

PREFERENCES FOR SHARED DECISION-MAKING BETWEEN PHYSICIANS AND
PATIENTS: IS AGE A FACTOR?

A THESIS IN
Psychology

To be presented to the Faculty of the University
of Missouri-Kansas City in partial fulfillment of
the requirements for the degree

MASTER OF ARTS

by

JESSICA L. HILDRETH

B.A., University of Missouri Kansas-City, 2016

Kansas City, Missouri

2019

© 2019

JESSICA LYN HILDRETH

ALL RIGHTS RESERVED

PREFERENCES FOR SHARED DECISION-MAKING BETWEEN PHYSICIANS AND
PATIENTS: IS AGE A FACTOR?

Jessica Lyn Hildreth, Candidate for the Master of Arts Degree

University of Missouri-Kansas City, 2019

ABSTRACT

Shared decision-making (SDM) is a tool suggested for improving patient-doctor relationships, health decision satisfaction, and health outcomes in all patient populations. The assumption that older patients desire purely directive care is a widespread misconception that is inconsistent with patient-centered care. To better understand how older adults might participate in and benefit from SDM, it is important to examine their preferences for SDM, and their opportunities to participate. This study aimed to analyze health care decision-making processes with older and younger patients to point out any inequalities. To examine factors that contribute to SDM preferences, and to assess perceived opportunities for SDM, 96 participants aged 20-79 years were recruited from two medical clinics in Kansas University Medical Center. Participants completed a 45-minute self-report battery. It was hypothesized that individual differences in preference for SDM would be explained by a person's health anxiety, information monitoring behaviors, self-efficacy of health literacy, and actual health literacy; differences in preference would not be explained by age. It was further hypothesized that perceived opportunities to participate in SDM would be negatively

related to age. We found that, as predicted, age was not related to patient preference for SDM. However, health anxiety, information monitoring behaviors, confidence to participate, and health literacy were also found to have no relationship with SDM preferences. Contrary to hypothesis two, we found that all patients perceived equal opportunities to participate in SDM. Follow up analyses were conducted to inspect potential demographic differences of SDM preferences and opportunities.

APPROVAL PAGE

The faculty listed below, appointed by the Dean of the College of Arts and Sciences have examined a thesis titled “Preferences for Shared Decision-Making Between Physicians and Patients: Is Age a Factor?”, presented by Jessica L. Hildreth, candidate for the Master of Arts degree.

Supervisory Committee

Joan McDowd, Ph.D.
Department of Psychology

Melisa Rempfer, Ph.D.
Department of Psychology

Joah Williams, Ph.D.
Department of Psychology

CONTENTS

ABSTRACT	iii
LIST OF TABLES	ix
Chapter	
1. OVERVIEW	1
2. REVIEW OF THE LITERATURE	2
SDM Outcomes.....	3
Older Patients and SDM	4
Preferences for SDM.....	6
Aging and Preferences for SDM.....	8
SDM Preference and health literacy	10
SDM Opportunities.....	11
The Current Study.....	12
Hypotheses	13
3. METHODOLOGY	14
Participants.....	14
Measures	14
The Autonomy Preference Index	14
The Facilitation of Patient Involvement Scale.....	15
The Health Anxiety Questionnaire	15
Self-Efficacy of Health Literacy	15
The General Self-Efficacy Scale.....	15

The Miller Behavioral Style Scale	16
The Newest Vital Sign	16
Procedure	16
Statistical Analyses	17
Hypothesis One	17
Hypotheses Two.....	18
4. RESULTS	19
Demographics	19
Data Screening	20
OLS Assumptions	21
Analysis.....	21
Hypothesis One.....	21
Hypothesis Two	23
Follow up Analysis	23
Age Analysis.....	24
Minority Status Analysis	25
Age by Minority Status Analysis.....	26
Sex Analysis.....	28
5. DISCUSSION.....	29
Conclusion	32
Limitations	33
Future Studies	34

APPENDIX.....	35
REFERENCE LIST	45
VITA.....	55

TABLES

Table	Page
1. Demographic Literature Review.....	9
2. Demographic Characteristics	19
3. Hypothesis Testing Variable Means	20
4. Correlations Among Variables	22
5. Hypothesis 1 Analyses Summary	24
6. Hypothesis 2 Analyses Summary	24

CHAPTER 1

OVERVIEW

Understanding how shared decision-making (SDM) occurs as patients age can enable healthcare providers to tailor services for each patient, and improve the quality and satisfaction of healthcare. Older and younger patients face many different health concerns and may have different health goals. However, SDM is a tool suggested for improving patient-doctor relationships, health decision satisfaction, and health outcomes in all patient populations.

Hoving, Visser, Mullen, and Van Den Borne (2010) suggest that health researchers should assess SDM's relevance and fit in the field. Assessing SDM can ensure it is being used with patients equally, and only when patients wish to engage. SDM can also be assessed to determine if it is useful to clients. To better understand how older adults might participate in and benefit from SDM, it is important to examine their preferences for SDM, confidence in their ability to participate, and their opportunities to participate.

The literature review that follows has been structured to provide basic background information on SDM, and on patient experiences with SDM. To illustrate these experiences, the literature has been separated into an SDM overview that discusses SDM generally, and a more specific review that focuses on SDM with older adults. The literature review then focuses on three critical constructs: preferences, confidence in ability to participate, and opportunities to participate in SDM.

CHAPTER 2

REVIEW OF THE LITERATURE

Shared Decision Making (SDM) addresses a challenge faced by many healthcare providers: providing quality care for their patients. It does so by increasing patient-centered care, an attempt to focus on patients' experiences and preferences (Spatz & Spertus, 2012). Because each individual has different values and experiences, the best plan of treatment will not be the same for each patient. According to Spatz and Spertus (2012) SDM involves a bidirectional transfer of treatment specific knowledge. Providers must convey the risks and benefits of the patient's treatment options, and the patient must share their preferences for different outcomes. This knowledge transfer allows for a collaborative treatment plan that aligns with each patient's goals and values.

Over the years healthcare has evolved, steadily becoming more patient centered. Until the 1960s healthcare was predominately directive, with the doctor serving as the authority in most treatment decisions (Hoving, Visser, Mullen, & Van Den Borne, 2010). Since the 1980s SDM has been suggested as the best approach to making healthcare decisions and has been encouraged by both the Institute of Medicine and the U.S. Preventive Services Task Force (Shay & Laffata, 2015). Patients became more engaged in their healthcare decisions throughout the 1990s, and there is now an understanding that treatment plans can be ineffective if they do not take into account a patient's background, values, and goals (Hoving, Visser, Mullen, & Van Den Borne, 2010).

Within the shift towards patient centered care, SDM has become an important part of treatment planning in a variety of contexts. It can be used in nearly any healthcare treatment decision, including cancer, cardiac, psychological, and hormonal treatment decisions

(Ananian et al, 2004; Burton, Blundell, Jones, Fraser, & Elwyn, 2010; Clever et al, 2006; Deinzer, Veelken, Kohen, & Scmieder, 2009; Gattellari, Butow, & Tattersall, 2001; Legare et al, 2003; Mahone, 2008). It can be used in settings such as primary care, emergency, and behavioral health (Elston Laffata, Brown, Pignone, & Shay, 2017; Lerman et al, 1990; Platts-Mills et al, 2012). SDM research has been conducted on a wide variety of ailments including diabetes, asthma, chronic pain, epilepsy, HIV, and serious injuries (Chambers, Markson, Diamond, Lasch, & Berger, 1999; Heisler et al, 2003; Janssen, Ommen, Pfaff, Lefering, & Neugebaur; 2009 Johnson, Sevelius, Dilworth, Saberi, & Neilands, 2012; Thapar & Roland, 2005). SDM is a general tool that can be used across settings and ailments.

The case of chronic pain provides a good example of the potential of SDM to improve care. Patients with chronic pain and their healthcare providers are likely to have opposing attitudes and goals (Frantsve & Kerns, 2007). This can lead to frustration, and untreated or over-treated patients. Typically, patients want their pain concerns legitimized, while healthcare providers place greater focus on treatment than quality of life concerns (Frantsve & Kerns, 2007). SDM allows the patient and doctor to work together to accomplish both of these goals. Together, the varied literature suggests that SDM is a generic healthcare tool that can usefully be applied in a variety of settings.

SDM Outcomes

SDM increases patient knowledge, while reducing regional variations in healthcare costs – which are believed to be driven by the physician’s preferences (Spatz & Spertus, 2012). SDM is associated with increases in patient satisfaction with the health knowledge received. Patients who engage in SDM also enjoy better affective and cognitive outcomes (e.g. less decisional conflict; Shay & Laffata, 2015). SDM gives patients a greater sense of

control, lower illness anxiety, less discomfort and greater symptom improvement (Brody, Miller, Lerman, Smith, & Caputo, 1989). It has been found to increase medication and treatment adherence (Chambers, Markson, Diamond, Lasch, & Berger, 1999; Loh, Leonhart, Wills, Simon, & Harter, 2007; Mahone, 2008). Finally, SDM is associated with a better doctor-patient relationship and greater overall trust in one's physician (Ommen, Theum, Pfaff, & Janssen, 2011; Thum et al, 2012). In brief, SDM is associated with many positive psychological and physical health outcomes

Older Patients and SDM

With poly-pharmacy, medical comorbidities, low health literacy, and stigmatization occurring in higher rates among older adults, their healthcare is generally more complicated. For example, following surgical procedures older patients are likely to experience complications, functional decline, increased care needs, and decreased independence (Adam, McDonald, Heflin, & Lagoo-Deenadavalan, 2016). The process of SDM between a patient and their physician allows for the identification of risk factors preoperatively, permitting prevention strategies to mitigate risk, and translating into more optimal postoperative outcomes (Adam, McDonald, Heflin, & Lagoo-Deenadavalan, 2016). For example, if a patient who is being treated for pancreatic cancer must choose between surgery and chemotherapy, the patient and doctor should discuss the risk factors and prognosis of each option. If both options have similar prognoses, but one's side effects are worse it may be obvious which route the patient will prefer. However, if prognoses are different, patients may weigh the benefits and risks, and assess their support systems to pick their treatment. A person with less physical support may want to try chemo-therapy before surgery since it requires less

down time. Using SDM, a doctor and patient can weigh the pros and cons of treatment options to ensure the best plan is put into place.

Another example of SDM benefiting older adults can be seen in pain medication decisions. Pain management in older adults can be more complicated than in younger adults. Physicians must weigh the risks of adverse events due to drug–drug and drug–disease interactions against the benefits of pain medication when they are planning treatment regimens (Cullison, Carpenter, Milne, & Choo, 2016). If physicians and older patients together discuss side effects, patient responsibilities, and the pain medication’s effectiveness before finalizing a pain treatment plan, positive outcomes are likely to be maximized.

There are many positive outcomes for older adults who are engaged in SDM. Research suggests that SDM with older adults is associated with greater satisfaction upon discharge and greater symptom reduction (Cullison, Carpenter, Milne, & Choo, 2016; Hogan et al, 2016). One study reported that older patients who engaged in SDM were more likely to report satisfaction with pain medication than those who did not (Isaacs et al, 2013). Another benefit of SDM with older adults is the increase in medication adherence associated with SDM (Chambers, Markson, Diamond, Lasch, & Berger, 1999; Mahone, 2008). Older adults tend to have low rates of medication adherence. They often discontinue medications due to unexpected, undesirable side effects (Hogan et al., 2016). SDM enables the doctor and patient to identify appropriate treatments to mitigate side effects or allow older adults to anticipate side effects (Hogan et al, 2016). For example, if an older adult is aware a medication may raise their heart rate, they may not excessively worry about a slightly elevated heart rate and quit taking their medication. Additionally, if they know an elevated

heart rate would be too worrisome for them, their doctor could select a different medication without that specific side effect.

Engaging older patients in SDM can make healthcare easier for the patient and the physician. It provides an important opportunity to improve care management of complex chronically ill older adults with the promise of substantial benefits to patients, clinicians, and society (Naylor, Hirschman, O'Connor, Barg, & Pauly, 2013). The few studies that have been conducted on SDM in older adults suggest that being engaged in SDM is rewarding for the patient and the physician, and that older patients feel empowered during SDM.

Preferences for SDM

In light of the benefits of SDM, it is interesting to note that patients vary in their preferences about participating in decision-making with their physician. Some individuals want to be very involved; others prefer to leave all decisions to their physician. Research suggests that these individual differences in patient preferences for SDM are not explained by the particular health issue that led patients to consult with their physician (Schneider et al, 2006). This means that not all cancer patients prefer SDM while all patients with chronic pain avoid SDM. The severity of illness also does not explain variability in SDM preferences. For example, in one study it was shown that patients with less severe hypertension preferred SDM more than those with severe diabetes and less severe heart disease (Arora & McHorney, 2017). Therefore, preferences for SDM do not appear to be explained by the type or severity of the decision a patient faces.

Conversely, there are factors that have been shown to predict SDM preferences. For example, more conservative individuals (those who hold traditional values), and those who view doctors as the ultimate authority, are less likely to participate in SDM (Braman &

Gomez, 2004). Past experiences with decision-making, whether positive or negative, also influence a patient's receptiveness to SDM (Ladin et al, 2017). Negative past experiences with SDM may deter a patient from participating in SDM, and positive SDM experiences may push a patient to prefer SDM. SDM preferences seem to be affected by both values and experience.

Personality also appears to affect preferences for participation in SDM. Though little research has been done in this area, one study found that patients who engage in active coping strategies had higher odds for preferring an active role in their health (Arora & McHorney, 2017). Another study assessed type of information-seeking patients participate in, and the relationship patients prefer with their doctors. This study found that patients who reported more information-seeking behaviors were more assertive with their physicians and had greater self-efficacy (Braman & Gomez, 2004). Increased information-seeking may lead to more rapport with the physician, and an increased chance of SDM. However, more research is needed to better understand how personality traits affect an individual's preference for SDM.

Demographic variables have also been shown to be related to SDM preferences. For example, women, educated individuals, and healthier individuals typically prefer to participate in SDM (Cullati, Courvoisier, Charvet-Berard, & Perneger, 2010; Holland et al, 2016; Levinson, Kao, Kuby, & Thisted, 2005). Those who are white and/or middle-class also likely prefer SDM (Braman & Gomez, 2004). Additionally, individuals with adequate health literacy have been shown to prefer SDM (Seo, Goodman, Politi, Blanchard, & Kaphingst, 2016). However, there is little consensus in the literature about the most relevant demographic variables. A summary of studies (see Table 1) shows that even those assessing

similar demographic variables report varying conclusions. This indicates that demographic variables are not the only factors influencing SDM preferences.

Aging and Preferences for SDM

Age is a demographic variable of particular interest in the present project. Cullati, Courvoisier, Charvet-Berard, & Perneger (2010) surveyed adults aged 30 to 60 and found that on average patients favor active involvement in their healthcare decisions. The stereotype of adults older than this is that they prefer to defer to their physicians, and many physicians assume this is true. However, recent work contradicts this assumption. For example, in a study consisting only of older adults, it was found that 80% of patients want to make their own health decisions (Moorman, 2011). This research suggests that healthy aging has no effect on an individual's preferences to participate in SDM. Still another investigation asked older adults about their preferences for healthcare decision making and found that 87% of patients wanted their healthcare decision to be either collaborative or entirely patient-directed (Dardas, Stockburger, Boone, An, & Calfee, 2016). This study also noted that 67% of patients cited an entirely physician-directed approach as their least preferred model of decision-making (Dardas, Stockburger, Boone, An, & Calfee, 2016). Some studies have even found that older adults prefer SDM more than younger adults do (O'Neal et al, 2008). Together, this research contradicts the assumption that older patients simply do not want to participate in decision making (Benbassat, Pilpel, & Tidhar. 1998). This assumption is also inconsistent with patient-centered models of care. For example, Politi et al, put forward the position that patients should have the options to decide for themselves if they want to participate in SDM (2013), regardless of age. This position seems most consistent with current emphases on patient-centered care.

Table 1

Demographic Variable Literature Review

Study	Participant Demographics	Outcome
Dardas, Stockburger, Boone, An, & Calfee, 2016	N= 99; english speaking adults aged 65+; able to complete surveys with minimal assistance.	81% of patients wanted an active role in decision making.
O’Neal et al, 2008	N=64; 32 adults age 50+ and 32 adults <49 with serious mental illness, 100% White, 48.4 % had at least some college	The majority of participants desired an active role in decision making.
Arora & McHorney, 2017	N=2472, mean age 57.2, mean years of education 13.2, 80% white	69% of patients preferred to leave their medical decisions to their physicians.
Levinson, Kao, Kuby, & Thisted, 2005	N=2765, mean age 46.3, 78% White, 53.8% completed high school, 83% rated their health good to excellent.	96% of respondents preferred to be offered choices when making healthcare decisions. However, over half wanted the final decision to be up to the doctor.
Holland et al, 2016	N=94, adults aged 60+, 74% white, 27% college graduates, 73% not at risk for poor health literacy	53% wanted to participate in decision making.
Moorman, 2011	N=4500, healthy, white, Midwestern, high school graduates in their mid-60s.	79.6% preferred to make their decisions on their own.
Cullati, Courvoisier, Charvet-Bérard, & Perneger 2010	N=2348, mean age 44.8 years, 28% graduated college, 83.2% gainfully employed, 92.7% rated their health good to excellent.	Most participants preferred to be involved in healthcare decisions.
Xie, Wang, Feldman, Zhou (2012),	N= 438 individuals, including 226 undergraduates and 212 community-dwelling older adults.	Participants expressed higher levels of preference for information than for participation in decision making on six of seven subscales.
Smith, Pandit, Rush, Wolf & Simon, 2016	N=3400, aged 18+, 77.5% white, 56.9 had some at least some college, 83.4% rated their health good to excellent.	53.1% believed SDM was beneficial when deciding the necessity of a diagnostic test, 71.8% believe SDM was beneficial when making lifestyle changes.

This table shows participant demographics along with their preference outcomes. All studies included reported self-report data.

SDM Preference and Health Literacy

Other factors that may be important to preference for SDM are health literacy and self-efficacy of health literacy. When making a healthcare decision it is important that a patient understands the choices they are making. They should be aware of their treatment options, side effects, medications, and so forth. Health literacy involves the skills to obtain, understand and use health information. Many researchers agree that it is an important part of the SDM process (Galesic & Garcia-Retamero, 2011; Goggins et al, 2014; Naik, Street, Richard, Castillo, Abraham, 2011; Sak, Rethenfluh, & Schulz, 2017; Seo, Goodman, Politi, Blanchard, & Kaphingst, 2016; Smith, Simpson, Trevena, & McCaffery, 2014; Yin et al, 2012). Having a higher health literacy allows patients to fully understand and manage their healthcare decisions.

Confidence in one's ability to participate in decision-making also seems relevant to preferences for shared decision-making. In other contexts, it has been shown that confidence on a given task can impact actual performance on tasks in ways that cannot be explained by their actual skill level (Hess, Emery, & Queen, 2009; Steel, 1997). For example, people's confidence in their memory abilities play a role in their actual performance on memory tasks (Cavanaugh, 2000). This confidence is typically referred to as self-efficacy (Bandura, 1977). In the context of preferences for SDM, Donovan-Kicken, Mackert, Tollison, Breckinridge, & Pont (2012) found that individuals with lower self-efficacy report feeling less informed about and unprepared for medical procedures, as well as confused about associated risks. In this case it seems likely that individuals with lower self-efficacy of health literacy may prefer the physician to direct treatment rather than engage in SDM. Thus, confidence may be another important factor that plays a role in preferences relating to SDM.

SDM Opportunities

In addition to preferences, analyzing opportunities for engaging in SDM may allow us a fuller understanding of age-related differences in SDM participation. Although relatively little research has been conducted to assess SDM opportunities experienced by older adults, the data that do exist suggest that physicians may be offering the opportunity to engage in SDM only irregularly. For example, Isaacs et al, (2013) reported that only 52% of older patients recounted receiving any information about pain medication options, and only 31% reported participating in medication selection. These findings suggest that factors related to the physician may also be relevant to whether a patient engages in SDM.

There are many reasons physicians may not initiate SDM with older patients. Physicians report reluctance to embrace SDM if they feel strongly about a certain treatment option, are concerned that presenting probabilities will feed into patient fears, or if they find SDM to be disruptive to their clinic - taking too much time and not yet being reimbursable (Spatz & Spertus, 2012) Though older adults have access to more health information than ever before (i.e. medical books, magazines, and online sources) some doctors consider it less helpful and even report becoming annoyed if older patients insist on their preferences and doubt their recommendations (Hamann et al, 2012). Additionally, physicians may choose whether to initiate SDM based on the patient's life expectancy and/or their functional status (Breslau et al, 2016). Another reported barrier is the assumption that older patients do not wish to participate in SDM, leading to a "doctor knows best" paradigm (Spatz & Spertus, 2012). Because of these, and other reasons, older adults' clinicians may simply be not offering SDM as an option.

A final physician-influenced barrier to SDM is that physicians may believe SDM is occurring when it is not. Even when physicians are interested in engaging in SDM, they may not fully understand that SDM includes a bidirectional exchange of information and collaborative decision-making based on patient's preferences; therefore, physicians may perceive patient interactions as more collaborative than they are (Dodds et al, 2016). The most efficient way to confirm that SDM occurred is to ask patients about the decision-making process itself (Spatz & Spertus, 2012). The opportunities for SDM need to be examined through the patient's perspective to determine if older and younger patient populations perceive the same healthcare opportunities.

The Current Study

This study evaluated the SDM experiences of older and younger adult patients. This study aimed to examine factors that contribute to patient preferences for SDM, confidence in ability to participate in SDM, and opportunities given to participate in SDM. Given the noted ways that SDM is linked to a more positive patient-doctor relationship, better quality of care, and higher rates of patient satisfaction, it is important to understand both perceived (confidence in ability) and actual (preferences, opportunities) barriers patients face. This study sought to uncover reasons behind the variety in patients' preferences and confidence in their abilities in order to inform current SDM frameworks and aid in providing patients with quality person-centered care. Finally, this study aimed to discover whether the rate of opportunities given to younger and older patients along the aging spectrum are equal, to provide a glimpse into the current state of age bias within SDM processes. This study analyzed how aging, among other factors, influences preferences for SDM.

Hypotheses

Hypothesis One

H1: Individual differences in preference for SDM will be explained by a person's health anxiety level, information monitoring behaviors, confidence to participate, and health literacy; differences in preference will not be explained by age.

Hypothesis Two

H2: Perceived opportunities to participate in SDM will be negatively related to age.

CHAPTER 3

METHODOLOGY

Participants

Participants were recruited from a clinical sample of patients from two medical clinics in Kansas University Medical Center. Participants were recruited from Urology and Family Medicine Department clinics. Participants include adult men and women aged 20 to 79 years who were seeking healthcare services for chronic and acute health concerns. Exclusionary criteria for the study included patients whose appointment did not include a health care decision. The literature suggested that preferences for SDM should have at least a medium association with coping skills, and health anxiety (Edne et al, 1989; Seo, Goodman, Politi, Blanchard, & Kaphingst, 2016) and at least a small association with health anxiety and self-efficacy (Braman & Gomez, 2004; Moorman, 2011). Thus, it is safe to assume, when combined these variables will produce at least a medium effect. A power analysis revealed that to detect at least a medium effect with a statistical power of .80 I need to analyze 91 participants. In total, 96 participants were recruited including 16 participants in their 20s, 30s, 40s, 50s, 60s, and 70s.

Measures

The Autonomy Preference Index (Edne et al, 1989)

The Autonomy Preference Index (API) is the primary outcome measure in this study. It consists of two scales, the Decision-making preferences scale (DMP) and the Information seeking preferences scale (ISP). The DMP is a 15-item scale on decision making preferences as they relate to healthcare decisions. It includes six general items and nine items related to clinical vignettes. The ISP includes 8-items which inquire about the level of information the

participant feels they should receive. Preferences for decision making and information seeking in the context of healthcare are determined by adding the scores of the items within the respective scales. This assessment has been validated, and is reliable ($\alpha = 0.82$).

The Facilitation of Patient Involvement Scale (Martin, DiMatteo, & Lepper, 2001)

The Facilitation of Patient Involvement Scale (FPIS) is a nine-item measure of the degree to which patients perceive their physicians actively encourage them to participate in their healthcare decisions. It is a validated and highly reliable measure ($\alpha = .90$) of a patient's perception of physician facilitation.

The Health Anxiety Questionnaire (Lucock & Morley, 1996)

The 21-item Health Anxiety Questionnaire (HAQ) is made up of four subscales: The Health and Worry Preoccupation scale (HWP), Fear of Illness and Death (FID), Reassurance Seeking behavior (RS), and the Interference with Life scale (IWL). The HAQ is a reliable ($\alpha = 0.92$) and valid measure of level of concern about an individual's own health.

Self-Efficacy of Health Literacy (Tiznado & Clark, 2014)

The Self-Efficacy of Health Literacy (SEHL) assesses an individual's confidence in three health domains: understanding medical information, understanding risks and statistics, and finding health information. Each specific item is rated from zero (cannot do at all) to four (highly certain I can do). This measure was developed locally and has not been fully validated. However, because there are no alternative measures of self-efficacy of health literacy, it has been included here as the best available measure.

The General Self-Efficacy Scale (Schwarzer & Jerusalem, 1995)

The General Self-Efficacy Scale is a 10 item self-report measure of self-efficacy. Scores range from 10-40 with higher scores representing a higher level of self-efficacy. It has

been shown to be a valid measure with high reliability (Cronbach's alphas range between .76 and .90) (Schwarzer & Jerusalem, 1995).

The Miller Behavioral Style Scale (Miller, 1987)

The Miller Behavioral Style Scale (MBSS) is a questionnaire designed to measure an individual's inclination to seek out or avoid threatening information (Miller, 1987). The scale consists of four hypothetical stress-evoking scenarios (dentist, hostage, dismissal, and airplane), each of which is followed by eight coping options. Four options represent information seeking or "monitoring", whereas the other four are avoidant or "blunting" options. The MBSS has been used in many studies with reported alphas ranging from .41 to .90.

The Newest Vital Sign (Pfizer Inc., 2011)

The Newest Vital Sign (NVS) is a six-item assessment that evaluates an individual's health literacy and numeracy skills. The first four items ask the participant nutritional questions to assess their understanding of a provided food label. The following two items inquire about ingredients on the label in relation to allergies. Each item receives a score of zero or one, with six being the maximum score. The raw scores are used to place the participant's health literacy and numeracy skill into one of the following levels: (1) high likelihood of limited literacy, (2) possibility of limited literacy, or (3) adequate literacy.

Procedure

Participants in this study were recruited from Kansas University Health Center's Urology and Family Medicine department clinics. The Protocol was organized into two phases: (1) screening and consent, and (2) paper and pencil self-report measures. In phase one participants were screened and consented for participation. Participants were then

scheduled for phase 2. Participants had three options for completing the second phase of the protocol: (1) Complete the assessment directly after their appointment in a private room at the clinic, (2) Complete the assessment online, or (3) Complete the assessment at UMKC's Psychology Department at a later date.

Participants who chose to complete phase 2 online (35 young adults, 30 old adults) were given a link to the battery and were asked to complete the survey within one week. 31 participants who took the survey in person (13 young adults, 18 old adults) with a student researcher. The student researcher administered all of the paper and pencil measures via a structured interview. This phase of data collection required approximately 30 minutes to complete. At the end of the second phase, participants were fully debriefed about the study, given their honorarium (in cash if present, or via Zelle if online), and if applicable were escorted back to their parking place.

Statistical Analysis

The current study aimed to better understand which factors influence a patient's preferences for SDM and understand whether age is related to perceptions of SDM opportunities.

Hypothesis One

In order to test H1 - the hypothesis that differences in preference for SDM will be explained by a person's health anxiety level, information seeking behaviors, confidence to participate, and health literacy skill, and not by age – a multiple regression analysis was planned. The predictors in the multiple regression included the HAI, MBSS, SEHL, NVS, and age. Years of education years were included in this analysis as a control variable. The outcome variable was the score on the API. In order to support this hypothesis, the HAI,

MBSS, SEHL, and the NVS should significantly predict API score. Additionally, age should not significantly predict API score.

Hypothesis Two

To test H2, the hypothesis that adult age is related to perceived opportunity to participate in SDM, a correlational analysis was conducted on FPIS score and age. In order to support this hypothesis there should be a significant negative correlation between scores on the FPIS and age.

CHAPTER 4

RESULTS

Demographics

The sample for this study included 96 medical patients, 49 male and 47 female. 16 patients in their 20s, 30s, 40s, 50s, 60s and 70s completed phase 1 and phase 2 of this study. Table 2 below presents the patient demographics.

Table 2

Demographic Characteristics

Participants	<i>n</i> (%)
Race/Ethnicity <i>n</i>(%)	
• Black	26(27.08%)
• Hispanic	5(5.21%)
• White	62(64.58%)
• Other	3(3.13%)
Years of Formal Education <i>n</i>(%)	
• <9 Years	4(4.17%)
• 9-12 Years	26(27.08%)
• 13-14 Years	22(22.92%)
• 15+ Years	44(45.83%)
Relationship Status <i>n</i>(%)	
• Single	
• Married	21(21.88%)
• Separated/Divorced	52(54.17%)
• Widowed	16(16.67%)
	6(6.25%)
Employment Status <i>n</i>(%)	
• Part-time/Full time	
• Unemployed	57(59.38%)
• Retired	4(4.17%)
• Disabled	24(25.00%)
	11(11.46%)

Data Screening

Using procedures outlined by Warner (2012), no participant data points were identified as significant univariate or multivariate outliers across all variables. There were several cases where participants did not fully complete the assessments: NVS (n=1), SEHL (n=27), API (n=14), FPIS (n=4), and HAQ (n=6). These participants therefore did not have data available for hypothesis testing. Means and standard deviations for predictor outcome variables used are reported below (Table 3).

Table 3

Variable Means		
Measures	N	<i>M</i> ± <i>SD</i>
Preferences		
• Autonomy Preference Index	82	87.35±8.80
Opportunities		
• Facilitation of Patient Involvement	92	47.99±7.05
Individual Characteristics		
• Monitoring and Blunting Subscale	96	1.54±2.39
• General Self-Efficacy	91	32.97±4.53
• Self-Efficacy of Health Literacy	69	317.74±49.45
• Newest Vital Sign	96	3.77±1.76
• Health Anxiety Questionnaire	90	18.16±13.11

OLS Assumptions

OLS regression assumptions were examined for exploratory analysis. Assumptions for linearity, independence of errors, homoscedasticity, and normality of distribution were inspected to assess the need for transformations in the event that any of the assumptions were not met (Tabachnick & Fidell, 2012). Linearity was examined by examining scatter plots and ensuring non-significant correlations between the predicted and observed values. For each of the regressions conducted below all predictor variables were found to have linear relationships with their corresponding dependent variables. The normality of OLS regression residuals assumption was determined via skewness and kurtosis statistics and histograms, both of which indicate a normal distribution of regression residuals when a linear relationship is present. All variables used in analyses were found to be normally distributed.

Homoscedasticity was determined by the symmetrical distribution around the slope observed in a scatterplot between predicted and residual values. In addition to assumptions, the Variance Inflation Factor (*VIF*) was also analyzed to ensure correlations between the independent variables are not artificially increasing predicted estimates on the dependent variable. Using guidelines by Robinson & Schumaker (2009), *VIF* was determined to be in an acceptable range, $VIF < 10$, indicating no significant inflation of estimates on the dependent variable for each exploratory multiple regression analyzed.

Analysis

Hypothesis One

The first hypothesis stated that differences in preference for SDM would be explained by a person's health anxiety level (HAQ), information seeking behaviors (MBSS), confidence to participate (SEHL), and health literacy skill (NVS), and not by age. Contrary

Table 4.*H1 Correlation Table Among Demographics, Preferences, Health Anxiety, Health Literacy, and Health Behaviors*

	1	2	3	4	5	6	7	8	9	10
Demographics										
1. Age										
2. Race	-.095									
3. Education	.095	-.245*								
Preferences										
4. API	.072	-.081	.204							
5. DMP	.090	.013	.240*	.883**						
6. ISP	-.029	-.071	-.087	.610**	.167					
Health Anxiety										
7. HAQ	-.221	.214*	-.328**	-.033	.094	-.027				
Health Literacy										
8. NVS	-.241*	-.223*	.354**	.003	.072	-.112	-.171			
9. SEHL	-.080	.910	.111	-.032	-.016	.033	.062	.202		
Health Behaviors										
10. MBSS	-.090	-.036	.130	-.030	.078	-.028	.183	.132	-.057	
11. GSE	-.051	.091	-.017	-.124	-.148	-.026	-.084	.178	.295*	.053

*= $P < .05$ **= $p < .01$

to expectations, the predictor variables proposed for hypothesis one were not correlated with SDM preferences. API was not significantly correlated with education $r(81)=.204, p=.066$, the HAQ $r(75)=-.033, p=.775$, MBSS $r(81)=-.030, p=.792$, SEHL $r(59)=-.032, p=.810$, or NVS $r(81)=.003, p=.981$. As predicted, age was not related to API, $r(81)=.072, p=.518$. Because predictors are not correlated with API, a multiple regression is not justified, and these variables can be assumed not to be predictors of API.

Hypothesis two

Hypothesis two stated that age would be related to perceived opportunity to participate in SDM. A bivariate correlational analysis was conducted to analyze the correlation between age and perceived physician engagement (FPIS). Contrary to the stated hypothesis, the FPIS total score and Age were not significantly correlated, $r(95)=.105, p=.31$.

Follow Up Analysis

The pattern of results just reported are not consistent with current literature suggesting that health anxiety, information seeking, and health literacy should have been related to SDM preference. To further investigate this unexpected pattern of results, we repeated the analyses reported above, separately for young patients, old patients, minority patients, and non-minority patients.

Table 5
Hypothesis 1 Analyses Summary

Analysis (n)	Age Relationship	Individual Difference Variable Relationship	M±SD
Full sample (96)	n.s.	n.s.	87.36±6.89
Age Analysis			
50+ (48)	+0.41	n.s.	86.79±8.03
<50 (48)	n.s.	n.s.	87.86±5.71
Race/Ethnicity Analysis			
Minority (34)	n.s.	n.s.	86.90±6.94
Majority (62)	n.s.	n.s.	87.60±6.91
Race/Ethnicity by Age Analysis			
Old Majority (33)	+0.43	n.s.	87.36±8.40
Old Minority (17)	n.s.	NVS -0.78	85.79±7.52
Young Minority(17)	n.s.	n.s.	87.93±6.43
Young Majority (33)	n.s.	n.s.	87.82±5.41

Table 6
Hypothesis 2 Analyses Summary

Analysis (n)	Age Relationship	M±SD
Full sample (96)	n.s.	47.99±7.05
50+ (48)	n.s.	47.27±7.46
<50 (48)	n.s.	48.68±6.65
Minority (34)	-.37	47.26±7.09
Majority (62)	n.s.	48.41±7.06
Old Majority (33)	n.s.	48.93±6.57
Old Minority (17)	n.s.	44.53±8.21
Young Minority (17)	n.s.	50.00±4.51
Young Majority (33)	n.s.	47.93±7.57

Age Analysis

First, to examine whether the pattern of correlations would be the same for younger and older adults separately, the sample was split by age. To maintain equal sample sizes, I

conducted a median split. The Young group consisted of 48 men and women who were 20 to 49 years of age. The Old group consisted of 48 men and women who were 50-79 years of age. Hypothesis one and two were re-examined for each group.

Hypothesis 1. For hypothesis 1, the Young Group's results were similar to original findings. API was not significantly correlated with education $r(42) = .294, p = .056$, the HAQ $r(39) = -.061, p = .708$, MBSS $r(42) = -.201, p = .195$, SEHL $r(32) = .110, p = .543$, or NVS $r(42) = .010, p = .952$. As predicted, age was not related to API, $r(42) = .093, p = .553$. Because predictors are not correlated with API, a multiple regression is not justified, and these variables can be assumed not to be predictors of API. In contrast, the Old group's results were different in one way relative to the original findings. Although API was not significantly correlated with education $r(38) = .153, p = .353$, the HAQ $r(35) = -.038, p = .825$, MBSS $r(38) = .127, p = .442$, SEHL $r(32) = -.165, p = .410$, or NVS $r(38) = -.035, p = .83$ for the older adults, age was significantly positively correlated to API, $r(38) = .414, p = .009$. Because only age is related to API, a multiple regression is not justified, and the uncorrelated variables can be assumed not to be predictors of API.

Hypothesis 2. For hypothesis 2, both the Young and Old groups' results were similar to the original findings. The FPIS total score and Age were not significantly correlated in the young group $r(46) = -.038, p = .800$, or the old group $r(44) = .184, p = .23$.

Minority Status Analysis

For this analysis, the sample was split by majority and minority status. The Majority group included 62 white individuals and the Minority group included 34 non-white individuals. Hypothesis one and two were re-examined separately for each group.

Hypothesis 1. For hypothesis 1, the Majority group's results were similar to original findings. API was not significantly correlated with education $r(52)=.233, p=.094$, the HAQ $r(50)=-.034, p=.811$, MBSS $r(52)=.032, p=.819$, SEHL $r(35)=-.009, p=.958$, or NVS $r(52)=.102, p=.467$. As predicted, age was not related to API, $r(52)=.172, p=.219$.

The Minority group's results were also similar to the original findings. API was not significantly correlated with education $r(28)=.123, p=.525$, the HAQ $r(24)=-.016, p=.941$, MBSS $r(28)=-.187, p=.331$, SEHL $r(23)=-.087, p=.685$, or NVS $r(28)=-.217, p=.259$. As predicted, age was not related to API, $r(29)=-.110, p=.509$. Because predictors are not correlated with API, a multiple regression is not justified for either group and these variables can be assumed not to be predictors of API.

Hypothesis 2. For hypothesis 2, the Majority group's results were similar to the original findings. The FPIS total score and age were not significantly correlated $r(57)=.132, p=.322$. In contrast, for the Minority group the total FPIS score and age were significantly negatively correlated, $r(33)=-.367, p=.03$.

Age by Minority Status Analysis

For this analysis, the sample was split by minority status and age into four groups. Although these groups were relatively small, exploratory correlational analyses were conducted. The Old-Majority group included 31 members aged 50-79. The Old-Minority group included 17 older individuals aged 50-79. The Young-Majority group included 31 majority younger individuals aged 20-49. The Young-Minority included 17 individuals aged 20-49. Hypothesis one and two were re-examined for each group.

Hypothesis 1. For hypothesis 1, results for the Old-Majority group did not replicate the findings for the complete sample. In this case, the pattern of findings was the opposite of

initial predictions. That is, API was not significantly correlated with education $r(24)=.221$, $p=.288$, the HAQ $r(23)=-.135$, $p=.530$, MBSS $r(24)=.121$, $p=.565$, SEHL $r(16)=-.105$, $p=.689$, or NVS $r(24)=.223$, $p=.284$, but age was related to API, $r(24)=.425$, $p=.034$. Because all predictors, except age, were not correlated with API, a multiple regression is not justified, and these unrelated variables are assumed not to be predictors of API.

Similarly, for the Old-Minority group API was not significantly correlated with education $r(13)=-.034$, $p=.908$, the HAQ $r(11)=.284$, $p=.370$, MBSS $r(13)=.127$, $p=.665$, and SEHL $r(9)=-.423$, $p=.224$. This group's API score was not related to age $r(13)=.410$, $p=.145$. However, for this group API and NVS were significantly related, $r(13)=-.779$, $p=.001$. Because only the NVS is related to API, a multiple regression is not justified, and the uncorrelated variables are assumed not to be predictors of API.

The Young-Minority and Young-Majority groups' results were similar to the original findings for hypothesis one. For the Young-Minority group API was not significantly correlated with education $r(14)=.402$, $p=.137$, the HAQ $r(12)=-.397$, $p=.180$, MBSS $r(14)=-.399$, $p=.141$, SEHL $r(13)=-.059$, $p=.842$, NVS $r(14)=.174$, $p=.536$, or age, $r(14)=-.321$, $p=.243$. For the Young-Majority group API was not significantly correlated with education $r(27)=.280$, $p=.149$, the HAQ $r(26)=.044$, $p=.829$, MBSS $r(27)=-.088$, $p=.657$, SEHL $r(18)=.145$, $p=.554$, or NVS $r(27)=-.101$, $p=.609$ or age, $r(27)=.306$, $p=.113$. For both the Young-Minority and Young-Majority groups, because predictors are not correlated with API, a multiple regression is not justified and these variables can be assumed to not be predictors of API.

Hypothesis 2. For hypothesis 2, all group's findings were similar to the original findings. The FPIS total score and Age were not significantly correlated in the Old-Majority

Group $r(27)=.341$, $p=.076$, Old-Minority Group $r(16)=-.045$, $p=.865$, Young-Majority Group $r(16)=-.059$, $p=.822$, or the Young-Minority Group $r(29)=-.023$, $p=.904$.

Sex Analysis

For this analysis, the sample was split by male and female. The Male group included 49 individuals and the Female group included 47 individuals. Hypothesis one and two were re-examined separately for each group.

Hypothesis 1. For hypothesis 1, the Male group's results were similar to original findings. API was not significantly correlated with education $r(41)=.217$, $p=.168$, the HAQ $r(39)=.083$, $p=.610$, MBSS $r(41)=.064$, $p=.687$, SEHL $r(26)=.120$, $p=.552$, or NVS $r(41)=-.02$, $p=.48$. As predicted, age was not related to API, $r(42)=.112$, $p=.479$.

The Female group's results were also similar to the original findings. API was not significantly correlated with education $r(39)=.189$, $p=.243$, the HAQ $r(35)=-.217$, $p=.204$, MBSS $r(39)=-.135$, $p=.407$, SEHL $r(32)=-.243$, $p=.173$, or NVS $r(39)=-.243$, $p=.259$. As predicted, age was not related to API, $r(39)=.014$, $p=.173$. Because predictors are not correlated with API, a multiple regression is not justified for either group and these variables can be assumed not to be predictors of API.

Hypothesis 2. For hypothesis 2, both the Male and Female group's results were similar to the original findings. The FPIS total score and Age were not significantly correlated in the male group $r(46)=.006$, $p=.970$, or the female group $r(44)=-.110$, $p=.474$.

CHAPTER 5

DISCUSSION

SDM Preferences

The purpose of this study was to examine the role of age in SDM preferences and opportunities. Hypothesis one of this study was that individual differences in preference for SDM would be explained by a person's health anxiety level, information monitoring behaviors, confidence to participate, and health literacy; differences in preference would not be explained by age. As predicted in hypothesis one, age did not predict preferences for SDM. However, because preferences were also unrelated to any of the other predictor variables, this result should be interpreted with caution. Still, it appears that although healthcare can be more difficult for older patients, it is not true that this leads them to prefer directive care. This point is magnified by looking at the group of older adults aged 50+. Within this age group, older adults appear to prefer SDM more as they age.

Unlike past studies, this study found the predictor variables health literacy, self-efficacy of health literacy, health anxiety, and health information seeking were not associated with SDM preferences. There are a variety of possible reasons these factors were not found to be related to preferences. It may not be necessary for patients to understand all aspects of their health care in order to prefer to be engaged in SDM. Though individuals with lower self-efficacy report feeling unprepared and confused about medical procedures (Donovan-Kicken, Mackert, Tollison, Breckinridge, & Pont, 2012), they may not wish to relinquish their role in making their health care decisions. This could explain why health literacy and self-efficacy of health literacy are not related to preferences in this study. Additionally, health anxiety may be unrelated to preferences as it can cause a variety of reactions in

patients. Some highly anxious patients may choose coping techniques such as avoidance of health decision making, while other highly anxious patients may heavily monitor their healthcare. Finally, health information seeking behaviors may vary based on locus of control, anxiety, past experiences, or individual beliefs about who is in charge of the individual's healthcare. Thus, information-seeking behaviors are clearly not the best predictors of preferences. Preferences may still vary based on a variety of demographic and personal factors that have yet to be explored.

The sample used in this study was more varied, and therefore more representative of current patient populations. Past studies analyzing older adults SDM preferences have utilized non-representative samples. Most of these studies have only included older patients, having no comparison group of younger patients (Arora & McHorney, 2017; Dardas, Stockburger, Boone, An, & Calfee, 2016; Holland et al, 2016; Moorman, 2011). One study that did utilize a younger comparison group had a disproportionate number of females (i.e. 70%; Xie, Wang, Feldman, Zhou, 2012). This study's sample may have been biased toward preferring SDM as women tend to prefer SDM (Cullati, Courvoisier, Charvet-Berard, & Perneger, 2010; Levinson, Kao, Kuby, & Thisted, 2005; Holland et al, 2016). Additionally, samples used in previous studies included 80-100% white participants (Arora & McHorney, 2017; Dardas, Stockburger, Boone, An, & Calfee, 2016; Moorman, 2011; O'Neal et al, 2008; Smith, Pandit, Rush, Wolf & Simon, 2016). This leaves out information on the entire cultural aspect associated with SDM. Finally, many studies have been conducted with 83.4-100% of patients who were considered healthy or rated their own health as good to excellent (Cullati, Courvoisier, Charvet-Bérard, & Perneger 2010; Levinson, Kao, Kuby, & Thisted, 2005;

Moorman, 2011). This leads to limited results that may not extend to other patients. Past studies' results are contingent upon these limited samples.

Though this current study's sample was not perfect, it was more representative than previous studies of aging and SDM. Different kinds of patients will have different past healthcare experiences, and these experiences will impact their preferences for SDM (Ladin et al, 2013). The sample used in this study was 64% white patients, and 36% minority patients. The female to male ratio was nearly equal, and it utilized a younger comparison group. Additionally, there were a variety of health presentations in this study; health concerns ranged from having a cold to removing cancerous tumors. This representative sample allowed for a realistic look at SDM processes with patient populations and is therefore a more general assessment of SDM preferences.

Analysis of possible demographic differences revealed younger patients' preferences, regardless of their minority or majority status, were not predicted by health anxiety, health literacy, self-efficacy of health literacy, education, information seeking behaviors, or age. However, analyses revealed that within patients older than 50 age is positively related to preference; this means older patients are more likely to prefer SDM. This finding matches other studies that have only assessed older patient SDM preferences (Dardas, Stockburger, Boone, An, & Calfee, 2016; Holland et al, 2016; Moorman, 2011). Though minority analyses showed no significant differences, an analysis of age and minority status revealed an interaction. Similar to the age analysis, older majority member patients were more likely to prefer SDM as they aged. Dissimilarly, older minority patients' preferences for SDM are not related to their age, and were instead related to health literacy.

Opportunities for SDM Engagement

Hypothesis two of this study was that perceived opportunities to participate in SDM would be negatively related to age. Though current literature suggests physicians may be offering older patients the opportunity to engage in SDM irregularly, the hypothesis that older patients overall perceive less opportunity to engage in SDM was not supported. However, our analysis of participants at the intersection of age 50+ and minority membership revealed a perception of less SDM engagement opportunity. This group of participants may have perceived less engagement from physicians for a variety of reasons. There may be an intersection of provider biases (i.e. ageism and racism) that led doctors to assume that older non-white individuals would prefer more directive care, and so they engaged older minorities less than their white counterparts. Alternatively, cultural factors may have produced different expectations for SDM among older minority patients. This means SDM engagement may need to look different for this patient population. These possibilities will need to be explored more fully in future research.

Conclusion

The overarching goal of this study was to assess equality in SDM processes with older and younger patients and to point out any inequalities. Previous studies conducted on SDM preferences in older adults have had mixed findings that are likely due to limited samples. While it is true healthcare can be more difficult for older patients it is untrue that this leads them to prefer directive care. In fact, the assumption that older patients desire purely directive care is inconsistent with patient-centered models of care. This suggests that factors that influence preferences should be assessed to get a clearer understanding of how SDM can be used correctly for each patient.

Additionally, we found that within minority patients as individuals age they perceive less SDM opportunities. Even though findings suggest older adults may prefer SDM, these inequalities in the way healthcare is delivered may still create barriers for this patient population. This suggests that actual opportunities should be assessed to get a clearer understanding of patient treatment and to uncover potential inequalities of treatment.

Limitations

This study had many strengths, but also a few limitations. First, the sample was a convenience sample. Second, patients were recruited from two clinics, and clinic demographic differences exist. The Urology clinic had more whites, older patients, and males, and the Family Medicine clinic had more minorities, females, and younger patients. However, it is important to note that no other variables or measures differed by clinic. In addition, the exploratory analyses with Minority status, age and Minority status by age were conducted with small samples.

There were also limitations with the selected measures. First, the measures were not all validated for diverse populations, they were chosen due to a lack of diverse measures. The API did not list participant races for validation studies. Additionally, the FPIS was normed on a predominately white, predominately female sample. Therefore, there is a risk they may incorrectly assess cultural and racial differences in the patient population. Second, the SEHL was not sensitive enough to gauge self-efficacy of health literacy in this patient population and therefore the measure had ceiling effects. Third, self-reported data is often open to errors and may be influenced by a variety of factors. The desirability factor may explain why scores on the SEHL were clustered around the ceiling, as it is possible patients' desire to appear skilled may have interfered with answering truthfully. Finally, participants were asked what

the reason for their medical appointment was in order to assess and compare severity of their health concerns. To allow for personal responses this question was answered with a text response. Unfortunately, responses to this question were too vague and could not be used.

Future Studies

Future studies in this area can focus on additional individual characteristics that may predict, or contribute to, SDM preferences. In particular, race/ethnicity variables and their interaction with age appear to be a fruitful avenue for further investigation. These studies should also examine the influence preferences for SDM may have on an individual's perception of SDM occurrences. It may be true that the more a person prefers SDM the more they perceive being engaged. On the other hand, the less they prefer SDM the easier it is for their SDM needs to be met and for them to perceive SDM occurred.

Among all patients there are clearly a myriad of different preferences for healthcare and parsing out the cause of these differences will allow for greater tailoring to patients' specific needs and better collaborations between doctors and their patients. Finally, because actual occurrences of SDM may vary based on the age of the patient, future studies should analyze actual occurrences- especially in older minority patients- of SDM. Assessing actual occurrences, as opposed to perceived occurrences, will produce a more detailed picture of SDM opportunities in the medical setting.

APPENDIX

SDM Demographics

1. What is your age: _____

2. What is your race (Circle all that apply):
White Black or African American American Indian or Alaska
Native Asian
Native Hawaiian or Pacific Islander Other

3. What is your sex (Circle One): Male or Female

4. What is your marital status (Circle one):
Married Never Married Widow Divorced Separate

5. How many years of formal education do you have (Circle one):
 Less than 9 9-12 13-14 15-16 17+

6. What is your current employment status (Circle one):
Part-time Full-time Unemployed Retired Disabled Student

7. When was your most recent medical appointment? _____
8. What was your doctor's name? _____
9. What was the reason for your medical visit? _____
10. What changes to your treatments/new treatments were created at your most recent appointment? _____

The Autonomy Preference Index

	Strongly agree	Somewhat agree	Neither agree nor disagree	Somewhat disagree	Strongly disagree
The important medical decisions should be made by your doctor, not by you.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You should go along with your doctor's advice even if you disagree with it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When hospitalized you should not be making decisions about your own care.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You should feel free to make decisions about everyday medical problems.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
If you were sick, as your illness became worse you would want your doctor to take greater control.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You should decide how frequently you need a checkup.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Suppose you developed a sore throat, stuffy nose, and cough that lasted for three days. You are about to call your doctor on the telephone. Who should make the following decisions?

	You alone	Mostly you	The doctor and you equally	Mostly the doctor	The doctor alone
Whether you should be seen by the doctor	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whether a chest x-ray should be taken.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whether you should try taking cough syrup.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Suppose you went to your doctor for a routine physical examination and he or she found that everything was alright except that your blood pressure was high (170/100). Who should make the following decisions?

	You alone	Mostly you	The doctor and you equally	Mostly the doctor	The doctor alone
When the next visit to check your blood pressure should be.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whether you should take some time off work to relax.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whether you should be treated with medication or diet.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Suppose you had an attack of severe chest pain that lasted for almost an hour, frightening you enough so that you went to the emergency room. In the emergency room the doctors discover that you are having a heart attack. Your own doctor is called and you are taken up to the intensive care unit. Who should make the following decisions?

	You alone	Mostly you	The doctor and you equally	Mostly the doctor	The doctor alone
How often the nurses should wake you up to check your temperature and blood pressure.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whether you may have visitors aside from your immediate family.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Whether a cardiologist should be consulted.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Select how much you agree or disagree with the following statements.

	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree
As you become sicker you should be told more and more about your illness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You should understand completely what is happening inside your body as a result of your illness.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Even if the news is bad, you should be well informed.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your doctor should explain the purpose of your laboratory tests.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
You should be given information only when you ask for it.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
It is important for you to know all of the side effects of your medication.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information about your illness is as important to you as treatment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When there is more than one method to treat a problem, you should be told about each one.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Facilitation of Patient Involvement Scale

	None of the time	A little of the time	Some of the time	A good bit of the time	Most of the time	All of the time
My doctor gives me all of the information that I need to make the decisions that are right for me.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My doctor ignores my opinion about treatment options.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
When prescribing a new medication my doctor asks if I have any questions about the medication(s) and possible side effects.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My doctor discourages my questions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My doctor explains all the treatment options to me so that I can make an informed choice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My doctor strongly encourages me to express all of my concerns about the prescribed treatment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My doctor discourages me from expressing my personal opinion about my medical treatment.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My doctor's office staff makes it hard for me to be involved in my own medical care.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
My doctor makes it difficult for me to communicate my concerns about treatment decisions.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Miller Behavioral Style Scale

1. Vividly imagine that you are afraid of the dentist and have to get some dental work done. Which of the following would you do? Check all of the statements that might apply to you.

- I would ask the dentist exactly what work was going to be done.
- I would take a tranquilizer or have a drink before going.
- I would try to think about pleasant memories.
- I would want the dentist to tell me when I would feel pain.
- I would try to sleep.
- I would watch all the dentist's movements and listen for the sound of the drill.
- I would watch the flow of water from my mouth to see if it contained blood.
- I would do mental puzzles in my mind.

2. Vividly imagine that you are being held hostage by a group of armed terrorists in a public building. Which of the following would you do? Check all of the statements that might apply to you.

- I would sit by myself and have as many daydreams and fantasies as I could.
- I would stay alert and try to keep myself from falling asleep.
- I would exchange life stories with the other hostages.
- If there was a radio present, I would stay near it and listen to the bulletins about what the police were doing.
- I would watch every movement of my captors and keep an eye on their weapons.
- I would try to sleep as much as possible.
- I would think about how nice it's going to be when I get home.
- I would make sure I knew where every possible exit was.

3. Vividly imagine that, due to a large drop in sales, it is rumored that several people in your department at work will be laid off. Your supervisor has turned in an evaluation of your work for the past year. The decision about layoffs has been made and will be announced in several days. Check all of the statements that might apply to you.

- I would talk to my fellow workers to see if they knew anything about what the supervisor evaluation of me said.
- I would review the list of duties for my present job and try to figure out if I had fulfilled them all.
- I would go to the movies to take my mind off things.
- I would try to remember any arguments or disagreements I might have had that would have resulted in the supervisor having a lower opinion of me.
- I would push all thoughts of being laid off out of my mind.
- I would tell my spouse that I'd rather not discuss my chances of being laid off.
- I would try to think which employees in my department the supervisor might have thought had done the worst job.
- I would continue doing my work as if nothing special was happening.

4. Vividly imagine that you are on an airplane, thirty minutes from your destination, when the plane unexpectedly goes into a deep dive and then suddenly levels off. After a short time, the pilot announces that nothing is wrong, although the rest of the ride may be rough. You, however, are not convinced that all is well. Check all of the statements that might apply to you.

- I would carefully read the information provided about safety features in the plane and make sure I knew where the emergency exits were.
- I would make small talk with the passenger beside me.
- I would watch the end of the movie, even if I had seen it before.
- I would call for the flight attendant and ask what exactly the problem was.
- I would order a drink from the flight attendant or take a tranquilizer.
- I would listen carefully to the engines for unusual noises and would watch the crew to see if their behavior was out of the ordinary.
- I would talk to the passenger beside me about what might be wrong.
- I would settle down and read a book or magazine or write a letter.

Health Anxiety Questionnaire

Below is a list of questions about health anxiety. Please carefully read each item on the list. Indicate how often you have been bothered in this way *during the past week, including today* (or other agreed time period), by placing an *x* in the appropriate space in the columns to the right of each question.

	<i>not at all or rarely</i>	<i>Some- times</i>	<i>often</i>	<i>most of the time</i>
Do you ever worry about your health?				
Are you ever worried that you may get a serious illness in the future?				
Does the thought of a serious illness ever scare you?				
When you notice an unpleasant feeling in your body, do you tend to find it difficult to think of anything else?				
Do you ever examine your body to find whether there is something wrong?				
If you have an ache or pain do you worry that it may be caused by a serious illness?				
Do you ever find it difficult to keep worries about your health out of your mind?				
When you notice an unpleasant feeling in your body, do you ever worry about it?				
When you wake up in the morning do you find you very soon begin to worry about your health?				
When you hear of a serious illness or death of someone you know, does it ever make you more concerned about your own health?				
When you read or hear about an illness on tv or radio does it ever make you think you may be suffering from that illness?				
When you experience unpleasant feelings in your body do you tend to ask friends or family about them?				
Do you tend to read up about illness and diseases to see if you may be suffering from one?				
Do you ever feel afraid of news that reminds you of death (such as funerals, obituary notices)?				
Do you ever feel afraid that you may die soon?				
Do you ever feel afraid that you may have cancer?				
Do you ever feel afraid that you might have heart disease?				
Do you ever feel afraid that you may have any other serious illness? Which illness?				
Have your bodily symptoms stopped you from working during the past six months or so?				
Do your bodily symptoms stop you from concentrating on what you are doing?				
Do your bodily symptoms stop you from enjoying yourself?				

Self-Efficacy of Health Literacy

Rate your degree of confidence by recording a number from 0 to 10

1. **How confident are you that you can understand:** Medical forms?
2. **How confident are you that you can understand:** Medication labels?
3. **How confident are you that you can understand:** Directions on medication bottles?
4. **How confident are you that you can understand:** Health educational materials?
5. **How confident are you that you can understand:** Clinic or hospital directional signs?
6. **How confident are you that you can understand:** Information on medication side effects?
7. **How confident are you that you can understand:** Printed information from your health care provider?
8. **How confident are you that you can understand:** Information about medical conditions?
9. **How confident are you that you can understand:** Medical instructions from health care providers?
10. **How confident are you that you can understand:** Your health risks?
11. **How confident are you that you can understand:** What behaviors can reduce your risk of illness?
12. **How confident are you that you can understand:** Information regarding your health risks?
13. **How confident are you that you can understand:** Educational materials given to you by a health care provider?
14. **How confident are you that you can understand:** Why a health care provider may refer you to another health care provider?
15. **How confident are you that you can understand:** What health care providers are asking you?
16. **How confident are you that you can understand:** Lifestyle change recommendations from a health care provider?
17. **How confident are you that you can understand:** Health statistics?
18. **How confident are you that you can understand:** Statistics regarding your chance of developing an illness?
19. **How confident are you that you can understand:** Information regarding health insurance?
20. **How confident are you that you can understand:** The process of health insurance in paying for medical expenses?
21. **How confident are you that you can understand:** The probability that you may be at risk for a health condition?
22. **How confident are you that you can:** Take medication correctly?
23. **How confident are you that you can:** Fill out medical forms by yourself?
24. **How confident are you that you can:** Follow instructions provided on the medication bottle?
25. **How confident are you that you can:** Look up health information online?
26. **How confident are you that you can:** Ask your health care providers questions about my health?
27. **How confident are you that you can:** Describe health symptoms to your health care providers?
28. **How confident are you that you can:** Make an informed medical decision?
29. **How confident are you that you can:** Understand health information presented in a graph?
30. **How confident are you that you can:** Understand information on health risks presented in a graph?
31. **How confident are you that you can:** Ask for a medication refill?
32. **How confident are you that you can:** Look for information regarding your health risks?
33. **How confident are you that you can:** Look for information regarding a health diagnosis?

General Self-Efficacy Scale

	Not at all true	Hardly true	Moderately true	Exactly true
1. I can always manage to solve difficult problems if I try hard enough	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. If someone opposes me, I can find the means and ways to get what I want.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. It is easy for me to stick to my aims and accomplish my goals.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. I am confident that I could deal efficiently with unexpected events.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. Thanks to my resourcefulness, I know how to handle unforeseen situations.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. I can solve most problems if I invest the necessary effort.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. I can remain calm when facing difficulties because I can rely on my coping abilities.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. When I am confronted with a problem, I can usually find several solutions.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. If I am in trouble, I can usually think of a solution	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. I can usually handle whatever comes my way.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Newest Vital Sign

Nutrition Facts			
Serving Size		½ cup	
Servings per container		4	
Amount per serving			
Calories	250	Fat Cal	120
			%DV
Total Fat	13g	20%	
Sat Fat	9g	40%	
Cholesterol	28mg	12%	
Sodium	55mg	2%	
Total Carbohydrate	30g	12%	
Dietary Fiber	2g		
Sugars	23g		
Protein	4g	8%	

*Percentage Daily Values (DV) are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs.

Ingredients: Cream, Skim Milk, Liquid Sugar, Water, Egg Yolks, Brown Sugar, Milkfat, Peanut Oil, Sugar, Butter, Salt, Carrageenan, Vanilla Extract.

1. If you eat the entire container, how many calories will you eat? – A: 1,000
 2. If you are allowed to eat 60 grams of carbohydrates as a snack, how much ice cream could you have? A: 1 cup or Half the container
 3. Your doctor advises you to reduce the amount of saturated fat in your diet. You usually have 42 g of saturated fat each day, which includes one serving of ice cream. If you stop eating ice cream, how many grams of saturated fat would you be consuming each day? A: 33
 4. If you usually eat 2,500 calories a day, what percentage of your daily value of calories will you be eating if you eat one serving? A: 10%
- Pretend you are allergic to the following substances: penicillin, peanuts, latex gloves, and bee stings.
5. Is it safe for you to eat this ice-cream? A: No
 6. (Asked only if the patient answers 5 correctly) Why not? A: Because it has peanut oil.

References

- Adam, M. A., McDonald, S., Heflin, M., & Lagoo-Deenadayalan, S. (2016). Incorporating shared decision making into perioperative care of older adults. *Springer Science*, 4(29). DOI 10.1007/s40137-016-0148-z
- Ananian, P., Houvenaeghel, G., Protière, C., Rouanet, P., Arnaud, S., Moatti, J. P., . . . Julian-Reynier, C. (2004). Determinants of patients' choice of reconstruction with mastectomy for primary breast cancer. *Annals of Surgical Oncology*, 11(8), 762-771. doi:10.1245/ASO.2004.11.027
- Arora, N. K., & McHorney, C. A. (2017). Patient preferences for medical decision making: Who really wants to participate? *Medical Care*, 38(3), 335-341. doi:10.1097/00005650-200003000-00010
- Bandura, A. (1977). Self-efficacy: Toward a unifying theory of behavioral change. *Psychological Review*, 84, 191–215.
- Benbassat, J., Pilpel, D., & Tidhar M. (1998). Patients' preferences for participation in clinical decision making: a review of published surveys. *Behavioral Medicine*, 24: 81–88.
- Braman, A. C., & Gomez, R. G. (2004). Patient personality predicts preference for relationships with doctors. *Personality and Individual Differences*, 37(4), 815-826. doi:10.1016/j.paid.2003.10.009
- Breslau, E. S., Sheinfeld Gorin, S., Edwards, H. M., Schonberg, M. A., Salontz, N. S., & Walter, L. C. (2016). An individualized approach to cancer screening decisions in older adults: A multilevel framework. *Journal of General Internal Medicine*, 31(5), 539-547. doi:10.1007/s11606-016-3629-y

- Brody, D. S., Miller, S. M., Lerman, C. E., Smith, D. G., & Caputo, G. C. (1989). Patient perception of involvement in medical care: Relationship to illness attitudes and outcomes. *Journal of General Internal Medicine*, 4(6), 506.
- Burton, D., Blundell, N., Jones, M., Fraser, A., & Elwyn, G. (2010). Shared decision-making in cardiology: Do patients want it and do doctors provide it? *Patient Education and Counseling*, 80(2), 173-179. doi:10.1016/j.pec.2009.10.013
- Cavanaugh, J. C. (2000). Metamemory from a social-cognitive perspective. In D. C. Park & N. Schwarz (Eds.), *Cognitive aging: A primer* (pp. 115–130). Philadelphia, PA: Psychology Press.
- Chambers, C. V., Markson, L., Diamond, J. J., Lasch, L., & Berger, M. (1999). Health beliefs and compliance with inhaled corticosteroids by asthmatic patients in primary care practices. *Respiratory Medicine*, 93(2), 88-94. doi:10.1016/S0954-6111(99)90296-2
- Clever, S. L., Ford, D. E., Rubenstein, L. V., Rost, K. M., Meredith, L. S., Sherbourne, C. D., . . . Cooper, L. A. (2006). Primary care patients' involvement in decision-making is associated with improvement in depression. *Medical Care*, 44(5), 398-405. doi:10.1097/01.mlr.0000208117.15531.da
- Cullati, S., Courvoisier, D. S., Charvet-Bérard, A. I., & Perneger, T. V. (2010). Desire for autonomy in health care decisions: A general population survey. *Patient Education and Counseling*, 83(1), 134-138. doi:10.1016/j.pec.2010.04.025
- Cullison, K., Carpenter, C. R., Milne, W. K., & Choo, E. K. (2016). Hot off the press: Use of shared Decision-making for management of acute musculoskeletal pain in older adults discharged from the emergency department. *Academic Emergency Medicine*, 23(8), 956-958. doi:10.1111/acem.12985

- Dardas, A. Z., Stockburger, C., Boone, S., An, T., & Calfee, R. P. (2016). Preferences for shared decision-making in older adult patients with orthopedic hand conditions. *Journal of Hand Surgery, 41*(10), 978-987. doi:10.1016/j.jhsa.2016.07.096
- Deinzer, A., Veelken, R., Kohnen, R., & Schmieder, R. E. (2009). Is a shared decision-making approach effective in improving hypertension management? *Journal of Clinical Hypertension, 11*(5), 266-270. doi:10.1111/j.1751-7176.2009.00112.x
- Dodds, C. M., Britto, M. T., Denson, L. A., Lovell, D. J., Saeed, S., & Lipstein, E. A. (2016). Physicians' perceptions of shared decision making in chronic disease and its barriers and facilitators. *The Journal of Pediatrics, 171*, 307-309.e1-e2. doi:10.1016/j.jpeds.2015.12.071
- Donovan-Kicken, E., Mackert, M., Guinn, T. D., Tollison, A. C., Breckinridge, B., & Pont, S. J. (2012). Health literacy, self-efficacy, and patients' assessment of medical disclosure and consent documentation. *Health Communication, 27*(6), 581-590. 10.1080/10410236.2011.618434
- Ende, J., Kazis, L., Ash, A., & Moskowitz, M. A. (1989). Measuring patients' desire for autonomy: Decision making and information-seeking preferences among medical patients. *Journal of General Internal Medicine, 4*(1), 23.
- Elston Lafata, J., Brown, R. F., Pignone, M. P., Ratliff, S., & Shay, L. A. (2017). Primary care physicians' support of shared decision making for different cancer screening decisions. *Medical Decision Making, 37*(1), 70-78. doi:10.1177/0272989X16660547
- Frantsve, L. M. E., & Kerns, R. D. (2007). Patient–Provider interactions in the management of chronic pain: Current findings within the context of shared medical decision making. *Pain Medicine, 8*(1), 25-35. doi:10.1111/j.1526-4637.2007.00250.x

- Gattellari, M., Butow, P. N., & Tattersall, M. H. N. (2001). Sharing decisions in cancer care. *Social Science & Medicine*, 52(12), 1865-1878. doi:10.1016/S0277-9536(00)00303-8
- Galesic, M., & Garcia-Retamero, R. (2011). Do low-numeracy people avoid shared decision making? *Health Psychology*, 30(3), 336-341. doi:10.1037/a0022723
- Goggins, K. M., Wallston, K. A., Nwosu, S., Schildcrout, J. S., Castel, L., Kripalani, S., . . . Vanderbilt Inpatient Cohort Study (VICS). (2014). Health literacy, numeracy, and other characteristics associated with hospitalized patients' preferences for involvement in decision making. *Journal of Health Communication*, 19(sup2), 29-43. doi:10.1080/10810730.2014.938841
- Hamann, J., Mendel, R., Bühner, M., Kissling, W., Cohen, R., Knipfer, E., & Eckstein, H. (2012). How should patients behave to facilitate shared decision making – the doctors' view. *Health Expectations*, 15(4), 360-366. doi:10.1111/j.1369-7625.2011.00682.x
- Heisler, M., Vijan, S., Anderson, R. M., Ubel, P. A., Bernstein, S. J., & Hofer, T. P. (2003). When do patients and their physicians agree on diabetes treatment goals and strategies, and what difference does it make? *Journal of General Internal Medicine*, 18(11), 893-902. doi:10.1046/j.1525-1497.2003.21132.x
- Hess, T. M., Emery, L., & Queen, T. L. (2009). Task demands moderate stereotype threat effect on memory performance. *Journals of Gerontology*, 64B, 482-486. doi:10.1093/geronb/gbp044
- Hogan, T. M., Richmond, N. L., Carpenter, C. R., Biese, K., Hwang, U., Shah, M. N., . . . Jang, T. B. (2016). Shared decision making to improve the emergency care of older

- adults: A research agenda. *Academic Emergency Medicine*, 23(12), 1386-1393.
doi:10.1111/acem.13074
- Holland, W. C., Hunold, K. M., Mangipudi, S. A., Rittenberg, A. M., Yosipovitch, N., Platts-Mills, T. F., & Shah, M. (2016). A prospective evaluation of shared Decision-making regarding analgesics selection for older emergency department patients with acute musculoskeletal pain. *Academic Emergency Medicine*, 23(3), 306-314.
doi:10.1111/acem.12888
- Hoving, C., Visser, A., Mullen, P. D., & Van Den Borne, B. (2010). A history of patient education by health professionals in Europe and North America: From authority to shared decision making education. *Patient Education and Counseling*, 78(3), 275-281. doi:10.1016/j.pec.2010.01.015
- Isaacs, C. G., Kistler, C., Hunold, K. M., Pereira, G. F., Buchbinder, M., Weaver, M. A., . . . Platts-Mills, T. F. (2013). Shared Decision-Making in the selection of outpatient analgesics for older individuals in the emergency department. *Journal of the American Geriatrics Society*, 61(5), 793-798. doi:10.1111/jgs.12207
- Janssen, C., Ommen, O., Pfaff, H., Lefering, R., & Neugebauer, E. (2009). Pre-traumatic, trauma- and treatment-related determinants of self-rated health after a severe trauma. *Langenbeck's Archives of Surgery*, 394(3), 539-546. doi:10.1007/s00423-008-0458-4
- Johnson, M. O., Sevelius, J. M., Dilworth, S. E., Saberi, P., & Neilands, T. B. (2012). Preliminary support for the construct of health care empowerment in the context of treatment for human immunodeficiency virus. *Patient Preference and Adherence*, 6, 395-404. doi:10.2147/PPA.S30040

- Krakauer, E. L., Crenner, C., & Fox, K. (2002). Barriers to optimum end-of-life care for minority patients. *Journal of the American Geriatrics Society*, 50(1).
- Kwak, J., & Haley, W. (2005). Current research findings on end-of-life decision making among racially or ethnically diverse groups. *The Gerontologist*, 45(5): 634-641.
- Ladin, K., Lin, N., Hahn, E., Zhang, G., Koch-Weser, S., & Weiner, D. E. (2017). Engagement in decision-making and patient satisfaction: A qualitative study of older patients' perceptions of dialysis initiation and modality decisions. *Nephrology Dialysis Transplant*, 32, 1394-1401. doi:10.1093/ndt/gfw307
- Légaré, F., Tremblay, S., O'Connor, A. M., Graham, I. D., Wells, G. A., & Jacobsen, M. J. (2003). Factors associated with the difference in score between women's and doctors' decisional conflict about hormone therapy: A multilevel regression analysis. *Health Expectations*, 6(3), 208-221. doi:10.1046/j.1369-6513.2003.00234.x
- Lerman, C. E., Brody, D. S., Caputo, G. C., Smith, D. G., Lazaro, C. G., & Wolfson, H. G. (1990). Patients' perceived involvement in care scale: Relationship to attitudes about illness and medical care. *Journal of General Internal Medicine*, 5(1), 29.
- Levinson, W., Kao, A., Kuby, A., & Thisted, R. A. (2005). Not all patients want to participate in decision making: A national study of public preferences. *Journal of General Internal Medicine*, 20(6), 531-535. doi:10.1111/j.1525-1497.2005.04101.x
- Loh, A., Leonhart, R., Wills, C. E., Simon, D., & Härter, M. (2007). The impact of patient participation on adherence and clinical outcome in primary care of depression. *Patient Education and Counseling*, 65(1), 69-78. doi:10.1016/j.pec.2006.05.007
- Lucock, M. P., & Morley, S. (1996). The health anxiety questionnaire. *British Journal of Health Psychology*, 1, 137-150.

- Mahone, I. H. (2008). Shared decision making and serious mental illness. *Archives of Psychiatric Nursing*, 22(6), 334-343. doi:10.1016/j.apnu.2007.11.002
- Martin, L. R., Robin Di Matteo, M., & Lepper, H. S. (2001). Facilitation of patient involvement in care: Development and validation of a scale. *Behavioral Medicine*, 27(3), 111-120. doi:10.1080/08964280109595777
- Miller, S. M. (1987). Monitoring and blunting: Validation of a questionnaire to assess styles of information seeking under threat. *Journal of Personality and Social Psychology*, 52(2), 345-353. doi:10.1037//0022-3514.52.2.345
- Moorman, S. M. (2011). Older adults' preferences for independent or delegated end-of-life medical decision making. *Journal of Aging and Health*, 23(1), 135-157. doi:10.1177/0898264310385114
- Naik, A. D., Street, J., Richard L, Castillo, D., & Abraham, N. S. (2011). Health literacy and decision making styles for complex antithrombotic therapy among older multimorbid adults. *Patient Education and Counseling*, 85(3), 499-504. doi:10.1016/j.pec.2010.12.015
- Naylor, M. D., Hirschman, K. B., O'Connor, M., Barg, R., & Pauly, M. V. (2013). Engaging older adults in their transitional care: What more needs to be done? *Journal of Comparative Effectiveness Research*, 2(5), 457.
- Ommen, O., Thuem, S., Pfaff, H., & Janssen, C. (2011). The relationship between social support, shared decision-making and patient's trust in doctors: A cross-sectional survey of 2,197 inpatients using the cologne patient questionnaire. *International Journal of Public Health*, 56(3), 319. doi:10.1007/s00038-010-0212-x

- O'Neal, E. L., Adams, J. R., McHugo, G. J., Van Citters, A. D., Drake, R. E., & Bartels, S. J. (2008). Preferences of older and younger adults with serious mental illness for involvement in decision-making in medical and psychiatric settings. *The American Journal of Geriatric Psychiatry : Official Journal of the American Association for Geriatric Psychiatry*, 16(10), 826.
- Pfizer Incorporated. (2011). *The Newest Vital Sign*. Retrieved from www.pfizerhealthliteracy.com
- Platts-Mills, T. F., Esserman, D. A., Brown, D. L., Bortsov, A. V., Sloane, P. D., & McLean, S. A. (2012). Older US emergency department patients are less likely to receive pain medication than younger patients: Results from a national survey. *Annals of Emergency Medicine*, 60(2), 199-206. doi:10.1016/j.annemergmed.2011.09.014
- Politi, M. C., Dizon, D. S., Frosch, D. L., Kuzemchak, M. D., & Stiggelbout, A. M. (2013). Importance of clarifying patients' desired role in shared decision making. *BMJ: British Medical Journal*, 347(7936), 18-19.
- Robinson, C., & Schumacker, R. E. (2009). Interaction effects: centering, variance inflation factor, and interpretation issues. *Multiple Linear Regression Viewpoints*, 35(1), 6-11.
- Sak, G., Rothenfluh, F., & Schulz, P. J. (2017). Assessing the predictive power of psychological empowerment and health literacy for older patients' participation in health care: A cross-sectional population-based study. *BMC Geriatrics*, 17(1) doi:10.1186/s12877-017-0448-x
- Schneider, A., Körner, T., Mehring, M., Wensing, M., Elwyn, G., & Szecsenyi, J. (2006). Impact of age, health locus of control and psychological co-morbidity on patients'

- preferences for shared decision making in general practice. *Patient Education and Counseling*, 61(2), 292-298. doi:10.1016/j.pec.2005.04.008
- Schwarzer, R., & Jerusalem, M. (1995). Generalized Self-Efficacy scale. *Measures in health psychology: A user's portfolio. Causal and control beliefs* (pp. 35-37). Windsor, UK: NFER-Nelson.
- Seo, J., Goodman, M. S., Politi, M., Blanchard, M., & Kaphingst, K. A. (2016). Effect of health literacy on decision-making preferences among medically underserved patients. *Medical Decision Making*, 36(4), 550-556. doi:10.1177/0272989X16632197
- Shay, L. A., & Lafata, J. E. (2015). *Where is the evidence? A systematic review of shared decision making and patient outcomes*. Los Angeles, CA: SAGE Publications. doi:10.1177/0272989X14551638
- Smith, S. G., Pandit, A., Rush, S. R., Wolf, M. S., & Simon, C. J. (2016). The role of patient activation in preferences for shared decision making: Results from a national survey of U.S. adults. *Journal of Health Communication*, 21(1), 67-75. doi:10.1080/10810730.2015.1033115
- Smith, S. K., Simpson, J. M., Trevena, L. J., & McCaffery, K. J. (2014). Factors associated with informed decisions and participation in bowel cancer screening among adults with lower education and literacy. *Medical Decision Making*, 34(6), 756-772. doi:10.1177/0272989X13518976
- Spatz, E. S., & Spertus, J. A. (2012). Shared decision making: A path toward improved patient-centered outcomes. *Circulation. Cardiovascular Quality and Outcomes*, 5(6), e75-e77. doi:10.1161/CIRCOUTCOMES.112.969717

- Steele, C. M. (1997). A threat in the air. How stereotypes shape intellectual identity and performance. *American Psychologist*, 52, 613-629. doi:10.1037/0003-066X.52.6.613
- Tabachnick, B.G. & Fidell, L.S. (2012). *Using multivariate statistics*, 6th Ed. New York: Pearson.
- Thapar, A. K., & Roland, M. O. (2005). General practitioner attitudes to the care of people with epilepsy: An examination of clustering within practices and prediction of patient-rated quality of care. *BMC Family Practice*, 6(1), 9-9. doi:10.1186/1471-2296-6-9
- Tiznado, D., & Clark, J. (2014). *The Self-Efficacy of Health Literacy Scale*. University of Missouri-Kansas City, Kansas City, MO.
- Thüm, S., Janssen, C., Pfaff, H., Lefering, R., Neugebauer, E. A., & Ommen, O. (2012). The association between psychosocial care by physicians and patients' trust: A retrospective analysis of severely injured patients in surgical intensive care units. *Psycho-Social Medicine*, 9, Doc04.
- Xie, B., Wang, M., Feldman, R., & Zhou, L. (2014). Exploring older and younger adults' preferences for health information and participation in decision making using the health information wants questionnaire (HIWQ). *Health Expectations*, 17(6), 795-808. doi:10.1111/j.1369-7625.2012.00804.x
- Yin, H. S., Dreyer, B. P., Vivar, K. L., MacFarland, S., van Schaick, L., & Mendelsohn, A. L. (2012). Perceived barriers to care and attitudes towards shared decision-making among low socioeconomic status parents: Role of health literacy. *Academic Pediatrics*, 12(2), 117-124. doi:10.1016/j.acap.2012.01.001

VITA

Jessica Lyn Hildreth was born on February 8, 1994, in Saint Louis, Missouri. She was educated in local public schools and graduated from Potosi High School in 2012. She attended the University of Kansas City-Missouri, and graduated from which she graduated magna cum laude, in 2016. Her degree was a Bachelor of Arts in Psychology.

Ms. Hildreth began a bachelor to doctoral program in clinical psychology at the University of Missouri-Kansas City in the Fall of 2017. Upon completion of her degree requirements, Ms. Hildreth plans to continue work towards her PhD. Ms. Hildreth is a member of the American Society on Aging.