those found in the Affordable Care Act programs, or is it more training and online help to empower enrollees to make their own choice? This could include additional qualitative research interviewing enrollees on their decision-making processes.

Understanding the factors that contribute to the acceptance and use of technology is critical now that healthcare becomes more reliant upon technology. Fewer plans produce the same marketing materials and brochures as they did in the past. People get more information from the internet. There is an expectation that this type of information will be there. As there are more and more Medicare age customers who have been using technology for longer periods of time, this will be an expectation. Based on the results from this experiment, there is a potential for additional and future research to better understand how and why enrollees did and did not use or trust the technology, website, and plan recommendations. Learning what those specific factors are that will influence

the adoption of the technology and how to apply them in the tools presented to enrollees has the potential to assist the enrollees in making better choices.

Finally, understanding why seniors don't know about the site, and the ones that do know about the site, why don't they use it. If additional resources will be expended to upgrade and improved the Plan Finder website, these are critical questions to understand and research. In this study, individuals who were in the target age group said that they would not, or did not plan to, use the Plan Finder site in the next 12 months. A key research question would be to understand why.

6.7 Conclusions

Healthcare and technology are an increasingly integrated part of how we receive care and become an informed patient or consumer. More information, in a useable and organized manner, can help patient make better and more informed decisions regarding a variety of aspects of their healthcare. Their health insurance is one of the key mechanisms to allow for that delivery. In the US system, much of our access to the healthcare system goes through our availability of health insurance. Making informed, rational, and supported decisions regarding our health insurance and coverage options can improve access and affordability. Technology has the potential to make these economic decisions efficient and effective.

As consumers, more and more commerce is driven through electronic and virtual marketplaces. Providing more information, and more importantly, the right kind of information, for consumers to make more rational and informed decisions around health insurance and healthcare can drive better engagement and ownership of these decisions. This improved engagement has the potential to drive improved outcomes. As healthcare

resources of all types continue to be challenged, developing systems and tools that can better direct those resources and consumers can make the market more efficient. Tools like the Medicare Part D Plan Finder can be a mechanism to bring the right patients to the right plans and provide the patients with the right information needed to make the right decision on plan choice. Engaging with patients, improving information type or quality, improving information access, targeting decision options or choices, and providing education and help when needed can be achieved through these technology options.

Appendices

Appendix A – Initial Email to Survey Participants

Here is an overview of the experiment that I am conducting. The first step is to complete a brief survey on how people make decisions and use information and technology to make those decisions.

Please send me an email to jschm031@fiu.edu with your name, your phone number and the person who got you connected to this experiment by sending you this message.

I am studying how we make decisions. More specifically – does technology help us to make better decisions? We have all used our computers and the internet when we need to do our own sort of research. Maybe it is for buying plane tickets, shopping for a cruise, looking up a movie review or trying to find a review for a restaurant.

In this experiment – I am looking at how we use our computers or the internet to help us make decisions when it comes to our healthcare and how we might look at insurance plans. The good part – this isn't a test and there is no right or wrong answer. What I am looking at is how you make decisions and does the webpage that we are going to use help you to make a good decision.

Just a disclaimer – you aren't going to put in any of your personal information, so nothing to worry about there. Everyone is going to use the same information.

The experiment will be in three parts –

- First - You will get an email from me with a link to a survey. It is from a site called "Survey Monkey." It will take about 10 minutes to complete the survey. It asks you some questions about yourself, how you make decisions, and how you use different types of technology or internet sites to do that.

- Second – after you complete the survey, you will do the experiment part of the process. I will connect with you to do this part. There are four groups, and each group has a little bit different types of information that they will use. This is where you will use the website to look at the different Medicare Part D plans and pick the one that you think is the best based on the information that you have. This will probably take about 15 minutes.

- Third – after the experiment part is complete, I will send you another survey that just asks some questions about the experiment and the information that you used. This should take about 7 minutes to complete.

The first thing that you need to do is follow this link to the pre-experiment survey. It is going to ask some questions about how you make decisions and how you use technology.

After you complete this – send me an email and let me know that you have completed the survey. I will then send you an email message explaining the next step and providing you with instructions on what we will do.

Thanks so much for assisting me with this research.

Appendix B – Survey Questions and Average Responses

Survey Results – Part One and Part Two

Question	Mean Score
I feel that I can trust the information that I find online	4.8
I have used information that I have found online to help me make decisions	5.4
I need to have all of the information available to me before I make decisions	5.7
I like to have very clear decision criteria presented in advance so I can feel comfortable that I am evaluating and making the right choice	5.8
Before I use the information that I obtain from the internet, I evaluate the information for accuracy	5.9
I still want to make my own decision even if it doesn't match any of the recommendations made for me	5.5
I feel secure to provide my personal information online	3.5
I feel that I can trust the information that I get online	4.4
I understand all of the terminology and concepts such as deductibles, copays, premiums, etc.	5.2
I am comfortable looking at all of the options and making the best selection for me	5.4
Selecting a health insurance plan and healthcare options will be easy	3.5
When generic medications are available, I will select them over name brand products	5.3
I will usually follow the recommendations on the internet	4.1
I know where to find reliable healthcare and health insurance information	4.7
I know what websites have quality medical and insurance information	4.2
I know which information will help me to make better decisions	4.8
I can understand the healthcare and health insurance information I find on the internet on my own	4.6
I feel confident using the information that I find on the internet to make a decision	4.5
The medical and healthcare information found on the internet is high quality information	4.1
I never settle for second best	5.0
I am always on the lookout for better opportunities and offers	5.3
I spend the time required to choose an option that is most satisfactory to me	5.6
I am always afraid of not making the best decision	4.2
I just pick the first option that works for me and move on and don't look back	2.9
I don't ask for more than what satisfies me	3.6
I try to consider all of the possibilities, even the ones that might not be an issue now	5.4
I always wonder what would happen if I had selected a different option	3.7
After I make a decision, I always think there was a better decision	2.9
I tend to regret the decisions that I make	2.3
If something looks too complicated, I will not even bother trying it	3.2

I feel insecure about my ability to do things that are new	2.7
I am a self-reliant person and don't really need help	4.6
I give up easily	2.1
I avoid facing difficult situations or decisions	2.5
When I make plans, I am confident I can make them work	5.7
I am a big fan of making lists and ranking things	5.3
It is easy for me to search and learn new search tools on my own	4.8
I feel comfortable using online help tools	5.2
I like to just jump in and figure out how to use it as I go along	4.5
I think it will be easy for me to use the Medicare Part D Plan finder internet search tool for this study	4.7
I am comfortable using search tools on the internet to help me find information to make decisions	5.2
Important factor – monthly premiums	6.0
Important factor – out of pocket costs	6.1
Important factor – Copays and co-insurance	6.0
Important factor – Deductibles	6.1
Important factor – Family coverage costs	4.9
Important factor – Policy limits	5.8
Important factor – Doctors in network	6.0
Important factor – Hospitals in network	6.1
Important factor – Pharmacies in network	5.5
Important factor – Specialty services – silver sneakers, gym memberships, vitamins	4.0
Important factor – Alternative medical treatments	4.5
Important factor – Wellness programs	4.7
Important factor – Physician ratings	5.6
Important factor – Friends or family who use the plan	5.2
Important factor – Online ratings	4.9
Important factor – Celebrity endorsements	1.8
Important factor – Physician or medical professional recommendations	5.5
Important factor – Professional group recommendations (AARP, Consumer Reports)	4.4
Plans that cost less have lower quality	4.2
Websites that are not run by insurance companies have more objective recommendations	4.3
Plans with high consumer ratings will also have positive outcomes for me	4.5
A pharmacy plan that costs $150 per month is a reasonable price	3.1
It is best to narrow the list down to just a few options and then make a choice	5.7
Price should be the first deciding factor and then I would consider other things like quality or consumer ratings	3.4
I would evaluate each plan individually and then compare them to one another	5.8
Using the Plan Finder site is of benefit to me	4.4
Will enable me to conduct more efficient searches in the future	4.6
Will improve me current insurance plan use and performance	4.0
Will be easy for me to become skillful in using to make a choice	4.6

Is a tool that I will clearly be able to understand	4.7
Will enable me to be able to clearly explain to others why using this website may be beneficial	4.6
People who are important to me have used the Medicare Part D Plan Finder website	3.8
People my age use the internet to search for insurance related information	5.1
I have friends who use the internet to search for information related to healthcare and medical issues	5.5
I follow recommendations or advice from friends or family members when I am trying to make choices	5.0
Survey 2 – Post Experiment	
I thought that the information was good	5.0
I thought that the information was easy to follow	4.9
The instructions and the help section were clear	5.0
The instructions and the help section were useful	4.9
The accuracy of the information provided was good	5.1
The information that was provided was current	5.1
The information that was provided was complete	5.2
I adequately evaluated the plan options based on the information provided	5.5
I trust the recommendation that was made for me	5.2
The level of detail of the cost information was the right amount for me to make the best decision	4.9
I feel secure using the health plan recommendations provided to me by this website	4.8
I feel that the health plan options that were provided to me were valid	5.2
I evaluated all of the options and variables before I decided	5.3
I just picked the plan with the name that was most familiar to me	2.8
I am familiar with the government agency that runs this website and the Medicare program	3.9
I wish that I had additional guidance performing this task	4.7
I have used all of the criteria that was available to me to evaluate the options	5.5
I did not consider some of the information that was provided to evaluate the options	3.5
I used my own criteria to make my decision	4.6
I understood all of the financial and insurance terms used to describe my choice	3.8
I had personal control to find the information that I needed	5.4
I was very satisfied with the variety an type of information that was presented to me	4.9
I feel that I spent enough time evaluating the pharmacy plan options presented to me before I decided	5.1
I felt rushed to complete this process	3.0
I have confidence in the information that was provided to me	5.1
I did not have access to all of the information that I wanted so I just settled for the easiest option	3.3
The site made me feel secure to enter my information	4.9
The site gave me too much information to make a choice	3.3

Is a trustworthy website because it is run by the government	3.8
Helped me to select a plan option that met my needs	4.8
Did not provide me the information I needed to make the best choice	3.5
Allowed me to view a number of helpful options and alternatives to make my choice	5.3
Plan finder site – is similar in visual appearance to other websites I am familiar with	4.5
Plan finder site –is similar in functionality to other websites I am familiar with	4.7
Plan finder site – is a helpful resource	5.1
Plan finder site – is a good tool to help a person compare pharmacy plans	5.2
Plan finder site – has useful links to other websites that aid in the election of a Part D pharmacy plan	4.3
Plan finder site – is a tool that I would recommend	4.8
Plan finder site – is a tool I plan to use again in the future	4.5
Plan finder site – provided me with trustworthy information because it is run by the government	3.9
Plan finder site – provided me with objective information because it is run by the government	3.9
The government should provide assistance to people to help them find the best plan	5.1
I wish that I had additional help evaluating or reviewing the information	4.5
I would attend a training class or watch an online video to help me make a better decision	4.7
I would review with a family member before making a final choice	5.3
I would review with my doctor before making a final choice	3.9
It would be better if selections are reviewed with an insurance agent prior to a final decision	4.3
I have made a good choice with the plan that I selected	5.4
I have learned something from this study that will help me to make a better health insurance plan choice in the future	5.3
I will now think differently about how I make decisions in the future	4.6
I thought that the plans that cost less would have lower quality	3.8
I thought that this website has more objective information because it is not operated by an insurance company	4.7
I thought that the plans with high consumer ratings would also have positive outcomes for me	5.0
A pharmacy plan that costs about $150 per month is a reasonable price	3.6
I found it best to narrow down the list to just a few options and then make a choice	5.6
Price was the first deciding factor and then I considered things like quality or consumer ratings	4.8
I evaluated each plan individually and then compared them to one another	4.6
Using the site in this study – was of benefit to me	5.0
Using the site in this study – will enable me to conduct more efficient insurance plan searches in the future	5.0
Using the site in this study – will improve my insurance plan use and performance	4.6

Using the site in this study – will make it easier for me to become more skillful in making choices in the future	4.7
Using the site in this study – now makes my ability to use it on my own in the future much easier	4.9
Using the site in this study – will enable me to be able to clearly explain to others why using this website may be beneficial	4.8
Using the site in this study – means that I will share with people that are important to me that I have used this website	4.6
Using the site in this study – means that people I know will use this website in the next 12 months	4.0
Using the site in this study – means that I will share my results with people I know	4.2
The plan choice I made – was far better than the rest	4.7
The plan choice I made – had better opportunities than the rest	4.8
The plan choice I made – was most satisfactory given the amount of time that I spent on the task	5.4
The plan choice I made – would not cause me to be afraid that it was not the best decision	5.1
The plan choice I made – was the option that worked best for me, and I won't look back and think I made a mistake	5.2
The plan choice I made – was based on my consideration of all of the possibilities, even the ones that might not be an issue right now	5.0
The plan choice I made -met my needs and requirements and I didn't need to ask for more	4.9
The plan choice I made – was based on a list of things that I needed to review in order to make my decision	4.9

Survey Participant – Feedback Question Responses to Open Ended Question Regarding Plan D Finder Tool Improvement Opportunities

- The ability to pull up a split screen for easier comparison
- Found more options for me than I would have found just googling on my own.
- If the plans and their details were displayed next to each other.
- Videos and comparisons
- Very good website and user friendly
- Universal Health Care
- A survey with logic: if yes than…, if no than….
- lots of choices. maybe too many?
- me being more comfortable with computer
- I would like to see the ratings enabled. It would be nice to be able to switch from brand to generic, mail to brick and mortar while reviewing the plans. Drug selection could be easier. Adding a drug required scrolling down past the current list, it should be at the top. Since I am turning 65 in January this was an interesting exercise.
- MAKE IT TOTALLY CLEAR WHAT COST AND OUT OF POCKET EXPENSES WOULD BE ON A MONTHLY BASIS
- make the adding drugs button in green
- Worked quite well as I've never reviewed this site before.
- Access to online Customer Service Chat Box
- I thought the options were easy to follow
- probably A definition or glossary of the important terms that are needed for decision making.....and a suggestion to use, review & keep this definition section to help understand insurance and medical wording as you maneuver thru the tool and the plans.

- too many choices. they should cut that down

- This Finder is very similar to other insurance government finder plans in the past that I have used. I compare plans yearly since I have been old enough for Medicare. It seems easy to use for me but others in my age bracket may have problems due to their lack of general computer expertise.
- I found it satisfactory, and it provided the information clearly.

- It should first show the plans that cover the majority of the drugs 2 or 3 of 7. This would help someone decide on the costs they will incur on the drugs that are not on the list

- A plan finder that is updated every few weeks

- Drop downs

- Ability to easily compare genetic with brand name drug cost. Had medical info regarding differences.
- Links to plans, sites

- Live Customer Service

- A person to talk to for help with the website and a doctor too.

- you can't have this many options if you are trying to help a person make a choice. I work with patients who might benefit from this, but the amount of info is too much and would most likely overwhelm them. I am not sure I understand all of the terms, and I work in healthcare. For someone outside of this field, it would be difficult.
- A tutorial or class that one can take with an instructor knowledgeable about the terminology and plans.
- The names of the drugs covered should be listed. Also, the number of medications covered could be a sort option.
- Have an enroll button to click once plan is selected and prior to starting to explain other options that are available, i.e. Medicare Supplement plans that contain drug plans and Medicare Advantage plans that are all inclusive with links to both, if possible.

- Side by side comparisons of every company's plans. A tutorial on what factors to focus on (prioritized) when choosing based on personal health situation.

- Maybe a glossary of terms and more detailed explanation of what they mean.
- Clarification on the terms that are being used; actual information about what is in-network and out-of-network; and information about the total number of drugs covered when not having to compare plans.
- The printed materials are confusing and overwhelming. There are too many inconsistencies in verbiage, format, etc. to adequately compare plans via 'paper' as I was asked to do. Information needs to be simplified, clear, and concise. 80 pages felt a little like going to the Cheesecake Factory and having to look at the menu to make a decision - so you end up saying, I'll just have a burger.
- Fully guided tool that allows you to toggle different options

- This information is all very confusing. They need to figure out a way to make one or two recommendations and then let someone pick. I don't know if I picked the best one.

- I just did this for my dad a short time ago and it was as confusing as I remember it from back then
- If I had better computer skills

- Good the way it is.

- too much info and it makes it harder to pick and think you got the right one
- Definitions or explanations of column headings. Monthly premium * 12 does not equate to yearly drug and premium retail. Uncertain if drug deductible is annual or it it's per fill. More details would have been helpful.
- Not sure why several of the options were listed when they seemed wildly inequitable with the top options.

- Some of the name brands have multiple choices. It is hard to tell what is different between the Wellcare plans as an example. that probably confused people like me
- Less material to read

- It was easy to use. So, I would not need any changes.

- nothing coming to mind. Personally, generics always throw me. I seek out advise on those to determine if adequate alternate to consider.
- Reduce choice options into groups. Might be easier to look at the choices in groups that highlight the features, pros/cons

- I was confused by some of the terms, and I wasn't sure which was the best. I use Humana now and I like it, so I picked that one. not sure if that is ok or correct but they are good.
- Ability to compare more than three plans at a time.

- I thought it was very simple to use. However, some of the explanations concerning insurance terms were poorly written and I had to read 2-3 times to understand.
- Desired more detail

- Better understanding of cost, quality of plan, service provided by plan, customer satisfaction of plan, understanding exactly cost per drug and cost per year in total to patient.
- the choices at the end are kind of confusing

- It was easy enough to use.

- Graphic comparisons

- I am not sure how easy this will be for older people to use. I am curious to see the results to see how older people did.
- Very user friendly!

- if you could see the companies' side by side vs as a list

- There are too many options within each plan.

- A direct link to more info about the plan

- An automated comparison tools. Each product allows for comparison of their plans only. A tool to compare plans across multiple providers would help.
- More Intuitive navigation

- Side by side comparisons

- This site was a nightmare, especially for an aging senior and those who may have limited internet navigation experience. The way the plan choices were presented was a convoluted mess. It gave three types of cost information, none of which seemed to show overall total expenses out of pocket (meaning any and all expenses, regardless of how they're labeled (e.g. co-pay, deductible, premium, etc.) The monthly cost data did not seem to add up to annual cost data displayed. This tool is not user-friendly to help seniors making important financial and healthcare decisions. The system should have displayed total out of pocket expenses including ALL expenses but also should have displayed line items for the premium expense, deductibles, co pays, and per medication costs (especially since individual meds and zip code were provided.) Also the sorting functions were not efficient or acceptable to me. I'd like to be able to sort total costs, not just premium and deductible data. I'd also like to have a secondary sort option (similar to how an Excel spreadsheet allows for this.) There should be much less variability in pharmacy pricing and plans!
- I believe the website is very easy and very helpful.

- I think maybe it should first list the best possible option along with the basis, and then should have a separate dropbox below to see all other options and their criteria.

- A section with terminology/what each aspect of the plan means

- Include a glossary of terms to refer to, and provide a chat line/phone # so I could speak to an agent. I did not understand all terms and how they applied to the different plans. I would have liked to speak/chat to someone for clarification.

- You need more than just the paper materials. Additional web searches would have helped but not everyone is good on the computer - especially true for seniors. Had to do this for my father not long ago
- Someone that you can chat with while you're doing it.

- I would put more links to definitions and explanations of terms. I may provide example formulas to show how the drug costs and cost to the member are calculated. I did like that you can look up the cost of individual drugs. I wouldn't change that. The term I felt most uncomfortable with was the yearly drug and premium cost. I don't understand how they arrive at those numbers taking into account the. Monthly premium and the deductible. I also wish it explained the coverage gap.
- Having all plans presented in the same format- making comparison of specific details easy to compare
- Having additional resources
- It would have been nice to compare each program side-by-side
- This site was clearly not designed with the end user in mind. I am pretty good at tech and terms, but I cannot imagine my 80 plus year old mom using this and my guess is she's the target audience. Way too much information to filter through. Why don't they just give you a few options instead of 20.
- Maybe less choices - seemed to be a lot of plans to look at
- Take lessons from Amazon!
- have assistance with online information
- It was pretty easy as is
- Clearer language on prices and coverage
- Some kind of additional support
- I hope someone will help me when I have to do this for real
- No real change needed. If it could run more efficiently by laying options side-by-side that would be a plus
- Make it simple
- I think I was user friendly easy to navigate

- Educational videos explaining all plans and plan criteria/offerings. Less choices. Term definitions. Illustrative calculation examples for all plans. A toll free number to ask questions regarding the selection process. A new booklet. The 80 page booklet is outdated, isn't synchronized, doesn't have a flow that would allow someone to make an educated decision; the booklet felt random and at times like pure marketing material.
- For Congress to institute a single payer health care system in the United States
- customer reviews of plans
- providing more detailed information on the individual plans...what doctors are associated with each plans, what insurance companies cover each plan
- Add better flows, make in more intuitive
- Easier to use website
- I can't really say but I would like to have a specialized insurance agent talk with me and explain in detail what the best option for me would be.
- Bilingual
- Offer a few more tools on how to use the website
- The ability to go back and view previous pages without losing and having to re-enter selected responses.
- Larger fonts
- It has way too many options at the end. They should cut some of these down so you only have a few. It is too much information to decide. Also - they have all of the words on here that you might not know what they mean and that probably is important and I don't know if it meant I was picking the wrong one. I probably would want someone to explain some of those to me if I was picking.
- A live chat box to connect with an agent or bot that can help those that do get stuck.

Making Choices with Technology Assistance

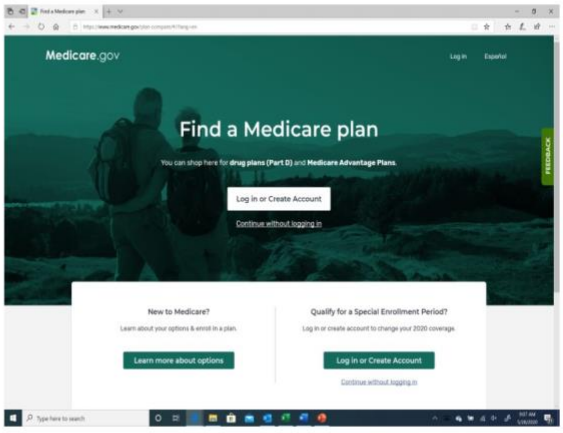
- The objective is to select the best Medicare Part D plan
- You will use the information available to you on the Medicare Part D Plan Finder tool
- After you select the plan that you feel will be the best choice – we will review a series of questions about why you selected a specific plan and your impressions of the information you had available
- This will be a simulation using sample information. None of your personal information will be used
- All information and individual responses will be kept confidential

Making Choices with Technology Assistance

- Got to the following website

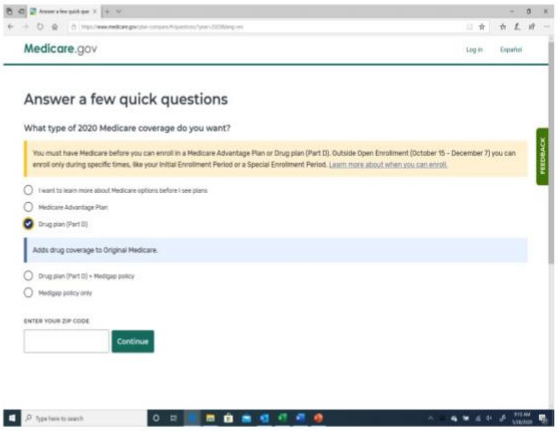
www.medicare.gov/plan -compare

- Click on the option "Continue without logging in"



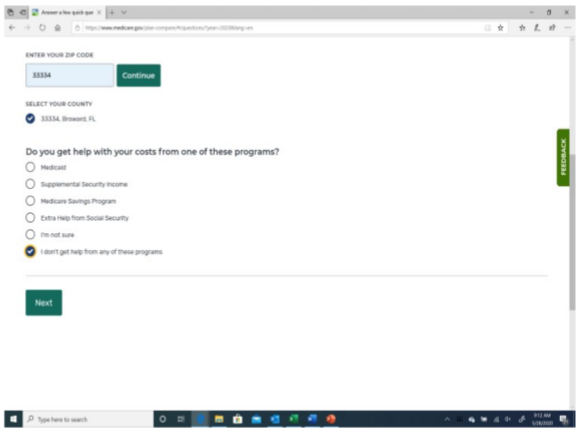
Making Choices with Technology Assistance

- On the next screen – select the "Drug Plan (Part D) option
- Enter the Zip Code 33334
- Then click "Continue"



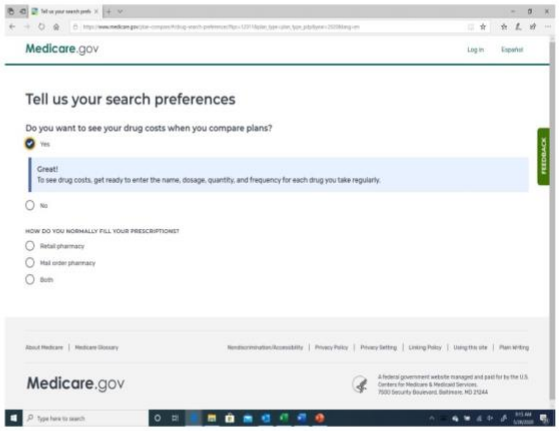
Making Choices with Technology Assistance

- After you enter the Zip code and click the "Continue" button, scroll down on the page
- You will see the following area of the page
- Select the "I don't get help from any of these programs" option
- Then click "Next"



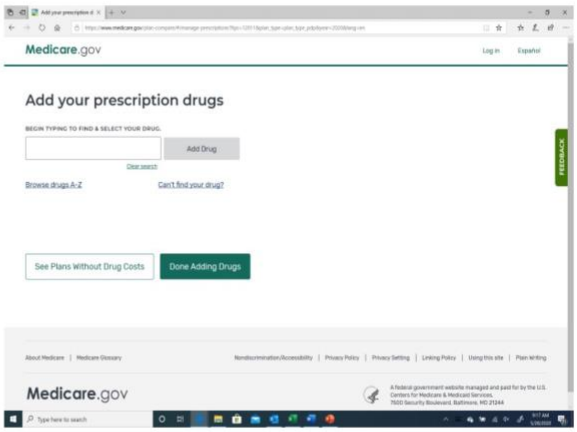
Making Choices with Technology Assistance

- On the search preferences page – for the question regarding drug cost information, select "Yes"
- In the bottom section for how you fill your prescriptions – select the option "Both"
- Then click "Next"



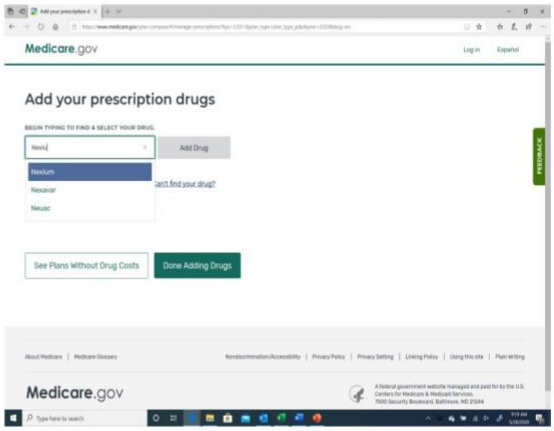
Making Choices with Technology Assistance

- You will then enter the drug information from the list that was provided



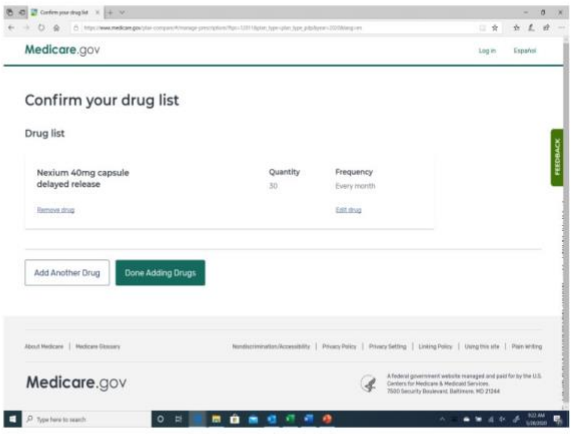
Making Choices with Technology Assistance

- When you see the name of the drug from the list – just click add drug
- The drugs and the dosages should be selected from the list



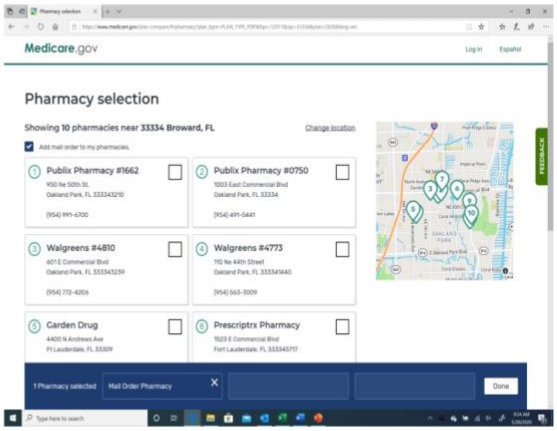
Making Choices with Technology Assistance

- After you enter a drug and add it to the list, click the "Add another drug" and repeat the process until all of the drugs from the list have been entered
- When complete – click the "Done Adding Drugs" button



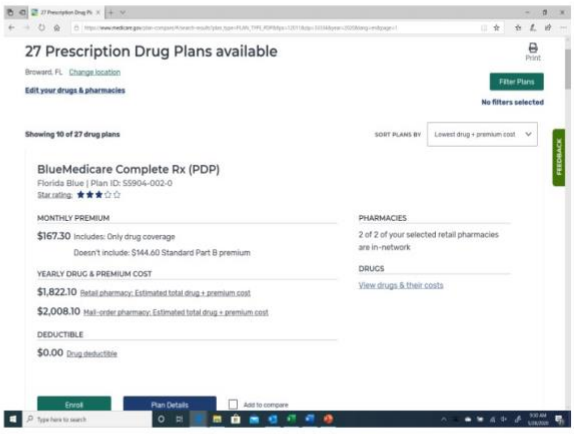
Making Choices with Technology Assistance

- Next select the pharmacies
- Select option 1 – Publix
- Select option 5 – Garden Drug
- Select option 3 - Walgreens



Making Choices with Technology Assistance

- You will now have a list of 27 Medicare Part D Drug Plans
- Based on the information listed – review the plans
- Do not filter the plans
- You can view plan details
- You can use the "add to compare" option in order to compare specific plans
- When you have finished – just click the "Enroll" button and stop

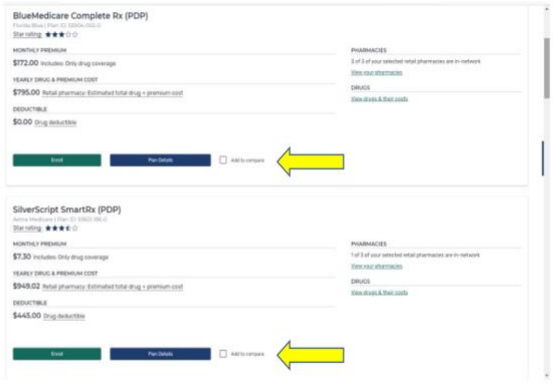


Making Choices with Technology Assistance

Filter Plans – you have the option to pick three plans from the list to do a more detailed comparison. This will help to give a side-by-side view of the options – along with some more detailed information.

The yellow arrows shown in this example point out where you can find the compare option.

You can select your top three plans and pick from those. You can also swap out some of the options until you get to the right one for you. This detailed view will only allow you to compare three plans at one time. If you want to change one out, you will need to eliminate one of your choices first.



Appendix E – Available Plans and Pricing Grid

Brand Name Only				
Plan Name	**Monthly Premium**	**Yearly Drug and Premium - Retail**	**Yearly Drug and Premium - Mail Order**	**Drug Deductible**
AARP Medicare RX Preferred	$ 79.80	$ 11,618.03	$ 14,442.44	N/A
AARP Medicare RX Saver Plus	$ 46.70	$ 15,082.15	$ 19,213.26	$ 435.00
AARP MedicareRX Walgreens	$ 34.20	$ 18,159.68	$ 23,289.12	$ 435.00
Blue Medicare Complete RX	$ 167.30	$ 4,154.14	$ 4,378.02	N/A
Blue Medicare Premier	$ 72.20	$ 14,926.59	$ 18,967.86	$ 355.00
Cigna-Healthspring RX Secure Essential	$ 22.20	$ 14,883.40	$ 18,999.18	$ 435.00
Cigna-Healthspring RX Secure PDP	$ 28.30	$ 14,472.78	$ 18,684.58	$ 435.00
Cigna-Healthspring RX Secure-Extra	$ 65.30	$ 14,421.88	$ 18,740.58	$ 100.00
Express Scripts Medicare - Choice	$ 87.60	$ 14,794.22	$ 18,938.28	$ 250.00
Express Scripts Medicare - Saver	$ 27.50	$ 14,480.95	$ 18,546.43	$ 435.00
Express Scripts Medicare Value	$ 55.10	$ 14,556.72	$ 18,679.63	$ 435.00
Humana Basic RX Plan	$ 40.00	$ 14,783.98	$ 18,459.73	$ 435.00
Humana Premier RX Plan	$ 58.00	$ 11,868.05	$ 14,631.56	$ 435.00
Humana Walmart Value RX	$ 13.20	$ 11,554.45	$ 14,377.16	$ 435.00
Mutual of Omaha RX Plus	$ 55.80	$ 11,749.89	$ 14,684.25	$ 435.00
Mutual of Omaha RX Value	$ 25.80	$ 14,343.05	$ 18,474.53	$ 435.00
Silver Script Choice	$ 25.20	$ 14,486.31	$ 18,697.78	$ 250.00
Silver Script Plus	$ 78.80	$ 14,619.61	$ 18,828.83	N/A
WellCare Classic	$ 25.90	$ 14,494.52	$ 18,510.56	$ 435.00
WellCare Medicare RX Saver	$ 46.30	$ 14,606.56	$ 18,633.35	$ 435.00
WellCare Medicare RX Select	$ 21.90	$ 14,603.12	$ 18,652.56	$ 435.00
WellCare Medicare RX Value Plus	$ 74.00	$ 14,583.46	$ 18,582.26	N/A
WellCare Value Script	$ 15.10	$ 14,527.10	$ 18,564.96	$ 435.00
WellCare Wellness	$ 13.20	$ 14,497.22	$ 18,541.66	$ 435.00
Brand and Generic Combination				
Plan Name	**Monthly Premium**	**Yearly Drug and Premium - Retail**	**Yearly Drug and Premium - Mail Order**	**Drug Deductible**
AARP Medicare RX Preferred	$ 79.80	$ 2,471.68	$ 3,000.43	N/A
AARP MedicareRX Saver Plus	$ 46.70	$ 10,295.34	$ 13,108.75	$ 435.00
AARP MedicareRX Walgreens	$ 34.20	$ 12,395.60	$ 15,655.36	$ 435.00
Blue Medicare Complete RX	$ 167.30	$ 8,466.24	$ 10,536.57	N/A
BlueMedicare Premier RX	$ 72.20	$ 12,803.13	$ 16,067.68	$ 355.00
Cigna-HealthSpring RX Secure	$ 28.30	$ 12,251.68	$ 15,671.70	$ 435.00
Cigna-HealthSpring RX Secure-Essential	$ 22.20	$ 11,082.66	$ 14,061.19	$ 435.00
Cigna-HealthSpring RX Secure-Extra	$ 65.30	$ 10,714.13	$ 13,858.63	$ 100.00
Express Scripts Medicare - Value	$ 55.10	$ 11,250.53	$ 14,524.61	$ 435.00
Express Scripts Medicare - Choice	$ 87.60	$ 11,406.53	$ 14,516.62	$ 250.00
Express Scripts Medicare - Saver	$ 27.50	$ 11,144.33	$ 14,239.76	$ 435.00
Humana Basic RX Plan	$ 40.00	$ 8,432.95	$ 10,301.20	$ 435.00
Humana Premier RX Plan	$ 58.00	$ 2,470.96	$ 2,930.12	$ 435.00
Humana Walmart Value RX Plan	$ 13.20	$ 2,157.36	$ 2,682.68	$ 435.00
Mutual of Omaha RX Plus	$ 55.80	$ 8,182.30	$ 10,359.38	$ 435.00
Mutual of Omaha RX Value	$ 25.80	$ 10,961.85	$ 13,843.22	$ 435.00
Silver Script Choice	$ 25.20	$ 12,450.09	$ 16,007.30	$ 250.00
Silver Script Plus	$ 78.80	$ 12,154.42	$ 15,690.75	N/A
WellCare Classic	$ 25.90	$ 11,711.99	$ 15,014.68	$ 435.00
WellCare Medicare RX Saver	$ 46.30	$ 11,274.15	$ 14,289.24	$ 435.00
WellCare Medicare RX select	$ 21.90	$ 11,266.16	$ 14,220.37	$ 435.00
WellCare Medicare RX Value Plus	$ 74.00	$ 11,312.76	$ 14,405.33	N/A
WellCare Value Script	$ 15.10	$ 11,916.26	$ 15,248.08	$ 435.00
WellCare Wellness RX	$ 13.20	$ 10,835.99	$ 13,740.23	$ 435.00

Appendix F – Medicare Part D FAQ Document

United Healthcare Plans

Get help covering the cost of your prescription drugs. A stand-alone Medicare prescription drug (Part D) plan can help pay for your Medicare medication. You can also get prescription drug coverage as part of a Supplement

You must live in the service area of the Part D plan to enroll, and some Prescription Drug plans will have a network of pharmacies they work with. With prescription drug coverage, in addition to costs varying by plan and provider, your costs may be different based on if a pharmacy is considered in-network or out-of-network, as well as if your drugs are separated into different cost levels, or tiers.

Note for Veterans:

People who have benefits through the Veterans Affairs may be able to get prescription drug coverage through the VA and may not need Medicare drug coverage. Talk with your VA benefits administrator before making any decisions.

Medicare prescription drug (Part D) plans cover the following:

- Types of drugs most prescribed for Medicare beneficiaries as determined by federal standards
- Specific brand name drugs and generic drugs included in the plan's formulary (list of covered drugs)
- Commercially available vaccines not covered by Part B

It is important to note that while Medicare Part D plans are required to cover certain common types of drugs, the specific generic and brandname drugs they include on their formulary varies by plan. You will need to review a plan's formulary to see if the drugs you need are covered.

What is not covered by Medicare Part D plans?

The drugs you take may not be covered by every Part D plan. You need to review each plan's drug list, or formulary, to see if your drugs are covered. The following will not be covered:

- Drugs not listed on a plan's formulary
- Drugs prescribed for anorexia, weight loss or weight gain
- Drugs prescribed for fertility, erectile dysfunction, cosmetic purposes or hair growth
- Prescription vitamins and
- Non-prescription drugs (e.g., over-the-counter
- Drugs that are already covered by Medicare Part A and Part

What should I know about a plan's drug list?

Medicare Part D and Medicare Advantage plans have a drug list (also called a formulary) that tells you what drugs are covered by a plan. Medicare sets standards for the types of drugs Part D plans must cover, but each plan chooses the specific brand name and generic drugs to include on its formulary. Here are some important things to know:

- A plan's drug list can change from year to year.
- Plans can choose to add or remove drugs from their drug list each year. The list can also change for other reasons. For example, if a drug is taken off the market. Your plan will let you know if there's a coverage change to a drug you're taking.
- Many Part D plans have a tiered formulary.

How does a tiered formulary work?

Many plans have a tiered formulary where the plan's list of drugs are divided into groups (tiers) based on cost. In general, drugs in low tiers cost less than drugs in high tiers. Additionally, plans may charge a deductible for certain drug tiers and not for others, or the deductible amount may differ based on the tier.

Formulary tiers:

Tier	Cost
Tier 1	$
Tier 2	$$
Tier 3	$$$
Tier 4	$$$$
Tier 5	$$$$$

What does it mean if my prescription drug has a requirement or limitation?

Plans have rules that limit how and when they cover certain drugs. These rules are called requirements or limitations. You need to follow the rules to avoid paying the full cost of the drug out-of-pocket. If needed, you and your doctor can also ask the plan for an exception.

Here are the requirements and limitations you may see on a drug list:

PA – Prior Authorization
The plan needs more information from your doctor about how the drug is going to be used before it will pay.
QL – Quantity Limits
The plan will cover only a certain amount of a drug or type of drug for one copay or over a certain number of days.
ST – Step Therapy
The plan wants you to try one or more lower-cost alternative drugs before it will cover the drug that costs more.
B/D – Medicare Part B or Medicare Part D Coverage Determination
Some drugs can be covered by either Medicare Part B (doctor and outpatient health care) or Medicare Part D (prescription drugs). The plan needs more information about how a drug will be used to make sure it's covered by the right part of Medicare.

Like Medicare Advantage plans, Part D stand-alone plans will also vary in costs based on the plan you choose. Each plan negotiates prices with drug manufactures and pharmacies. Your copays

and coinsurance rates are based on these prices and on guidelines set by Medicare. You can find explanations of specific drug costs in each Part D plan's Summary of Benefits or Evidence of Coverage materials.

Your total prescription drug costs will also be impacted by the number of prescriptions you take, how often you take them, if you get them from an in-network or out-of-network pharmacy, and what Part D coverage stage you are in. Your costs may also be less if you qualify for the Extra Help program.

First, let's look at what kinds of costs you could pay for Part D, then dive into the different coverage stages and how they work.

Costs you could pay with Medicare Part D

With stand-alone Part D plans, you will pay a monthly premium and may also pay an annual deductible, copays and coinsurance.

Some plans charge deductibles, some do not, but Medicare sets a maximum deductible amount each year. In 2021, the annual deductible limit for Part D is $445.

Copays are generally required each time you fill a prescription for a covered drug. Amounts can vary based on the plan’s formulary tiers as well as what pharmacy you use if the plan has network pharmacies.

Some plans may also set coinsurance rates for certain drugs or tiers. In this case the plan charges a percentage of the cost each time you fill a prescription.

Understanding the Part D Coverage Stages

During the year, you may go through different drug coverage stages. There are four stages, and it's important to understand how each impact your prescription drug costs. You may not go through all the stages.

People who take few prescription drugs may remain in the deductible stage or move only to the initial coverage stage. People with many medications (or expensive ones) may move into the coverage gap (the Part D "Donut Hole") and/or catastrophic stage.

The coverage stage cycle starts over at the beginning of each plan year, usually January 1st.

Annual Deductible
You pay for your drugs until you reach your plan's deductible If your plan doesn't have a deductible, your coverage starts with the first prescription you fill.
Initial Coverage
You pay a copay or coinsurance, and your plan pays the rest. You stay in this stage until your total drug costs reach $4,130 in 2021.
Coverage Gap (Donut Hole)*
You pay 25% of the cost for both brand-name and generic drugs in 2021. You stay in this stage until your total out-of-pocket costs reach $6,550 in 2021.
Catastrophic Coverage
You pay a small copay or coinsurance amount. You stay in this stage for the rest of the plan year.

- Total drug costs: the amount you (or others on your behalf) and your plan pay for your covered prescription drugs. Your plan premium payments are not included in this amount.
- Out-of-pocket costs: The amount you (or others on your behalf) pay for your covered prescription drugs plus the amount of the discount that drug manufacturers provide

on brand-name drugs when you're in the third coverage stage -- the coverage gap (donut hole). Your plan premiums are not included in this amount.

A note about the Part D coverage gap (donut hole)

The Part D coverage gap—also known as the "donut hole"—opens when you and your plan have paid up to a certain limit for your drugs in the one year. When you're in this stage, you pay a bigger share of the costs for your prescriptions than before. You will exit the coverage gap only when the total amount you and others on your behalf have paid for your drugs reaches another set limit. The limits to enter and exit the coverage gap are set by Medicare, as well as what counts towards reaching the limits, and both can change each year.

*If you get Extra Help from Medicare, the coverage gap doesn't apply to you.

See how Medicare costs may work with these Medicare coverage examples

Tips for saving on prescription drugs

- Know the plan's drug list (formulary). Make sure your medication is on a plan's drug list. If it's not, check with your provider to see if there's one on the drug list you can switch to.

- Ask if your plan participates in the Part D Senior Savings Model for Insulin[1].

- Consider generics. Ask your provider about generic or low_cost options to replace higher-tier or more expensive drugs.

- Show your member ID card. Be sure to show your member ID card when filling prescriptions to get any member cost savings.

- Use the mail order pharmacy. Convenient home delivery of your regular, maintenance medications can save time and money.

- Order 90-day supplies. You may be able to save on prescription drug costs by ordering 90-day supplies.

- Use a preferred network pharmacy. Many plans offer cost savings if you fill your prescriptions at a pharmacy that's part of the plan's preferred network.

- Use a specialty pharmacy to help manage more chronic or complex conditions. Specialty pharmacies, like BriovaRx[2], provide extra support through expert care and personalized connections.

Appendix G Participant Summary

Survey Participants	Characteristic	Number	Percentage
Gender	Female	84	68%
	Male	39	32%
Ethnicity	Asian or Asian American	1	1%
	Hispanic or Latino	6	5%
	Other (please specify)	3	2%
	Black or African American	3	2%
	White or Caucasian	110	89%
Age	18-30	7	6%
	31-40	7	6%
	41-50	16	13%
	51-60	49	40%
	61-70	19	15%
	71 and up	25	20%
Educational Level	High school degree or equivalent (e.g., GED)	8	7%
	Some college but no degree	16	13%
	Associate degree	14	11%
	Bachelor degree	45	37%
	Graduate degree	40	33%
Employment Status	Disabled, not able to work	1	1%
	Employed, working full-time	65	53%
	Employed, working part-time	9	7%
	None of the above	1	1%
	Not employed, looking for work	3	2%
	Not employed, NOT looking for work	4	3%
	Other (please specify)	9	7%
	Retired	31	25%
Current Insurance Coverage	Medicaid	2	2%
	Medicare	23	19%
	Not covered by health insurance	3	2%
	Other (please specify)	7	6%
	Plan through your or your spouse's employer	74	60%
	Plan you purchased yourself	13	11%
	TRICARE	1	1%
Relationship Status	Divorced	9	7%
	In a domestic partnership or civil union	7	6%
	Married	77	63%
	Separated	1	1%
	Single, but cohabiting with a significant other	6	5%
	Single, never married	17	14%
	Widowed	6	5%

References

Abaluck, Jason, and Jonathan Gruber. 2011. "Choice Inconsistencies among the Elderly: Evidence from Plan Choice in the Medicare Part D Program." *American Economic Review*, 101 (4): 1180-1210.

Abaluck, Jason, and Jonathan Gruber. 2016. "Evolving Choice Inconsistencies in Choice of Prescription Drug Insurance." *American Economic Review*, 106 (8): 2145-84.

Adamo, M. and A. P. Malizia (2021). "Uncertainty and Demand for Insurance: A Theoretical Model of How Self-Control Manages the Optimal Decision-Making." Front Psychol **12**: 700289.

Adepoju, O., et al. (2019). "Factors Associated with Health Insurance Literacy: Proficiency in Finding, Selecting, and Making Appropriate Decisions." J Health Manag **64**(2): 79-89.

Aesaert, K., et al. (2017). "Accuracy and bias of ICT self-efficacy: An empirical study into students' over- and underestimation of their ICT competences." Computers in Human Behavior **75**: 92-102.

Ahmed, F., et al. (2015). "Does the availability of a South Asian language in practices improve reports of doctor-patient communication from South Asian patients? Cross sectional analysis of a national patient survey in English general practices." BMC Fam Pract **16**: 55.

Ajzen, I. (2011). "The theory of planned behavior: reactions and reflections." Psychol Health **26**(9): 1113-1127.

Ajzen, I. and S. Sheikh (2013). "Action versus inaction: anticipated affect in the theory of planned behavior." Journal of Applied Social Psychology **43**(1): 155-162.

Alalwan, A. A., et al. (2018). "Examining adoption of mobile internet in Saudi Arabia: Extending TAM with perceived enjoyment, innovativeness and trust." Technology in Society **55**: 100-110.

Allcott, H. and C. R. Sunstein (2015). "Counterpoint to Six Potential Arguments against "Regulating Internalities"." Journal of Policy Analysis and Management **34**(3): 712-715.

Anderson, Barry & Raffaella Misuraca (2016) Perceptual commensuration in decision tables, The Quarterly Journal of Experimental Psychology, 70:3, 544-553,

Anderson, Eugene W., and Mary W. Sullivan. "The antecedents and consequences of customer satisfaction for firms." *Marketing science* 12.2 (1993): 125-143.

Ant Ozok, A., et al. (2014). "Usability and perceived usefulness of Personal Health Records for preventive health care: a case study focusing on patients' and primary care providers' perspectives." Appl Ergon **45**(3): 613-628.

Armstrong, K., et al. (2008). "Differences in the patterns of health care system distrust between blacks and whites." J Gen Intern Med **23**(6): 827-833.

Asimakopoulos, S., et al. (2017). "Motivation and User Engagement in Fitness Tracking: Heuristics for Mobile Healthcare Wearables." Informatics **4**(1).

Audu, O., et al. (2014). "Sociodemographic Correlates of Choice of Health Care Services in Six Rural Communities in North Central Nigeria." Advances in Public Health **2014**: 1-7.

Baier, A. (1986). Trust and antitrust. *ethics*, *96*(2), 231-260.

Balapour, A., et al. (2019). "Mobile technology identity and self-efficacy: Implications for the adoption of clinically supported mobile health apps." International Journal of Information Management **49**: 58-68.

Banerjee, S. and S. S. Ho (2019). "Applying the theory of planned behavior: Examining how communication, attitudes, social norms, and perceived behavioral control relate to healthy lifestyle intention in Singapore." International Journal of Healthcare Management **13**(sup1): 496-503.

Barcellos SH, Wuppermann AC, Carman KG, et al. Preparedness of Americans for the Affordable Care Act. Proc Natl Acad Sci U S A. 2014;111(15):5497–502.

Bargh, J. A. (1997). The automaticity of everyday life. In R. S. Wyer, Jr. (Ed.), *Advances in social cognition, Vol. 10. The automaticity of everyday life: Advances in social cognition*, Vol. 10, pp. 1-61).

Barnes, A. J., et al. (2021). "More intelligent designs: Comparing the effectiveness of choice architectures in US health insurance marketplaces." Organizational Behavior and Human Decision Processes **163**: 142-164.

Barnes, A. Y. Hanoch, S. Wood, P.J. Liu, ad T. Rice. 2012. “One Fish, Two Fish, Red Fish, Blue Fish: Effects of Frames, Brand Names and Choice Set Size in Medicare Part D Insurance Plan Decisions.” Medical Care Research and Review 69 (4): 460-73

Barnes, A. J., Hanoch, Y., & Rice, T. (2015). Determinants of Coverage Decisions in Health Insurance Marketplaces: Consumers' Decision-Making Abilities and the Amount of Information in Their Choice Environment. *Health Services Research*, *50*(1), 58-80.

Barseghyan, Levon, Francesca Molinari, Ted O'Donoghue, and Joshua C. Teitelbaum. 2013. "The Nature of Risk Preferences: Evidence from Insurance Choices." *American Economic Review*, 103 (6): 2499-2529.

Bazerman, MH. Judgement in Managerial Decision Making, Wiley & Sons, New York 2006.

.

Beach LR. Broadening the Definition of Decision Making: The Role of Prechoice Screening of Options. *Psychological Science*. 1993;4(4):215-220.

Beldad, A. D. and S. M. Hegner (2017). "Expanding the Technology Acceptance Model with the Inclusion of Trust, Social Influence, and Health Valuation to Determine the Predictors of German Users' Willingness to Continue using a Fitness App: A Structural Equation Modeling Approach." International Journal of Human–Computer Interaction **34**(9): 882-893.

Berger, B., et al. (2015). "Watchful waiting or induction of labor--a matter of informed choice: identification, analysis and critical appraisal of decision aids and patient information regarding care options for women with uncomplicated singleton late and post term pregnancies: a review." BMC Complement Altern Med **15**: 143.

Berkman, N. D., Sheridan, S. L., Donahue, K. E., Halpern, D. J., & Crotty, K. (2011). Low health literacy and health outcomes: an updated systematic review. *Annals of internal medicine*, *155*(2), 97-107.

Bernacki, E. J., et al. (2006). "An investigation of the effects of a healthcare provider network on costs and lost time in workers' compensation." J Occup Environ Med **48**(9): 873-882.

Beshears, J., et al. (2021). "Active choice, implicit defaults, and the incentive to choose." Organ Behav Hum Decis Process **163**: 6-16.

Bhargava SL, Loewenstein G, Benartzi S. The costs of poor health plan choice and prescriptions for reform (Working paper); March 2016.

Bhargava, S., Loewenstein, G., & Sydnor, J. (2017). Choose to lose: Health plan choices from a menu with dominated option. *The Quarterly Journal of Economics*, *132*(3), 1319-1372.

Bitner, Mary Jo. "Evaluating service encounters: the effects of physical surroundings and employee responses." *Journal of marketing* 54.2 (1990): 69-82.

Blavin, F., et al. (2016). "Understanding Characteristics Of Likely Marketplace Enrollees And How They Choose Plans." Health Aff (Millwood) **35**(3): 535-539.

Blumenthal-Barby, J. S., et al. (2013). "Decision aids: when 'nudging' patients to make a particular choice is more ethical than balanced, nondirective content." Health Aff (Millwood) **32**(2): 303-310.

Boateng, H., et al. (2016). "Assessing the determinants of internet banking adoption intentions: A social cognitive theory perspective." Computers in Human Behavior **65**: 468-478.

Borlund, P. and S. Dreier (2014). "An investigation of the search behaviour associated with Ingwersen's three types of information needs." Information Processing & Management **50**(4): 493-507.

Bouadjenek, M. R., et al. (2016). "Social networks and information retrieval, how are they converging? A survey, a taxonomy and an analysis of social information retrieval approaches and platforms." Information Systems **56**: 1-18.

Bowers, Michael R., John E. Swan, and William F. Koehler. "What attributes determine quality and satisfaction with health care delivery?" *Health care management review* 19.4 (1994): 49-55.

Brashers, D. E. and T. P. Hogan (2013). "The appraisal and management of uncertainty: Implications for information-retrieval systems." Information Processing & Management **49**(6): 1241-1249.

Browne, GJ and Pitts MG, "Stopping Rule Use During Information Search in Design Problems," Organizational Behavior and Human Decision Processes (95:2), 2004, PP 208-224

Buchmueller, Thomas, Sarah Miller, and Marko Vujicic. 2016. "How Do Providers Respond to Changes in Public Health Insurance Coverage? Evidence from Adult Medicaid Dental Benefits." *American Economic Journal: Economic Policy*, 8 (4): 70-102.

Bundorf, M. K. and H. Szrek (2010). "Choice set size and decision making: the case of Medicare Part D prescription drug plans." Med Decis Making **30**(5): 582-593.

Burchell, K., et al. (2013). "Marketing social norms: Social marketing and the 'social norm approach'." Journal of Consumer Behaviour **12**(1): 1-9.

Busemeyer, JR and Rappoport, A. "Psychological Models of Deferred Decision Making," Journal of Mathematical Psychology (32:2), 1998, pp 91-143.

Calnan, M. W. (1998). The patient's perspective. *International Journal of Technology Assessment in Health Care*, *14*(1), 24-34.

Çelik, H. (2011). "Influence of social norms, perceived playfulness and online shopping anxiety on customers' adoption of online retail shopping." International Journal of Retail & Distribution Management **39**(6): 390-413.

Cheek, N. N., & Schwartz, B. (2016). On the meaning and measurement of maximization. *Judgment and Decision Making, 11*(2), 126-146.

Chen, M., & Bargh, J. A. (1997). Nonconscious behavioral confirmation processes: The self-fulfilling consequences of automatic stereotype activation. *Journal of Experimental Social Psychology, 33*(5), 541-560.

Chen, T. (2020). "Assessing factors critical to smart technology applications to mobile health care - the fgm-fahp approach." Health Policy Technol **9**(2): 194-203.

Chen, X., et al. (2015). The Emergence of Interactive Behavior. Proceedings of the 33rd Annual ACM Conference on Human Factors in Computing Systems**:** 4217-4226.

Chen, Y., Jeon, G. Y., & Kim, Y. M. (2014). A day without a search engine: an experimental study of online and offline searches. *Experimental Economics*, *17*(4), 512-536.

Cheung, M. L., et al. (2019). "Examining Consumers' Adoption of Wearable Healthcare Technology: The Role of Health Attributes." Int J Environ Res Public Health **16**(13).

Choi, B., et al. (2017). "Construction Workers' Group Norms and Personal Standards Regarding Safety Behavior: Social Identity Theory Perspective." Journal of Management in Engineering **33**(4).

Choi, G. and H. Chung (2013). "Applying the Technology Acceptance Model to Social Networking Sites (SNS): Impact of Subjective Norm and Social Capital on the Acceptance of SNS." International Journal of Human-Computer Interaction **29**(10): 619-628.

Chou, C.-H., et al. (2015). "Exploring the determinants of knowledge adoption in virtual communities: A social influence perspective." International Journal of Information Management **35**(3): 364-376.

Chowdhury, S., et al. (2011). "Uncertainty in information seeking and retrieval: A study in an academic environment." Information Processing & Management **47**(2): 157-175.

Christoph, G., Tscheulin, D.K., Lindenmeier, J., Drevs, F. & Seeman, A.K. (2014). Applying the concept of consumer confusion to healthcare: Development and validation of a patient confusion model. Health Services Management Research, 27, 10-21.

Cimperman, M., et al. (2016). "Analyzing older users' home telehealth services acceptance behavior-applying an Extended UTAUT model." Int J Med Inform **90**: 22-31.

Clark, David, Armstrong, Matthew, Ananda Allan, Fiona Graham, Andrew Carnon, and Christopher Isles 2014. "Imminence of death among hospital inpatients: Prevalent cohort study" *Palliative Medicine* Vol 28, Issue 6, pp. 474 – 479.

Clark, M. D., et al. (2014). "Discrete choice experiments in health economics: a review of the literature." Pharmacoeconomics **32**(9): 883-902.

Clark, N. M., et al. (2008). "The effect of patient choice of intervention on health outcomes." Contemp Clin Trials **29**(5): 679-686.

Clarke, M. A., et al. (2020). "Usability and cognitive load in the design of a personal health record." Health Policy and Technology **9**(2): 218-224.

Cline, R. R. and K. Gupta (2006). "Drug benefit decisions among older adults: a policy-capturing analysis." Med Decis Making **26**(3): 273-281.

CMS. "Racial, Ethnic and Gender Disparities in Health Care in Medicare Advantage." CMS 2020

Connaway, L. S., et al. (2011). ""If it is too inconvenient, I'm not going after it:" Convenience as a critical factor in information-seeking behaviors." Library & Information Science Research **33**(3): 179-190.

Cothey, V. "A Longitudinal Study of World Wide Web Users' Information Searching Behavior," Journal of the American Society for Information Science and Technology (53:2), 2002, pp. 67-78

Coulter, A. and C. Jenkinson (2005). "European patients' views on the responsiveness of health systems and healthcare providers." Eur J Public Health **15**(4): 355-360.

Cummings, Janet R., Thomas Rice, and Yaniv Hanoch. "Who thinks that Part D is too complicated? Survey results on the Medicare prescription drug benefit." *Medical care research and review* 66.1 (2009): 97-115.

Darioshi, R. and E. Lahav (2021). "The impact of technology on the human decision-making process." Human Behavior and Emerging Technologies **3**(3): 391-400.

David Johnson, J. (2014). "Health-related information seeking: Is it worth it?" Information Processing & Management **50**(5): 708-717.

de Bekker-Grob, E.W., Ryan, M. and Gerard, K. (2012), Discrete choice experiments in health economics: a review of the literature. Health Econ., 21: 145-172.

Dedrick, J. (2010). Green IS: concepts and issues for information systems research. *Communications of the Association for Information Systems*, *27*(1), 11.

Dedrick, J., & Kraemer, K. L. (2010). Impacts of internal and interorganizational information systems on the outsourcing of manufacturing. *The Journal of Strategic Information Systems*, *19*(2), 78-95.

Determann, D., et al. (2016). "What health plans do people prefer? The trade-off between premium and provider choice." Soc Sci Med **165**: 10-18.

Determann, D., et al. (2017). "Impact of Survey Administration Mode on the Results of a Health-Related Discrete Choice Experiment: Online and Paper Comparison." Value Health **20**(7): 953-960.

Di Fabio, A. and L. Palazzeschi (2012). "Incremental variance of the core self-evaluation construct compared to fluid intelligence and personality traits in aspects of decision-making." Personality and Individual Differences **53**(3): 196-201.

Donabedian A. The Quality of CareHow Can It Be Assessed?
JAMA. 1988;260(12):1743–1748.

Dou, K., et al. (2017). "Patients' Acceptance of Smartphone Health Technology for Chronic Disease Management: A Theoretical Model and Empirical Test." JMIR Mhealth Uhealth **5**(12): e177.

Dries, N., Pepermans, R., Kerpel, ED, 2008. Exploring four generations beliefs about career: is "satisfied" the new "successful? J Manag. Psychol. 23 (8), 907-928.

Driver, MJ., KR Browusseau, PL Hunsaker. The Dynamic Decision Maker: Five Decision Styles for Executive and Business Success, Jossey-Bass, San Franciso, CA. 1993.

Duarte, P. and J. C. Pinho (2019). "A mixed methods UTAUT2-based approach to assess mobile health adoption." Journal of Business Research **102**: 140-150.

Dunbar, D., et al. (2017). "Problematic internet usage self-regulation dilemmas: Effects of presentation format on perceived value of behavior." Computers in Human Behavior **70**: 453-459.

Dunnebeil, S., et al. (2012). "Determinants of physicians' technology acceptance for e-health in ambulatory care." Int J Med Inform **81**(11): 746-760.

Dunning, D., & Stern, L. B. (1994). Distinguishing accurate from inaccurate eyewitness identifications via inquiries about decision processes. *Journal of Personality and Social Psychology, 67*(5), 818-835.

Durbin, David L., Dan Corro, and Nurhan Helvacian. "Workers' compensation medical expenditures: Price vs. quantity." *Journal of Risk and Insurance* (1996): 13-33.

Dutta, P. and A. S. Borah (2018). "A Study on Role of Moderating Variables in Influencing Employees' Acceptance of Information Technology." Vision: The Journal of Business Perspective **22**(4): 387-394.

Eckhardt, A., et al. (2009). "Who Influences Whom? Analyzing Workplace Referents' Social Influence on it Adoption and Non-Adoption." Journal of Information Technology **24**(1): 11-24.

Eddosary, M., et al. (2015). "Consumers' Intention to Attend Soccer Events: Application and Extension of the Theory of Planned Behavior." Psychol Rep **117**(1): 89-102.

Edwards, J. A. (2003). "The interactive effects of processing preference and motivation on information processing: Causal uncertainty and the MBTI in a persuasion context." Journal of Research in Personality **37**(2): 89-99.

Ekel, P. Y., et al. (2008). "Multicriteria analysis in decision making under information uncertainty." Applied Mathematics and Computation **200**(2): 501-516.

Ellenberger, James N. "The battle over workers' compensation." *NEW SOLUTIONS: A Journal of Environmental and Occupational Health Policy* 10.3 (2000): 217-236.

Ellenberger, James. "The Battle over Workers' Compensation: For a decade, employers and insurers won drastic cuts in coverage and benefits. In Ohio, labor fought back." *Journal of Labor and Society* 3.3 (1999): 23.

Ellingsen, G., & Monteiro, E. (2008). The organizing vision of integrated health information systems. *Health Informatics Journal*, *14*(3), 223-236.

Ellis, A. (1984). Is the unified-interaction approach to cognitive-behavior modification a reinvention of the wheel? *Clinical Psychology Review*, *4*(2), 215-218.

Enthoven, A. C. (1978). Consumer-choice health plan (first of two parts). Inflation and inequity in health care today: alternatives for cost control and an analysis of proposals for national health insurance. *The New England Journal of Medicine*, *298*(12), 650-658.

Enthoven, A. C., & van de Ven, W. P. (2007). Going Dutch—managed-competition health insurance in the Netherlands. *New England Journal of Medicine*, *357*(24), 2421-2423.

Ericson KM, Starc A. Heuristics and heterogeneity in health insurance exchanges: evidence from the Massachusetts Connector. Am Econ Rev. 2012; 102(3) 493-97.

Erickson, Kirk, Leckie, Regina, Weinstein, Andrea, "Physical activity, fitness, and gray matter volume", *Neurobiology of Aging*, Volume 35, Supplement 2, 2014, Pages S20-S28,

Eysenbach, Gunther. "Consumer health informatics." *Bmj* 320.7251 (2000): 1713-1716.

Fang, Eric, et al. "Trust at different organizational levels." *Journal of marketing* 72.2 (2008): 80-98.

Festinger, L. (1957). A theory of cognitive dissonance. : Stanford University Press.

Fishbein, M. (2008). "A reasoned action approach to health promotion." Med Decis Making **28**(6): 834-844.

Fotaki, M. (2014). "Can consumer choice replace trust in the National Health Service in England? Towards developing an affective psychosocial conception of trust in health care." Sociol Health Illn **36**(8): 1276-1294.

Fraeyman, J., et al. (2015). "Medicine price awareness in chronic patients in Belgium." Health Policy **119**(2): 217-223.

Galaskiewicz, J. and S. Wasserman (2016). "Social Network Analysis." Sociological Methods & Research **22**(1): 3-22.

Gao, T., et al. (2013). "Consumers un-tethered: A three-market empirical study of consumers' mobile marketing acceptance." Journal of Business Research **66**(12): 2536-2544.

George, D., & Mallery, P. (2003). SPSS for Windows step by step: A simple guide and reference. 11.0 update (4th ed.). Boston: Allyn & Bacon.

Giboney, J. S., et al. (2015). "User acceptance of knowledge-based system recommendations: Explanations, arguments, and fit." Decision Support Systems **72**: 1-10.

Glockner, A., et al. (2014). "What is adaptive about adaptive decision making? A parallel constraint satisfaction account." Cognition **133**(3): 641-666.

Godin, G., et al. (2010). "Which survey questions change behavior? Randomized controlled trial of mere measurement interventions." Health Psychol **29**(6): 636-644.

Gooding, Sandra K. Smith. "Quality, sacrifice, and value in hospital choice." *Marketing Health Services* 15.4 (1995): 24.

Gorla, N., et al. (2010). "Organizational impact of system quality, information quality, and service quality." The Journal of Strategic Information Systems **19**(3): 207-228.

Griepentrog, B. K., et al. (2012). "Integrating Social Identity and the Theory of Planned Behavior: Predicting Withdrawal from an Organizational Recruitment Process." Personnel Psychology **65**(4): 723-753.

Grüne-Yanoff, T., et al. (2014). "Introduction: methodologies of bounded rationality." Journal of Economic Methodology **21**(4): 325-342.

Grytten, J., et al. (2009). "Services production and patient satisfaction in primary care." Health Policy **89**(3): 312-321.

Hammond, K. R. (1996). *Human judgment and social policy: Irreducible uncertainty, inevitable error, unavoidable injustice*. Oxford University Press on Demand.

Handel, Benjamin R., and Jonathan T. Kolstad. 2015. "Health Insurance for "Humans": Information Frictions, Plan Choice, and Consumer Welfare." *American Economic Review*, 105 (8): 2449-2500.

Hanoch, Y, T. Rice, J. Cummings, and S. Wood. 2009. “How Much Choice Is Too Much?”: The Case of Medicare Prescription Drug Benefit.” Health Services Research 44 (4): 1157-68

Hanoch, Y. S. Wood, A. Barnes, P.J Liu, and T. Rice. 2011. “Choosing the Right Medicare Prescription Drug Plan: The Effect of Age, Strategy Selection and Choice Set Size.” Health Psychology 30 (6)” 719-27.

Haubl G, Murray KB. Preference construction and persistence in digital marketplaces: the role of electronic recommendation agents. J Consumer Psychol. 2003;13(1–2):75–91

He, F., et al. (2014). "The attitude-behavior discrepancy in medical decision making." Iran Red Crescent Med J **16**(12): e14612.

Heiss, F., et al. (2006). "Who failed to enroll in Medicare Part D, and why? Early results." Health Aff (Millwood) **25**(5): w344-354.

Heiss, Florian & Leive, Adam & McFadden, Daniel & Winter, Joachim, 2013. "Plan selection in Medicare Part D: Evidence from administrative data" Journal *of Health Economics,* Elsevier, vol. 32(6), pages 1325-1344.

Heiss, Florian, et al. *Inattention and switching costs as sources of inertia in medicare part d*. No. w22765. National Bureau of Economic Research, 2016.
Henry J. Kaiser Family Foundation. "The growth or private plans in Medicare" 2006

Henry J. Kaiser Family Foundation. "Medicare Advantage 2012 Data Spotlight: Enrollment Market Update" 2012.

Hero, J. O., et al. (2019). "Decision-Making Experiences of Consumers Choosing Individual-Market Health Insurance Plans." Health Aff (Millwood) **38**(3): 464-472.

Hibbard, J. H., & Weeks, E. C. (1987). Consumerism of health care: Prevalence and predictors. *Medical Care, 25*(11), 1019-1032.

Hirshleifer, David A. and Teoh, Siew Hong, Limited Attention, Information Disclosure, and Financial Reporting. Journal of Accounting & Economics, Vol. 36, Nos. 1-3, pp. 337-386, December 2003.

Ho, C.-I., et al. (2012). "Web users' behavioral patterns of tourism information search: From online to offline." Tourism Management **33**(6): 1468-1482.

Hoadley, John F., Merrell, Katie, Hargrave, Elizabeth and Summer, Laura. "In Medicare Part D Plans, Low or Zero Copays and Other Features to Encourage the Use of Generic Statins Work, Could Save Billions." *Health Affairs* 2012 31:10, 2266-2275

Hoadley, J., Hargrave, E., Summer, L., Cubanski, J., & Neuman, P. (2013, October). To switch or not to switch: Are Medicare beneficiaries switching drug plans to save money? Menlo Park, CA: Kaiser Family Foundation.

Hoadley, Jack, et al. "Benefit design and formularies of Medicare Drug Plans: a comparison of 2006 and 2007 offerings. A first look." *Washington: Kaiser Family Foundation* 6 (2006).

Hoerger, T. J., & Howard, L. Z. (1995). Search behavior and choice of physician in the market for prenatal care. *Medical Care, 33*(4), 332-349.

Hossain, A., et al. (2019). "Investigating factors influencing the physicians' adoption of electronic health record (EHR) in healthcare system of Bangladesh: An empirical study." International Journal of Information Management **44**: 76-87.

Howell, B. L., et al. (2017). "Encouraging Medicare Advantage Enrollees to Switch to Higher Quality Plans: Assessing the Effectiveness of a "Nudge" Letter." MDM Policy Pract **2**(1): 2381468317707206.

Hsu, C.-L. and J. C.-C. Lin (2008). "Acceptance of blog usage: The roles of technology acceptance, social influence and knowledge sharing motivation." Information & Management **45**(1): 65-74.

Huang, J. C. (2013). "Innovative health care delivery system--a questionnaire survey to evaluate the influence of behavioral factors on individuals' acceptance of telecare." Comput Biol Med **43**(4): 281-286.

Huber, G.P., R.R. McDaniel, The decision-making paradigm of organizational design. Management Science. 32 (5) (1986) 572-589.

Hwang, Y. (2009). "The impact of uncertainty avoidance, social norms and innovativeness on trust and ease of use in electronic customer relationship management." Electronic Markets **19**(2-3): 89-98.

Iacobucci, Dawn, Kent A. Grayson, and Amy Ostrom. "The calculus of service quality and customer satisfaction: theoretical and empirical differentiation and integration." *Advances in services marketing and management* 3.C (1994): 1-67.

Ifinedo, P. (2017). "Examining students' intention to continue using blogs for learning: Perspectives from technology acceptance, motivational, and social-cognitive frameworks." Computers in Human Behavior **72**: 189-199.

Im, G. (2014). "Effects of cognitive and social factors on system utilization and performance outcomes." Information & Management **51**(1): 129-137.

Iyengar, S. S., & Lepper, M. R. (1999). Rethinking the value of choice: A cultural perspective on intrinsic motivation. *Journal of Personality and Social Psychology, 76*(3), 349-366.

Jagosh, J., et al. (2011). "The importance of physician listening from the patients' perspective: enhancing diagnosis, healing, and the doctor-patient relationship." Patient Educ Couns **85**(3): 369-374.

Jaillet, H.F., "Web Metrics: Measuring Patterns in Online Shopping," Journal of Consumer Behavior (2:4), 2003, pp. 369-381

Jepson, R. G., et al. (2007). "Patient perspectives on information and choice in cancer screening: a qualitative study in the UK." Soc Sci Med **65**(5): 890-899.

Jewer, J. (2018). "Patients' intention to use online postings of ED wait times: A modified UTAUT model." Int J Med Inform **112**: 34-39.

Jha, A. K. and A. M. Epstein (2006). "The predictive accuracy of the New York State coronary artery bypass surgery report-card system." Health Aff (Millwood) **25**(3): 844-855.

Johansen, I. L. and M. Rausand (2014). "Foundations and choice of risk metrics." Safety Science **62**: 386-399.

John, Deborah & Cole, Catherine. (1986). Age Differences in Information Processing: Understanding Deficits in Young and Elderly Consumers. Journal of Consumer Research. 13. 297-315.

Johnson EJ, Hassin R, Baker T, Bajger AT, Treuer G. Can consumers make affordable care affordable? The value of choice architecture. PLoS One. 2013;8(12): e81521.

Johnston, Robert. "The determinants of service quality: satisfiers and dissatisfiers." *International journal of service industry management* (1995).

Jridi, O., et al. (2015). "Household preferences for energy saving measures: Approach of discrete choice models." Energy and Buildings **103**: 38-47.

Julmi, C. (2019). "When rational decision-making becomes irrational: a critical assessment and re-conceptualization of intuition effectiveness." Business Research **12**(1): 291-314.

Kahneman, D., & Tversky, A. (1972). Subjective probability: A judgment of representativeness. *Cognitive Psychology, 3*(3), 430-454.

Kahneman, D., & Tversky, A. (1973). On the psychology of prediction. *Psychological Review, 80*(4), 237-251.

Kahneman, D. and Tversky, A. (1979). Prospect Theory: An Analysis of Decision under Risk. *Econometrica*, 47(2), p.263.

Kaufman, J., Ryan, R., Walsh, L., Horey, D., Leask, J., Robinson, P., & Hill, S. (2018). Face-to-face interventions for informing or educating parents about early childhood vaccination. *Cochrane Database of Systematic Reviews*, (5).

Kaufmann Michèle C., Krings Franciska, Zebrowitz Leslie A., Sczesny Sabine. "Age Bias in Selection Decisions: The Role of Facial Appearance and Fitness Impressions" *Frontiers in Psychology*, Vol. 8, 2017. 2065.

Kalda, R., et al. (2003). "Patient satisfaction with care is associated with personal choice of physician." Health Policy **64**(1): 55-62.

Kamal, S. A., et al. (2020). "Investigating acceptance of telemedicine services through an extended technology acceptance model (TAM)." Technology in Society **60**.

Karahoca, A., et al. (2017). "Examining intention to adopt to internet of things in healthcare technology products." Kybernetes **47**(4): 742-770.

Karimi, S., et al. (2018). "The impact of consumer archetypes on online purchase decision-making processes and outcomes: A behavioral process perspective." Journal of Business Research **91**: 71-82.

Keselman, Alla, et al. "Developing informatics tools and strategies for consumer-centered health communication." *Journal of the American Medical Informatics Association* 15.4 (2008): 473-483.

Kesternich I, Heiss F, McFadden D, Winter J. Suit the action to the word, the word to the action: Hypothetical choices and real decisions in Medicare Part D. *Journal of health economics*. 2013;32(6):1313-1324. doi: 10.1016/j.jhealeco.2012.11.006.

Ketcham, Jonathan & Simon, Kosali. (2008). Medicare Part D's Effects on Elderly Drug Costs and Utilization. American Journal of Managed Care 2008 Nov;14(11 Suppl): SP14-22.

Kettlewell, N. (2020). "Policy Choice and Product Bundling in a Complicated Health Insurance Market." Journal of Human Resources **55**(2): 566-610.

Kickbusch, Ilona S. "Health literacy: addressing the health and education divide." *Health promotion international* 16.3 (2001): 289-297.

Kijsanayotin, B., et al. (2009). "Factors influencing health information technology adoption in Thailand's community health centers: applying the UTAUT model." Int J Med Inform **78**(6): 404-416.

Kim, D. and R. R. Perdue (2013). "The effects of cognitive, affective, and sensory attributes on hotel choice." International Journal of Hospitality Management **35**: 246-257.

Kim, J.-h., et al. (2019). "Effects of social network services (SNS) subjective norms on SNS addiction." Journal of Psychology in Africa **29**(6): 582-588.

Kitajima, M. and M. Toyota (2013). "Decision-making and action selection in Two Minds: An analysis based on Model Human Processor with Realtime Constraints (MHP/RT)." Biologically Inspired Cognitive Architectures **5**: 82-93.

Kleinsorge, Ilene K., and Harold F. Koenig. "The silent customers: Measuring customer satisfaction in nursing homes." *Marketing Health Services* 11.4 (1991): 2.

Kling JR, Mullainathan S, Shafir E, Vermeulen L, Wrobel MV. Experimental Evidence from Medicare part D Drug Plans. NBER Working Paper No. 17410. Issued in September 2011

Kling JR, Mullainathan S, Shafir E, Vermeulen L, Wrobel MV. COMPARISON FRICTION: EXPERIMENTAL EVIDENCE FROM MEDICARE DRUG PLANS. *The Quarterly Journal of Economics*. 2012;127(1):199-235. doi:10.1093/qje/qjr055.

Kolstad, J. and Chernew, M. (2009) Quality and consumer decision making in the market for health insurance and health care services. Medical Care Research and Review, 66, 28S-52S.

Kroneman, M. W., et al. (2006). "Direct access in primary care and patient satisfaction: a European study." Health Policy **76**(1): 72-79.

Kummer, T. F., et al. (2013). "Acceptance of hospital nurses toward sensor-based medication systems: a questionnaire survey." Int J Nurs Stud **50**(4): 508-517.

Kunreuther, H., Heal, G., Allen, M., Edenhofer, O., Field, C. B., & Yohe, G. (2013). Risk Management and Climate Change. *Nature Climate Change, 5* 447-450.

Kurlander JE, Kerr EA, Krein S, Heisler M, Piette JD. Cost-Related Nonadherence to Medications Among Patients With Diabetes and Chronic Pain: Factors beyond finances. *Diabetes Care*. 2009;32(12):2143-2148. doi:10.2337/dc09-1059.

Kupperschmidt, BR, Multigenerational Employees: strategies for effective management. Health Care Manag. 19 (1), 65-76.

Lagu, T., et al. (2010). "Patients' evaluations of health care providers in the era of social networking: an analysis of physician-rating websites." J Gen Intern Med **25**(9): 942-946.

Landry, Maurice, and Claude Banville. "A disciplined methodological pluralism for MIS research." *Accounting, management and information technologies* 2.2 (1992): 77-97.

Lankton, N., et al. (2014). "Incorporating trust-in-technology into Expectation Disconfirmation Theory." The Journal of Strategic Information Systems **23**(2): 128-145.

Lankton, N. K., et al. (2012). "Internet-based knowledge acquisition: Task complexity and performance." Decision Support Systems **53**(1): 55-65.

Lazaroiu, G., et al. (2020). "Consumers' Decision-Making Process on Social Commerce Platforms: Online Trust, Perceived Risk, and Purchase Intentions." Front Psychol **11**: 890.

Lee, J., et al. (2014). "The role of responsible gambling strategy and gambling passion in the online gamblers' decision-making process: revising the theory of planned behavior." J Gambl Stud **30**(2): 403-422.

Lee, J., et al. (2008). "The effect of negative online consumer reviews on product attitude: An information processing view." Electronic Commerce Research and Applications **7**(3): 341-352.

Lendel, V. (2008). The decision-making about the selection of CRM information system. *Journal of Information Technology Control and Management Systems, 6*(1), 85-93.

Leonardi, Paul M. "When flexible routines meet flexible technologies: Affordance, constraint, and the imbrication of human and material agencies." *MIS quarterly* (2011): 147-167.

Leonardi, Paul M. "When does technology use enable network change in organizations? A comparative study of feature use and shared affordances." *MIS quarterly* (2013): 749-775.

Liebe, U., et al. (2017). "Using Factorial Survey Experiments to Measure Attitudes, Social Norms, and Fairness Concerns in Developing Countries." Sociological Methods & Research **49**(1): 161-192.

Lin, W.-S. (2012). "Perceived fit and satisfaction on web learning performance: IS continuance intention and task-technology fit perspectives." International Journal of Human-Computer Studies **70**(7): 498-507.

Lichtenberg, F. R., and S. X. Sun. 2007. ‘‘The Impact of Medicare Part D on Prescription Drug Use by the Elderly.’’ Health Affairs 26 (6): 1735–44.

Lloyd, P., Lupton, D. and Donaldson, C. (1991), Consumerism in the health care setting: an exploratory study of factors underlying the selection and evaluation of primary medical services. Australian Journal of Public Health, 15: 194-201.

Loewenstein G, Friedman JY, McGill B, et al. Consumers’ misunderstanding of health insurance. J Health Econ. 2013;32(5): 850–62.

Lohse GL, Spiller P. Electronic shopping. Commun ACM. 1998;41(7):81–7.

Long SK, Kenney GM, Zuckerman S, et al. The Health Reform Monitoring Survey: addressing data gaps to provide timely insights into the Affordable Care Act. Health Aff (Millwood). 2014;33(1):161–7.

Louviere, Jordan, Flynn, Terry, Carson, Richard. “Discrete Choice Experiments Are Not Conjoint Analysis”, *Journal of Choice Modelling,* Volume 3, Issue 3, 2010, Pages 57-72,

Louviere J. J., Hensher D. A. and Swait J. D. (2000), Stated choice methods: analysis 21 and applications, Cambridge University Press.

Loewenstein, G., O'Donoghue, T., & Rabin, M. (2003). Projection bias in predicting future utility. *The Quarterly Journal of economics*, *118*(4), 1209-1248.

Luce, RD and Tukey, JW. "Simultaneous conjoint measurement – a new type of fundamental measurement". *J Math Psychol*. 1964; 1 (1):1-27.

Lynch JG Jr, Ariely D. Wine online: search costs affect competition on price, quality, and distribution. Marketing Sci. 2000; 19(1):83–103.

MacInnis, D. J., & Jaworski, B. J. (1989). Information processing from advertisements: Toward an integrative framework. *Journal of Marketing*, *53*(4), 1-23.

MacInnis, D. J., Moorman, C., & Jaworski, B. J. (1991). Enhancing and measuring consumers' motivation, opportunity, and ability to process brand information from ads. *Journal of Marketing*, *55*(4), 32-53.

Madden, Jeanne M., et al. "Cost-related medication nonadherence and spending on basic needs following implementation of Medicare Part D." *Jama* 299.16 (2008): 1922-1928.

Madrian, Brigitte C. and Dennis F. Shea. "The Power of Suggestion: Inertia in 401(k) Participation and Savings Behavior. *Quarterly Journal of Economics*, 2001, v116(4,Nov), 1149-1187.

Maertens, A. (2017). Who cares what others think (or do)? Social learning and social pressures in cotton farming in India. *American Journal of Agricultural Economics*, *99*(4), 988-1007.

Maillet, E., et al. (2015). "Modeling factors explaining the acceptance, actual use and satisfaction of nurses using an Electronic Patient Record in acute care settings: an extension of the UTAUT." Int J Med Inform **84**(1): 36-47.

Manski, CF. (1977). "The structure of random utility models. *Theory and Decision*, 8(3), 229.

Marjon van der, P., et al. (2008). "Convergent validity between a discrete choice experiment and a direct, open-ended method: comparison of preferred attribute levels and willingness to pay estimates." Soc Sci Med **67**(12): 2043-2050.

Markus, M. Lynne and Silver, Mark S. (2008) "A Foundation for the Study of IT Effects: A New Look at DeSanctis and Poole's Concepts of Structural Features and Spirit," *Journal of the Association for Information Systems*: Vol. 9: Iss. 10, Article 5.

Martin, R. J., et al. (2010). "Using the theory of planned behavior to predict gambling behavior." Psychol Addict Behav **24**(1): 89-97.

Martins, C., et al. (2014). "Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application." International Journal of Information Management **34**(1): 1-13.

Mathieson, K. (1991). "Predicting User Intentions: Comparing the Technology Acceptance Model with the Theory of Planned Behavior." Information Systems Research **2**(3): 173-191.

McDonald-Madden, E. , Baxter, P. W. and Possingham, H. P. (2008), Making robust decisions for conservation with restricted money and knowledge. Journal of Applied Ecology, 45: 1630-1638.

McFadden, D., "Conditional Logit Analysis of Qualitative Choice Behaviour," In: P. Zarembka, Ed., Frontiers in Econometrics, Academic Press, New York, 1974.

McGarry, Brian. "Assessing The Redesigned Medicare Plan Finder Tool: Room for Improvement.", Health Affairs Blog, November 8, 2019

McKinlay, J. and Marceau, L. (2002) The End of the Golden Age of Doctoring, *International Journal of Health Services*,32,2,379-416

McQueen, D. V., Kickbusch, I., Potvin, L., Balbo, L., Abel, T., & Pelikan, J. M. (2007). *Health and modernity: the role of theory in health promotion*. Springer Science & Business Media.

Medicare Payment Advisory Commission. *Report to the Congress: Medicare and the health care delivery system* [Internet]. Washington (DC): MedPAC; 2016 Jun [cited 2017 Feb 24].

Melville, N. P. (2010). Information systems innovation for environmental sustainability. *MIS quarterly*, 1-21.

Meng, B. and K. Choi (2015). "Extending the theory of planned behavior: testing the effects of authentic perception and environmental concerns on the slow-tourist decision-making process." Current Issues in Tourism **19**(6): 528-544.

Meriac, JP, Woehr, DJ, Banister, C., 2010. Generational differences in work ethic: an examination of measurement equivalence across three cohorts. J Bus Psychol. 25 (2), 315-324.

Miller, G. A. (1956). The magical number seven, plus or minus two: Some limits on our capacity for processing information. *Psychological review*, *63*(2), 81.

Misuraca, R., et al. (2015). "The Decision-Making Tendency Inventory: A new measure to assess maximizing, satisficing, and minimizing." Personality and Individual Differences **85**: 111-116.

Misuraca, Raffaella and Fasolo, Barbara (2018) *Maximizing versus satisficing in the digital age: disjoint scales and the case for "construct consensus"*. Personality and Individual Differences, 121. pp. 152-160.

Morris, M. G., et al. (2005). "Gender and Age Differences in Employee Decisions About New Technology: An Extension to the Theory of Planned Behavior." IEEE Transactions on Engineering Management **52**(1): 69-84.

Moskalenko, M. Y., et al. (2020). "Barriers to patient interest in internet-based cognitive behavioral therapy: Informing e-health policies through quantitative analysis." Health Policy and Technology **9**(2): 139-145.

Mossman, J. (2014). "How much information is too much for patients?" Journal of Risk Research **19**(9): 1114-1117.

Naumann, Earl. 1995. Creating Customer Value: The Path to Sustainable Competitive Advantage. Cincinnati, OH: International Thomson Publishing.

Nease, R. F., et al. (2013). "Choice architecture is a better strategy than engaging patients to spur behavior change." Health Aff (Millwood) **32**(2): 242-249.

Neuberger, J. (2000), The educated patient: new challenges for the medical profession. Journal of Internal Medicine, 247: 6-10.

Neumark-Sztainer, Dianne R., et al. "Shared risk and protective factors for overweight and disordered eating in adolescents." *American journal of preventive medicine* 33.5 (2007): 359-369.

Newcome, L. N. 1997. ‘‘Measuring of Trust in Health Care.’’ Health Affair 16 (1): 50–1.

Nicolaou, A. I., et al. (2013). "Information quality, trust, and risk perceptions in electronic data exchanges." Decision Support Systems **54**(2): 986-996.

Nutmeat D. Health literacy as a public health goal: a challenge for contemporary health education and communication strategies into the 21st century. Health Promot Int. [Internet]. 2000; [cited 2017 Aug 15];15(3): [about 8 p.].

O'Connor, A. M., et al. (2007). "Toward the 'tipping point': decision aids and informed patient choice." Health Aff (Millwood) **26**(3): 716-725.

O'Donoghue, Ted, and Matthew Rabin. 1999. "Doing It Now or Later." *American Economic Review*, 89 (1): 103-124.

Offstein, E. H., et al. (2015). "A cross-cultural analysis of factors influencing choice in volunteering activities." Competitiveness Review **25**(1): 74-97.

Oliver, Richard L. "Customer satisfaction with service." *Handbook of services marketing and management* (2000): 247-254.

Orlikowski, Wanda J., and Jack J. Baroudi. "Studying information technology in organizations: Research approaches and assumptions." *Information systems research* 2.1 (1991): 1-28.

Orlovsky, SA. "Decision-making with a fuzzy preference relation", *Fuzzy Sets and Systems*, Volume 1, Issue 3, 1978, Pages 155-167

Pai, F.-Y. and K.-I. Huang (2011). "Applying the Technology Acceptance Model to the introduction of healthcare information systems." Technological Forecasting and Social Change **78**(4): 650-660.

Parkes, A. (2013). "The effect of task–individual–technology fit on user attitude and performance: An experimental investigation." Decision Support Systems **54**(2): 997-1009.

Parment, A. 2013. Generation Y vs. Baby Boomers: shopping behavior, buyer involvement and implications for retailing. J. Retail Consumn. Serv. 20 (2). 189-199.
Pascoe, Gregory C. "Patient satisfaction in primary health care: a literature review and analysis." *Evaluation and program planning* 6.3-4 (1983): 185-210.

Peerson, A., & Saunders, M. (2009). Men's health literacy: advancing evidence and priorities. *Critical Public Health*, *19*(3-4), 441-456.

Pei, Z. (2013). "Rational decision-making models with incomplete weight information for production line assessment." Information Sciences **222**: 696-716.

Pennathur, P. R. (2020). "A Theoretical Framework for Understanding Creator-Consumer Information Interaction Behaviors in Healthcare Documentation Systems." Appl Ergon **84**: 103034.

Perkins, H. W. and A. D. Berkowitz (1986). "Perceiving the community norms of alcohol use among students: some research implications for campus alcohol education programming." Int J Addict **21**(9-10): 961-976.

Pescosolido, B. A. (2006). "Of pride and prejudice: the role of sociology and social networks in integrating the health sciences." J Health Soc Behav **47**(3): 189-208.

Peyrot, M., Cooper, P. D., & Schnapf, D. (1993). Consumer satisfaction and perceived quality of outpatient health services. *Marketing Health Services*, *13*(1), 24.

Pir Mohammadiani, R., et al. (2017). "Understanding the relationship strengths in users' activities, review helpfulness and influence." Computers in Human Behavior **75**: 117-129.

Politi MC, Kaphingst KA, Kreuter M, Shacham E, Lovell MC, McBride T. Knowledge of health insurance terminology and details among the uninsured. Med Care Res Rev. 2014;71(1): 85–98.

Porell, F. W. and E. K. Adams (1995). "Hospital choice models: a review and assessment of their utility for policy impact analysis." Med Care Res Rev **52**(2): 158-195.

Prabha, C., et al. (2007). "What is enough? Satisficing information needs." Journal of Documentation **63**(1): 74-89.

Quattrone, P. (2015). "Governing Social Orders, Unfolding Rationality, and Jesuit Accounting Practices." Administrative Science Quarterly **60**(3): 411-445.

Rahman, M. S., et al. (2016). "Healthcare Technology Self-Efficacy (HTSE) and its influence on individual attitude: An empirical study." Computers in Human Behavior **58**: 12-24.

Ranerup, A. and L. Norén (2015). "How are citizens' public service choices supported in quasi-markets?" International Journal of Information Management **35**(5): 527-537.

Reichheld, Frederick F. "Learning from customer defections." *Harvard business review* 74.2 (1996): 56-67.

Reidenbach, R. Eric, and Beverly Sandifer-Smallwood. "Exploring perceptions of hospital operations by a modified SERVQUAL approach." *Journal of health care marketing* 10.4 (1990).

Reidenbach, R. E., & McClung, G. W. (1999). Managing stakeholder loyalty. *Marketing Health Services*, *19*(1), 20.

Rivera-Hernandez, M., et al. (2021). "Seniors don't use Medicare.Gov: how do eligible beneficiaries obtain information about Medicare Advantage Plans in the United States?" BMC Health Serv Res **21**(1): 146.

Robertson, R., et al. (2008). "Patient choice in general practice: the implications of patient satisfaction surveys." J Health Serv Res Policy **13**(2): 67-72.

Ross, D. (2014). "Psychological versus economic models of bounded rationality." Journal of Economic Methodology **21**(4): 411-427.

Ryan, M. "Discrete choice experiments in healthcare." *BMJ.* 2004; 328(7436):360-361.

Ryan, M, Bate, A. Eastmond, CJ., Ludbrook, A. "Use of discrete choice experiments to elicit preferences." *Qual Health Care*. 2001: 10. 55-60

Sadasivam, R. S., et al. (2013). "Internet health information seeking is a team sport: analysis of the Pew Internet Survey." Int J Med Inform **82**(3): 193-200.

Sadovykh, V., et al. (2015). "Do online social networks support decision-making?" Decision Support Systems **70**: 15-30.

Samoocha, D., Bruinvels, D. J., Elbers, N. A., Anema, J. R., & van der Beek, A. J. (2010). Effectiveness of web-based interventions on patient empowerment: a systematic review and meta-analysis. *Journal of medical Internet research*, *12*(2), e1286.

Scherer, R., et al. (2015). "Becoming more specific: Measuring and modeling teachers' perceived usefulness of ICT in the context of teaching and learning." Computers & Education **88**: 202-214.

Schillinger, Dean, et al. "Association of health literacy with diabetes outcomes." *Jama* 288.4 (2002): 475-482.

Schmitz, Hendrik, and Ziebarth, Nicolas. Does price framing affect the consumer price sensitivity of health plan choice? J. Human Resources March 8, 2016.

Schneeweiss S, Rassen JA, Glynn RJ, Avorn J, Mogun H, Brookhart MA. High-dimensional propensity score adjustment in studies of treatment effects using health care claims data. *Epidemiology (Cambridge, Mass)*. 2009;20(4):512-522. doi:10.1097/EDE.0b013e3181a663cc.

Scholten, L., et al. (2015). "Tackling uncertainty in multi-criteria decision analysis – An application to water supply infrastructure planning." European Journal of Operational Research **242**(1): 243-260.

Schram, Arthur & Sonnemans, Joep, 2011. "How individuals choose health insurance: An experimental analysis" *European Economic Review*, Elsevier, vol. 55(6), pages 799-819, August.

Schwartz, B., Ward, A., Monterosso, J., Lyubomirsky, S., White, K., & Lehman, D. R. (2002). Maximizing versus satisficing: Happiness is a matter of choice. *Journal of Personality and Social Psychology, 83*(5), 1178-1197.

Sedera, D. and G. G. Gable (2010). "Knowledge Management Competence for Enterprise System Success." The Journal of Strategic Information Systems **19**(4): 296-306.

Seth, A., et al. (2019). "Hospital Administration Management Technology Adoption; A Theoretical Test of Technology Acceptance Model and Theory of Planned Behavior on HAMT Adoption." American Journal of Public Health Research **7**(1): 21-26.

Sheiman, I., et al. (2014). "Opportunities and limitations of patient choice: the case of the Russian Federation." Health Policy Plan **29**(1): 106-114.

Sheth, Jagdish & Sethia, Nirmal & Srinivas, Shanthi. (2011). Mindful Consumption: A Customer-Centric Approach to Sustainability. Journal of the Academy of Marketing Science. 39. 21-39.

Shiner, R. L. (2015). "Maximizers, Satisficers, and Their Satisfaction with and Preferences for Reversible Versus Irreversible Decisions." Social Psychological and Personality Science **6**(8): 896-903.

Shukla, P. (2014). "The impact of organizational efforts on consumer concerns in an online context." Information & Management **51**(1): 113-119.

Siemsen, E., Roth, A. V., & Balasubramanian, S. (2008). How motivation, opportunity, and ability drive knowledge sharing: The constraining-factor model. *Journal of Operations Management, 26*(3), 426-445.

Simon, HA, *"A Behavioral Model of Rational Choice" The Quarterly Journal of Economics*, Volume 69, Issue 1, 1 February 1955, Pages 99–118

Simon, H. A. (1956). Rational choice and the structure of the environment. *Psychological Review, 63*(2), 129-138.

Simon, H.A. 1955. "A Behavioral Model of Rational Choice." Quarterly Journal of Economics 69:99-118.

Simon, H., (1987) Decision Making and Problem Solving. INFORMS Journal on Applied Analytics 17(5):11-31.

Simonson, Itamar, and Emanuel Rosen. *Absolute Value: What Really Influences Customers in the Age of (nearly) Perfect Information*., 2014. Print.

Sinaiko, H. L. and NetLibrary Inc. (1998). Reclaiming the canon essays on philosophy, poetry, and history. New Haven, Yale University Press, xiii, 338 p.

Sinaiko AD, Hirth RA. Consumers, health insurance and dominated choices. J Health Econ. 2011;30(2):450–7.

Sinaiko AD, Ross-Degnan D, Soumerai SB, Lieu T, Galbraith A. The experience of Massachusetts shows that consumers will need help in navigating insurance exchanges. Health Aff (Millwood). 2013;32(1):78–86.

Singer, S. J., & Enthoven, A. C. (2000). Structural problems of managed care in California and some options for ameliorating them. *California Management Review, 43*(1), 50-65.

Soukup, A., et al. (2014). "The Concept of Rationality in Neoclassical and Behavioural Economic Theory." Modern Applied Science **9**(3).

Soumerai SB, Pierre-Jacques M, Zhang F, et al. Cost-Related Medication Nonadherence Among Elderly and Disabled Medicare BeneficiariesA National Survey 1 Year Before the Medicare Drug Benefit. *Arch Intern Med.*2006;166(17):1829–1835.

Stavropoulou, C. (2011). "Non-adherence to medication and doctor-patient relationship: Evidence from a European survey." Patient Educ Couns **83**(1): 7-13.

Street, DJ & Burgess, L. *The construction of optimal stated choice experiments, theory, and methods*, (1st ed., 312 pp. hardback). Hoboken: Wiley (2007). ISBN: 978-0-470-05332-4. J. Behav. Decis. Making, 22: 362-363.

Swar, B., et al. (2017). "Information overload, psychological ill-being, and behavioral intention to continue online healthcare information search." Computers in Human Behavior **70**: 416-425.

Szrek, H., & Baron, J. (2007). The value of choice in insurance purchasing. *Journal of Economic Psychology*, *28*(5), 529-544.

Szrek, Helena. "How the number of options and perceived variety influence choice satisfaction: An experiment with prescription drug plans." *Judgment & Decision Making* 12.1 (2017).

Szrek, H., & Bundorf, M. K. (2014). Enrollment in prescription drug insurance: The interaction of numeracy and choice set size. *Health Psychology*, *33*(4), 340.

Tanius, Betty E., et al. "Aging and choice: applications to Medicare Part D." (2009).

Tarn, D. M., et al. (2005). "Trust in one's physician: the role of ethnic match, autonomy, acculturation, and religiosity among Japanese and Japanese Americans." Ann Fam Med **3**(4): 339-347.

Taylor, Steven A., and Thomas L. Baker. "An assessment of the relationship between service quality and customer satisfaction in the formation of consumers' purchase intentions." *Journal of retailing* 70.2 (1994): 163-178.

Terraneo, M. (2015). "Inequities in health care utilization by people aged 50+: evidence from 12 European countries." Soc Sci Med **126**: 154-163.

Thompson-Leduc, P., et al. (2015). "Shared decision-making behaviors in health professionals: a systematic review of studies based on the Theory of Planned Behavior." Health Expect **18**(5): 754-774.

Thurston, L.A., "A Law of Comparative Judgement" *Psychol Rev.* 1927; 34:273-286.

Tidwell, O. A. and P. Gallimore (2013). "The influence of a decision support tool on real estate valuations." Journal of Property Research **31**(1): 45-63.

Tipirneni, R., et al. (2018). "Association Between Health Insurance Literacy and Avoidance of Health Care Services Owing to Cost." JAMA Netw Open **1**(7): e184796.

Tsai, M.-F., et al. (2019). "Understanding physicians' adoption of electronic medical records: Healthcare technology self-efficacy, service level and risk perspectives." Computer Standards & Interfaces **66**.

Tsai, M.-J., et al. (2018). "Developing the Computer Programming Self-Efficacy Scale for Computer Literacy Education." Journal of Educational Computing Research **56**(8): 1345-1360.

Tse, David K., and Peter C. Wilton. "Models of consumer satisfaction formation: An extension." *Journal of marketing research* 25.2 (1988): 204-212.

Tubaishat, A. (2018). "Perceived usefulness and perceived ease of use of electronic health records among nurses: Application of Technology Acceptance Model." Inform Health Soc Care **43**(4): 379-389.

Ubel PA, Smith DM, Zikmund-Fisher BJ, et al. Testing whether decision aids introduce cognitive biases: results of a randomized trial. Patient Educ Couns. 2010;80(2):158–63.

Udonwa, N. E. and U. K. Ogbonna (2012). "Patient-related factors influencing satisfaction in the patient-doctor encounters at the general outpatient clinic of the university of calabar teaching hospital, calabar, Nigeria." Int J Family Med **2012**: 517027.

Varshney, Upkar. "Pervasive healthcare and wireless health monitoring." *Mobile Networks and Applications* 12.2 (2007): 113-127.

Vick, S., & Scott, A. (1998). Agency in health care. Examining patients' preferences for attributes of the doctor–patient relationship. *Journal of health economics*, *17*(5), 587-605.

Wang, A. Z., et al. (2017). "Poor Consumer Comprehension and Plan Selection Inconsistencies Under the 2016 HealthCare.gov Choice Architecture." MDM Policy Pract **2**(1).

Wang, H., et al. (2020). "Understanding consumer acceptance of healthcare wearable devices: An integrated model of UTAUT and TTF." Int J Med Inform **139**: 104156.

Warburton, J. and D. J. Terry (2010). "Volunteer Decision Making By Older People: A Test of a Revised Theory of Planned Behavior." Basic and Applied Social Psychology **22**(3): 245-257.

Watson, J. M., & Strayer, D. L. (2010). Supertaskers: Profiles in extraordinary multitasking ability. *Psychonomic bulletin & review*, *17*(4), 479-485.

Wensing, M., et al. (2004). "Impact of national health care systems on patient evaluations of general practice in Europe." Health Policy **68**(3): 353-357.

Wensing, M., et al. (2019). "Learning, understanding and the use of information technology: a survey study among primary care physician trainees." BMC Health Serv Res **19**(1): 728.

Whaley, C. M., et al. (2019). "Paying Patients to Switch: Impact Of A Rewards Program On Choice Of Providers, Prices, And Utilization." Health Aff (Millwood) **38**(3): 440-447.

White, K. M., et al. (2009). "Social influence in the theory of planned behavior: the role of descriptive, injunctive, and in-group norms." Br J Soc Psychol **48**(Pt 1): 135-158.

Wilkie, William L., Consumer Behavior (New York: John Wiley and Sons, 1986).

Williams, B. (1994). Patient satisfaction: a valid concept? *Social science & medicine*, *38*(4), 509-516.

Winblad, U. (2008). "Do physicians care about patient choice?" Soc Sci Med **67**(10): 1502-1511.

Wofford, James L., Edward D. Smith, and David P. Miller. "The multimedia computer for office-based patient education: a systematic review." *Patient Education and Counseling* 59.2 (2005): 148-157.

Wood, Stacey, et al. "Numeracy and Medicare Part D: the importance of choice and literacy for numbers in optimizing decision making for Medicare's prescription drug program." *Psychology and Aging* 26.2 (2011): 295.

Woodside, Arch G., Lisa L. Frey, and Robert Timothy Daly. "Linking Service Quality, Customer Satisfaction, And Behavior." *Marketing Health Services* 9.4 (1989): 5.

Woodside, Arch, and Raymond Shinn. "CUSTOMER AWARENESS AND PREFERENCES TOWARD COMPETING HOSPITA." *Marketing Health Services* 8.1 (1988): 39.

Worrall, John D., et al. "The transition from temporary total to permanent partial disability: A longitudinal analysis." *Workers' Compensation Insurance: Claim Costs, Prices, and Regulation*. Springer, Dordrecht, 1993. 51-67.

Xie, H., et al. (2020). "Determinants of Trust in Health Information Technology: An Empirical Investigation in the Context of an Online Clinic Appointment System." International Journal of Human–Computer Interaction **36**(12): 1095-1109.

Yang, H., et al. (2017). "User acceptance of smart home services: an extension of the theory of planned behavior." Industrial Management & Data Systems **117**(1): 68-89.

Yanamanadram, V & White, L, Exploring the Switching Costs Behavioral Loyalty Relationship amongst Dissatisfied Customers in the B2B Services Sector, Academy of Marketing Conference 2006 (AM2006), Middlesex University, London, 3-6 July.

Yin, W., A. Basu, J. X. Zhang, A. Rabbani, D. O. Meltzer, and G. C. Alexander. 2008. ‘‘The Effect of the Medicare Part D Prescription Benefit on Drug Utilization and Expenditures.’’ Annals of Internal Medicine 148 (3): 169–77

Zack, M. H. (2007). "The role of decision support systems in an indeterminate world." Decision Support Systems **43**(4): 1664-1674.

Zhang, J. X., W. Yin, S. X. Sun, and G. C. Alexander. 2008. ‘‘The Impact of the Medicare Part D Prescription Benefit on Generic Drug Use.’’ Journal of General Internal Medicine 23 (10): 1673–8

Zeithaml, V. A. (1988). Consumer perceptions of price, quality, and value: A means-end model and synthesis of evidence. Journal of Marketing, 52, 2-22.

Zhou, Chao and Yuting Zhang. 2012. “The Vast Majority of Medicare Part D Beneficiaries Still Don't Choose the Cheapest Plans that Meet Their Medication Needs.” Health Affairs, 31(10): 2259–2265.

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