Older Adults' Perception of Relational Empathy in their Healthcare Provider and its Relationship to Medication Adherence

by

Beth Manresa

A Capstone Project Submitted to the

Phyllis and Harvey Sandler School of Social Work

College of Social Work and Criminal Justice

In Partial Fulfillment of the Requirements for the Degree of

Doctor of Social Work

Florida Atlantic University

Boca Raton, FL

May 2023

Copyright 2023 by Beth Manresa

Older Adults' Perception of Relational Empathy in their Healthcare Provider and its Relationship to Medication Adherence

by

Beth Manresa

This capstone research study/project was prepared under the direction of the candidate's advisor, Morgan Cooley, Ph.D., Phyllis and Harvey Sandler School of Social Work, and has been approved by the members of her supervisory committee. It was submitted to the faculty of the Phyllis and Harvey Sandler School of Social Work and was accepted in partial fulfillment of the requirements for the degree of Doctor of Social Work.

SUPERVISORY COMMITTEE:

Morgan E Cooley PhD LCSW

Morgan Cooley, Ph.D., LCSW
Capstone Research Project Advisor

Diane Sherman (Jan 18, 2023 13:03 EST)

Diane Sherman, Ph.D.

Alejandro Robles-Torres (Jan 19, 2023 00:39 EST)

Alejandro Robles, MD

Heather Thompson, PhD, LCSW

Heather Thompson, Ph.D.,
Director, Phyllis and Harvey Sandler
School of Social Work

Danielle B Groton
Danielle B Groton (Jan 19, 2023 11:44 EST)

Danielle Groton, Ph.D.
Interim DSW Program Coordinator

January 19, 2023
Date

Acknowledgements

I appreciate the guidance from my committee chair, Dr. Morgan Cooley who listened and provided expertise, guidance, and support while helping me refine my project. I also appreciate the willingness of Dr. Robles to take time out of his busy schedule to be on my committee. Dr. Robles is a role model for empathy in healthcare and understands its importance specifically to older adult populations. A special thank you to Dr. Sherman who was the first in this doctoral program to introduce me to the language of statistics, a language to which I have come to learn and respect.

I also want to thank my friends and family for their endless support and for always believing in me while understanding my sacrifice of time away from them. Also, to my work colleagues and supervisors who always afforded me the time and space needed to complete my academic endeavors with patience, curiosity, and encouragement. Finally, I would like to acknowledge my fellow cohorts Kate and Chelle, who are two of the smartest women I know. We learned and leaned on each other and most importantly, we didn't give up! I am forever grateful for the grit and grace we bestowed on one another while working towards this great academic achievement.

Abstract

Author:	Beth Manresa
Title:	Older Adults' Perception of Relational Empathy in their Healthcare Provider and its Relationship to Medication Adherence
Institution:	Florida Atlantic University
Capstone Advisor:	Morgan Cooley, Ph.D., LCSW
Degree:	Doctor of Social Work
Year:	2023

The purpose of this study was to explore older adults' perception of relational empathy in their healthcare providers and its relationship to medication adherence. In addition, the study examined whether older adults' perception of relational empathy in their healthcare providers was associated with medication adherence, beyond predictive factors including medication beliefs, gender, and level of education. The sample consisted of 72 participants in a community-based program in an adult day center setting in South Florida. Correlation and linear regression analysis were used to test the two research questions. The results indicated that there was no statistically significant relationship between older adults' perception of relational empathy in their healthcare provider and medication adherence (p = .344) and no significant predictor variables of

change in medication adherence, with all *p* values in the regression model greater than .202. Although present study findings were inconclusive in supporting the association between relational empathy and medication adherence, secondary findings or considerations related to the low perception of relational empathy with healthcare providers and moderately low medication adherence provided a context for a thoughtful consideration of the implications of this study. Ideas for designing future research initiatives, specifically initiatives that promote a framework for understanding and practice of empathy during the clinical encounters with older adults are also discussed.

Older Adults' Perception of Relational Empathy in their Healthcare Provider and its Relationship to Medication Adherence

List of Figures

List of Tables

Chapter 1

Problem and Justification

Introduction

Significant portions of the U.S. population are aging. According to the World Health Organization (2020), there are more than 46 million adults aged 65 and older currently living in the United States. Between the years 2020 and 2030, the last of the baby boomer generation will reach age 65, and 20% of Americans will be age 65 years and older. By 2050, the number of older adults in the U.S. is expected to double to almost 90 million. This demographic change is expected to burden the U.S. healthcare system due to the complex healthcare needs of the growing older adult population (Fulmer et al., 2021).

A greater older adult population means increased healthcare demand, and according to the National Council on Aging (2021), it is estimated that 90% of adults over age 65 experience one or more chronic conditions including: diabetes, hypertension, kidney disease, arthritis, neurodegenerative, gastrointestinal, and respiratory disorders. Of the various factors that go into managing chronic illness in older adults, one crucial factor is *medication adherence* (Administration on Aging, 2017). The World Health Organization (2020) defines medication adherence as the degree to which patients' behavior is consistent with their healthcare provider's recommendations. This includes how the patient's lifestyle, values, and beliefs align with the healthcare provider's

medical advice and opinion. A patient is considered adherent if they take 80% of their prescribed medications (American Medical Association, 2015). Medication *compliance* is a term that is sometimes used synonymously with adherence, yet compliance differs in that it is associated with negative characteristics, such as yielding and submission. Furthermore, the term compliance fails to acknowledge medical care as a collaborative process between healthcare providers and patients (Centers for Disease Control and Prevention, 2017).

Prior reports from the Chen and Wen (2012) indicate that approximately 55% of older adults are nonadherent with their prescription drugs, and depending on the specific chronic illness, the current rate of nonadherence varies from 47% to 100% with the highest rates of nonadherence occurring among older adults with hypertension and diabetes (Punnapurath et al., 2021). Thus, medication adherence among older adults is a major public health concern that is directly associated with adverse patient outcomes, medication waste, increased decline, and death in older adults. Additionally, medication nonadherence costs the U.S. approximately $300 billion dollars annually (Centers for Medicare and Medicaid, 2021).

Despite the negative impacts of medication nonadherence, factors associated with medication nonadherence among older adults are not fully understood. Cognitive decline in older adults is commonly considered a culprit of medication nonadherence; however, research shows that more than 80% of older adults do not have significant cognitive deficits (National Bureau of Economic Research, 2020). Thus, most older adults are cognitively capable of understanding medical advice and the importance of adherence to their medications.

Other factors for medication nonadherence among older adults have been broadly examined. For example, some research suggests that gender is a factor that affects medication adherence with women more likely to be adherent to their medications, only if they are satisfied with the communication provided by their healthcare provider (Holt et al. 2013). Other studies suggest that women are less likely than men to be adherent to medications, particularly when prescribed multiple medications (Biffi et al., 2020; Mahamoodi et al., 2019). Additionally, literature also suggests level of education as a factor that may affect medication adherence, indicating that older adults with higher levels of education are more adherent (Jin et al., 2016; Morisky et al., 2008; Rolnick et al., 2013). Literature also identifies personal medication beliefs as a factor influencing medication adherence with several studies suggesting that older adults who believe medications are necessary to maintain their health are more adherent to medications than those with higher levels of concern about medications (Horn & Weinman, 1999; Park et al., 2015; Clyne et al., 2017).

A number of factors may influence medication adherence or nonadherence. Miller et al. (1997) identified and described four factors influencing medication nonadherence among older adults including (a) the complex medication regimen factor, (b) healthcare system factor, (c) socioeconomic factor, and (d) the healthcare provider factor. These same four factors have recently been adopted by The World Health Organization (2020) in an effort to improve the problem of medication adherence among older adults. The healthcare provider factor may be an especially important factor because of the direct engagement and communication of the healthcare provider with the older adult during the clinical encounter. Thus, having strategies that enhance the quality of the patient-provider

interaction may increase medication adherence, and therefore, improve clinical outcomes for older adults.

Most often strategies to increase medication adherence among older adults focus on simplification of medication regimens, increased education, and increased frequency of medication follow-ups (Quin, 2015; Verloo et al., 2017). However, when considering ways to enhance the healthcare provider factor, one strategy to improve the quality of patient–provider interaction may be the healthcare provider's use of empathy during the clinical encounter with older adults. According to Howick et al. (2017), the human and economic costs associated with nonadherence can be avoided by improving the healthcare providers' understanding of how empathy plays a role in patients' understanding of medical advice, including adherence to medication regimens. Additional research suggests that establishing a trusting, empathic relationship focused on person-centered communication can improve health outcomes for older adults (Bayne et al., 2013; Howick et al., 2018; Mercer, 2002).

There is a lack of consensus in healthcare literature regarding the definition of empathy, as it is a broad and multifaceted construct. Sympathy and compassion are similar constructs that are often confounded with empathy. Sympathy is an emotional response ranging from mild discomfort to serious suffering that is elicited by the realization that something bad has happened to another person (Svenaeus, 2014). Compassion also evokes an emotional response when something negative occurs to another person, yet compassion does not necessarily result in helping actions or involve a cognitive understanding of the other's experience. Empathy, however, is a skilled—not emotional—response (Jeffrey, 2016). In contrast to sympathy or compassion, empathy

allows healthcare providers to resonate with their patient's emotions, without being emotionally reactive themselves. Empathy also allows the provider to understand the patient's experience while also preserving and respecting the individual differences between patients (Moudastou, 2020). Thus, empathy (rather than sympathy or compassion) is the appropriate and preferred response for healthcare organizations (Jeffry, 2016).

Furthermore, researchers have identified the importance of empathy in developing and maintaining clinical relationships (Dijke et al., 2019). For example, when patients feel encouraged to talk to empathetic providers in a safe environment, the patient-provider relationship can flourish. Thus, developing an empathic, patient-centered approach is necessary for healthcare providers to help ensure positive outcomes for older adults (Moudatsou et al., 2020). The use of empathy also allows healthcare providers to maintain a positive relationship while perceiving, recognizing, imagining, and responding to patients during the clinical encounter. The relational dimensions of empathy in healthcare have received little attention in empirical studies (Dijke et al., 2019); however, there is emerging literature describing the use of relational empathy as a strategy for use in healthcare during clinical encounters to improve outcomes (Fagiano, 2019), which may include medication adherence.

Relational empathy is defined in the literature as the healthcare provider's ability to (a) understand the patient's experience (e.g., situation, perspective, emotional experience), (b) communicate and check patient understanding, and (c) act on that understanding with the patient in a helpful way (Beltzer, 2019; Fagiano, 2019; Mercer & Reynolds 2002). Fagiano (2019) emphasized the importance using relational empathy as

a conceptual framework in healthcare. According to this framework, medical outcomes are not the only or ideal way to measure effective treatment. Specifically, Fagiano (2019) argued that it is the patient's *perception* of care received from their healthcare provider during the clinical encounter that matters. Thus, healthcare providers that employ relational empathy as a strategy may improve perception of care, and subsequently, improve medication adherence among older adults.

In addition to the importance of patients' perception of care in terms of health outcomes, perception of care from their healthcare providers also has significant financial implications for the healthcare industry. The Center for Medicare and Medicaid Services (2021) requires healthcare institutions to report their patients' perceptions of care received from their healthcare providers via the Consumer Assessment of Providers & Systems (CAHPS) survey. The Center for Medicare and Medicaid Services withholds up to 3% of reimbursement from healthcare organizations if patients' perceptions of care are below standard. Topics on the CAHPS survey include: healthcare provider communication, healthcare provider responsiveness, and medication communication. Interestingly, each of these topics can be related to the relational empathy framework because each topic includes the interpersonal skills of the healthcare provider, communication with healthcare provider, and the patient's understanding and agreement of medical advice (Fagiano, 2019). Therefore, it could benefit healthcare organizations to consider incorporating a relational empathy framework for healthcare providers to enhance perceptions of care as a strategy to improve medication adherence and health outcomes among older adults.

Purpose of the Study

The primary purpose of this study was to examine older adults' perceptions of relational empathy in their healthcare providers and its relationship with medication adherence. In addition, the study examined whether perceptions of empathy predict medication adherence, beyond other explanatory factors that have been identified in the literature—gender, medication beliefs, and level of education. Thus, this study was predicated on the following research questions and aims:

Research Questions

1. Does a relationship exist between older adults' perceptions of relational empathy in their healthcare provider and medication adherence?
2. Do older adults' perceptions of relational empathy predict medication adherence when controlling for medication beliefs, gender, and level of education?

Research Aims

1. To identify a significant relationship between older adults' perception of relational empathy in their healthcare provider and medication adherence.
2. To examine if older adult's perception of relational empathy in their healthcare provider can predict medication adherence outcomes, beyond other explanatory or confounding variables of gender, medication beliefs, and level of education.

Chapter 2

Literature Review

Introduction

Medication adherence among older adults is an ongoing problem and although medication adherence has been well studied, there is relatively little empirical data on factors that promote medication adherence among older adults. Higher levels of education and gender are associated with greater adherence; however, the research findings are mixed (Jin et al., 2016; Morisky et al., 2008; Rolnick et al., 2013). Medication beliefs (necessity of medication and concerns related to taking the medication) appear to have some impact medication adherence (Clyne et al., 2017; Horn & Weinman, 1999; Park et al., 2015). In addition, the patient–provider relationship, specifically the patients' perception of that relationship, has been identified as an important factor (Brown et al., 2016; Mukhtar et al., 2014; Squier, 1990). A positive perception of the patient–provider relationship is dependent upon the healthcare provider's ability to provide empathic care, which involves patient-centered communication and conveying understanding during the clinical encounter (Hermans et al., 2018). Many empirical studies have found improved patient outcomes when healthcare providers provide empathic understanding and communication (Thomas et al., 2018).

Despite the role of empathy in the clinical setting, there has yet to be a consensus in the definition of empathy among clinical or medical researchers. Furthermore, a framework for the implementation of empathy within the patient–provider relationship context is still needed. This is especially true for older adult populations that have been underrepresented in research (Bowling et al., 2109). The emerging theoretical framework of relational empathy offers both a practical definition and application of empathic care during a clinical encounter. Bolstering relational empathy may serve as one strategy for healthcare providers to improve older adults' perception of care, thus improving medication adherence and outcomes (Fagiano, 2019).

The following literature review is organized by the dependent variable (medication adherence) and the independent variable (relational empathy). First, factors associated with medication adherence among older adults are provided including gender, medication beliefs, and level of education. Next, patient perception of care and the use of empathic patient-centered care among healthcare providers is reviewed, with an emphasis on the defining the construct of relational empathy. Finally, the emerging framework of relational empathy is discussed as a potential strategy for healthcare providers to improve medication adherence and outcomes for older adults.

Medication Adherence

Medication adherence is critical to the treatment of chronic diseases in older adults (Yap et al., 2016). Identifying and understanding factors associated with medication adherence is important to providing quality healthcare to older adults. Cognitive function is often deemed the culprit of medication nonadherence among older adults (Smaje et al., 2018; Cho et al., 2018), yet this is inconsistent with other research on

cognitive decline. For example, Park et al. (2015) conducted a 4-week direct observational study of 121 community dwelling older adults with rheumatoid arthritis. Cognitive assessments measured older adult's speed of processing, working memory, long-term memory, text comprehension, reasoning, and vocabulary. Study findings indicated that despite evidence for normal age-related cognitive decline, the majority of older adults exhibited sufficient cognitive function to manage medications. These findings are also consistent with the National Bureau of Economic Research (NBER, 2020). As such, difficulties with medication adherence among older adults cannot be solely ascribed to diminished cognitive capacity among this population.

Due to the underrepresentation of older adults in the literature, it is unclear how demographic variables impact medication adherence. Gender has been identified in several studies to influence medication adherence but with mixed results. Holt et al. (2013) conducted a cohort study of 2,194 older adult participants to examine gender differences as barriers to antihypertensive medication adherence. Results indicated that men and women demonstrated similar adherence patterns. Women, however, identified dissatisfaction with communication from their healthcare provider during the clinical encounter as a barrier to medication adherence. Similarly, a systematic review conducted by Biffi et al. (2020) examined 82 observational studies of adherence to antihypertensive medications among older adults. These researchers found no definitive evidence of gender differences in the adherence of antihypertensive medications. On the other hand, research from a cross-sectional study of 455 older adults examining gender-based determinates of medication adherence in older adults found that women were less adherent when prescribed multiple medications (Mahamoodi et al., 2019). Additionally,

data from a repository within a large integrated health system of 15,334 participants was used to examine patient characteristics associated with medication adherence and found that older, particularly white, males had the greatest medication adherence (Rolnick et al., 2013). Thus, existing literature examining the role of gender on medication adherence is inconclusive.

Level of education has been identified in the literature as another factor that may influence medication adherence. Jin et al. (2016) found that highly educated older adults were more likely to adhere to medications and that healthcare providers should consider the education level of their patients when communicating medication regimens. Similar results were found in a randomized study examining older adults with hypertension over a 12-month period, finding that higher education and medication knowledge were associated greater medication adherence (Morisky et al., 2008). As such, level of education should be considered when examining medication adherence among older adults.

There is sufficient literature to suggest that personal medication beliefs may also influence medication nonadherence among older adults. Horne and Weinman (1999) found that one third (36%) of older adult participants with chronic illnesses had strong concerns about dependence and/or long-term effects of their prescribed medications. Another study found that among older adults with chronic kidney disease, most had medication beliefs that were not in alignment with medical opinions (Rifkin et al., 2010). Interestingly, these participants disclosed that they rarely discussed their medication beliefs with their healthcare provider (Rifkin et al., 2010). Additionally, Schuz, et al. (2011) conducted a longitudinal study on personal medication beliefs among older adults

who had at least two chronic diseases and found that approximately 30% of participants reported nonadherence because they felt insufficiently informed about the risks of their prescribed medications. This collection of findings suggest that older adults would benefit from improved communication during the clinical encounter with their healthcare providers, and that discussing personal medication beliefs (necessity and concerns) during the clinical encounter may improve adherence among older adults (Cicolini et al., 2015; Gatti et al., 2009; Phatak & Thomas, 2006).

The patient–provider relationship has also been identified as an important predictor of medication adherence (Harmon et al., 2006; Jin et al., 2016; Lewis et al., 2010). For example, in a qualitative study examining medication adherence in older adults, Holt et al. (2013) recruited a focus group of 25 participants aged 65 years and older receiving medication regimens for hypertension. Among the older adults on hypertensive medications, the majority (88%) of participants felt that communication with healthcare providers can improve adherence and 64% reported that having a positive patient–provider relationship could increase their medication adherence (Holt et al., 2013). Similar studies are consistent with findings that the patient–provider relationship and communication are identified as a potential avenue to increase medication adherence behavior (Harmon et al., 2006; Lewis et al., 2010). In a cross-sectional survey conducted by Jin et al. (2016), 160 participants aged 65 years and older with various chronic illnesses completed a survey to identify factors associated with medication adherence. The findings indicated that patient satisfaction, the patient–provider relationship, and communication were all predictors of medication adherence among older adults with chronic illnesses. Taken together, these studies highlight the importance of considering

the patient–provider relationship and the role of healthcare providers when attempting to understand medication nonadherence among older adults.

Several studies have examined strategies to enhance medication adherence among older adults, including the simplification of medication regimens, increased education regarding medications, and increased frequency of medication reminders and follow-ups (Quin, 2015; Verloo et al., 2017). A systematic review of 34 published studies examining the effects of interventions (e.g., medication reminders, electronic refills, medication education) on medication adherence among older adults with chronic illness, demonstrated mixed effects. Although no single intervention was identified as successful, researchers concluded that the patient–provider relationship and communication during the clinical encounter appeared to be effective at optimizing medication adherence (Schlenk et al., 2008). This is consistent with other research and theory which posit that improving the patient–provider relationship can enhance medication adherence among older adults (Harmon et al., 2006; World Health Organization, 2020).

Using the patient–provider relationship as a strategy for medication adherence is further suggested in the literature. A think-tank meeting with various stakeholder groups, including healthcare providers, government officials, and industry scientists was held to provide recommendations to enhance clinical outcomes among older adults. The stakeholders explored practical, evidenced-based strategies as well as contextual barriers such as poor communication in the clinical encounter. Results of this meeting identified medication adherence as a shared goal among all healthcare systems, with recommendations to utilize a patient-centered approach as a strategy to enhance adherence among older adults (Bosworth et al., 2011). Similar results were found in a

review of randomized control trials designed to improve medication adherence and health outcomes in older adults. The studies were divided by behavioral/educational, pharmacist-led, and reminder/simplification categories, with the behavioral/educational approach being the only category which improved adherence (Marcum et al., 2017). Additionally, Daley et al. (2014) studied the impact of a brief, cognitive behavioral approach aimed at facilitating the process of shared patient–provider decision making (i.e., adherence therapy) with 76 older adult participants with Parkinson's disease. The key components of this intervention included modifying beliefs, exploring ambivalence and resistance, exchanging information, and using Socratic dialogue to generate medication belief discrepancies. Researchers from this study found improved medication adherence from baseline in a 12-week follow-up.

As prior research has suggested, the patient–provider may be a key strategy to enhance medication adherence among older adults. Additional research examining the patient–provider relationship during the clinical encounter also supported that establishing a trusting, empathic relationship through person-centered communication improves outcomes for older adults (Bayne, 2013; Howick et al., 2018; Mercer, 2002). Further, Howick et al. (2017) posited that the human and economic costs associated with nonadherence can be avoided by improving healthcare providers' understanding of how empathy plays a role in the patient–provider relationship during the clinical encounter. However, it is important to clarify and define the conceptual definition of empathy for use during clinical encounters.

Empathy in Healthcare

Empathy has been conceptualized in a variety of ways within healthcare research (Hall & Swartz, 2017). For example, Hoffman (1984) defined empathy as an affective response more appropriate to someone else's situation than to one's own. Eisenberg (2010) defined empathy as other-oriented responding that includes an understanding of another's emotional state or condition. Hall and Schwartz (2017) examined the prevalence, diversity, and inconsistency in the conceptual definition of empathy in the research literature. Reviewing results of 393 studies, these researchers concluded the concept of empathy is not yet conceptually coherent. Additionally, the authors stated the importance of the perceivers' conceptualization of empathy–not just the researcher's definition. Understanding and defining empathy for use in healthcare is an important endeavor for researchers, as the perception of empathy is crucial to patient outcomes (Kerasidou et al., 2019).

A lack of empathy in healthcare is associated with lower patient satisfaction with care, higher likelihood of mistakes by providers, increased malpractice cases, and nonadherence among patients (Howick et al., 2017). Thus, patients' perception of care has medical and financial implications for the healthcare industry. This is further reinforced by the practice of the Centers of Medicare and Medicaid (2021) withholding up to 3% of reimbursements based on patients' perception of care. In addition, medical implications regarding patient perceptions of care have been thoroughly examined including several studies that identify the association of patient perception of empathy in healthcare providers with improved outcomes across a range of health conditions (Del Canale et al., 2012; Etingen et al., 2016; Hojat et al., 2011)

Hansen et al., (2016) conducted a qualitative study with 53 African American older adults and assessed their perceptions of interactions with healthcare providers. Transcripts of interviews were analyzed using thematic analysis and coding. Findings indicated that effective communication between older African Americans and healthcare providers was critical for improved trust, care satisfaction, and empathy. Participants in the study reported that effective communication occurred when the healthcare provider empathically sought to understand them as a person with unique experiences. Additionally, Howick et al. (2017) conducted a systematic review and meta-analysis of 51 publications that used patient satisfaction surveys to rank their healthcare providers on empathy demonstrated during the clinical encounter. Results determined that nursing healthcare providers scored lowest on empathy rating scale. Similarly, Teofilo et al. (2018) conducted an integrative review of literature looking at empathy in nurses working in geriatric care. Findings indicated a need for more robust training, sensitization, and empathic education to improve the quality of care provided to older adults. Appropriate medical care requires healthcare providers to have medical knowledge and empathy.

Despite the relevance of using empathy in patient outcomes, studies have documented a decline in empathy among healthcare professionals (Hojat et al., 2009). Stratta et al. (2016) conducted a qualitative study with nine healthcare providers in a United Kingdom hospital, who accepted the invitation to discuss the definition of empathy and how clinical experiences have influenced empathic ability. Emergent themes included the healthcare provider's acknowledgement of a decline in empathy in part due to the prioritization of patients' physical rather than psychological well-being. In

addition, healthcare providers described how their value judgment of patients impacted their ability to empathize (e.g., age-related judgements on pain, depression, etc. were often viewed as a “normal” part of aging). These results could be concerning given the identified relationship between empathy and improved patient outcomes.

Further research suggests that decline in healthcare providers’ empathy occurs during the educational and training years. Hojat (2009) conducted a longitudinal study that examined empathy among 456 healthcare students during their primary years of training. Results indicated a significant decline in empathy scores during the third year of schooling that persisted until graduation. Researchers further noted that during the third year of medical training, students’ curriculum shifts towards direct patient care, a change in coursework that would potentially increase empathy; however, that was not the case for this sample. Heise et al. (2012) suggested the shortage of nursing providers in the geriatric field could be due to ageism and lack of exposure to older adults during education, particularly for Millennial and Generation X students. This implication supports that younger nursing providers could engage in learning activities that enhance empathy specific to older adult populations. Similarly, Jeffrey (2017) described an empathy gap in healthcare due to lack of adequate empathy training during medical school. He asserted that a relational view of empathy acknowledges the importance of the clinical encounter to prioritize the patient–provider relationship. Additional literature by Jeffrey discussed medical school curriculum barriers including a lack of teaching about empathy, the neglect of psychosocial aspects of the patient’s situation, and negative role models (Jeffrey, 2016). Others have emphasized the importance of clarifying the dimensions of empathy that are amenable to training healthcare providers (e.g., Foster et

al., 2017). One such dimension is the concept of relational empathy (Fagiano, 2019; Mercer & Reynolds, 2002), which is discussed more in the next section.

Relational Empathy in Healthcare

The importance of empathic communication during healthcare encounters is well established (Brown et al., 2016; Mead & Bower, 2000; Mokhtar et al., 2014; Squir, 1990). Emerging literature suggests that the framework of *relational empathy* could be a promising strategy for the healthcare industry (Fagiano, 2019). Mercer and Reynolds (2002) first defined *relational empathy* as the healthcare providers' ability to: (a) understand the patient's situation, perspective, and feelings; (b) communicate that understanding and check its accuracy; and (c) act on that understanding with the patient in a helpful way. Similarly, Howick et al. (2017) defined *relational empathy* as a healthcare provider's ability to: (a) understand a patient's point of view, (b) express this understanding, and (c) make recommendations that reflect the shared understanding.

Despite the relevance of empathy in clinical encounters, there is little empirical data on the dimension of relational empathy as an evidenced-based strategy for patient-centered care. To date, only three studies have discussed the use of relational empathy as defined by Mercer and Reynolds (2002). The first was a 2016 study conducted in the Netherlands, in which researchers collected data from 90 healthcare providers. This study examined the role of healthcare providers' empathic communication competency, and surveyed patients' perspectives directly after clinical encounters using the Consultation and Relational Empathy Scale (CARE). Correlational analyses confirmed that healthcare providers' empathic disposition played a role in providing clear information, reciprocal understanding, and effective communication to the patient. Further, the results led

researchers to assert that healthcare providers who lacked relational empathy could cause negative patient experiences (Schrooten et al., 2017). The second study had similar results with a study of 450 veterans with spinal cord injuries (LaVela et al., 2015), which indicated that patient perceptions of relational empathy were low when healthcare providers focused on disease and/or disease management rather than communicating with patients as individuals. The third study by conducted by Arthur et al. (2015) used a control trial to examine the impact and feasibility of a two-day training named 'Older People's Shoes.' This training examined older adults' perceptions of relational empathy in healthcare workers in an acute hospital ward, which resulted in the use of relational empathy as an effective intervention tool evidenced by pre- and post-test design. Each of the three studies described a working definition of relational empathy aligned with the definition of relational empathy suggested by Howick et al. (2017) and Mercer and Reynolds (2002).

Recent nursing philosophy literature also examined the importance of moving toward a relational empathy conceptualization for clinical encounters in healthcare. Relational empathy may manifest in different ways in healthcare settings between older adults and their healthcare providers. For example, Betzler (2019) discussed relational empathy as a tool that develops appropriate responses between patient and provider. Similarly, Dijke et al. (2019) suggested that empathy is developed via relationships. As such, when patients feel encouraged to talk about their experience in a safe clinical environment, the patient–provider relationship can flourish. Although the construct of empathy may be conceptualized differently, Fagiano (2019) encouraged researchers to use Mercer and Reynolds (2002) definition of relational empathy to avoid conflict over

semantics related to the term empathy. This would ensure that the term and definition of relational empathy can be implemented by healthcare providers to: (a) understand the patient's situation, perspective, and feelings; (b) communicate that understanding and check its accuracy; and (c) act on that understanding with the patient in a helpful way.

Summary

Medication nonadherence among older adults is a medical and financial burden. Identifying factors that influence medication adherence is paramount, due to the increased healthcare needs of the older adult population. Factors such as gender, level of education and medication beliefs have been examined in the literature indicating some effect on medication adherence, however there is little recent empirical data. Patient perception of care has been shown in the literature to impact outcomes for older adults, and the use of relational empathy by healthcare providers is one strategy that may improve medication adherence and health outcomes among older adults. Examining patient perception of empathy with medication adherence among older adults may serve to inform future research and training initiatives among healthcare providers.

Chapter 3

Methods

Theoretical Framework

The theoretical framework used to guide this study included the medication adherence model (Johnson et al., 1999) and relational empathy theory (Fagiano, 2019). The medication adherence model ascribes adherence behavior into three categories: purposeful action, patterned behavior, and feedback. Relational empathy theory serves as an implementable framework for healthcare providers to maximize patient-focused care and understanding. Fagiano (2019) described the relational empathy framework as a set of three overlapping relations: the relation of feeling into, feeling with, and feeling for. When examined together, the combined models provide a coherent framework to guide this study.

Medication Adherence Model

The medication adherence model (MAM) was originally developed by qualitative content analysis that compared factors associated with adherence and nonadherence among older adults taking hypertensive medications (Johnson et al., 1999). In addition, the development of the MAM was driven by critiques of existing theoretical frameworks addressing medication adherence. These included the health belief model (Rosenstock, 1974), social learning theory (Rosenstock et al., 1988), the theory of reasoned action (Ajzen & Fishbein, 1977), and the self-regulation model (Leventhal et al., 1999).

Consequently, Johnson et al. (1999) determined that these theories primarily focused on medication adherence as it applies to symptomatic high-threat conditions (e.g., high blood pressure, obesity). Thus, Johnson expanded and altered this model so that the MAM focused on medication adherence for chronic diseases where there may be fewer symptoms and medication adherence must be sustained long-term (Chinn & Kramer, 1995).

The basic structure of the MAM was developed based on two types of patterns of thinking and behavior related to medication nonadherence. The first pattern is characterized by intentional decision(s) to fail to take medications as prescribed, and the second is characterized by unintentional interruptions that cause individuals not to take their medications as prescribed (Johnson et al., 1999). These two patterns of medication nonadherence are driven by three core concepts identified by Johnson et al. (1999, 2002), including purposeful action, patterned behavior, and feedback. The third concept of feedback was added as a core concept in 2002 because it became evident that intentional and unintentional medication adherence was influenced by individuals' appraisal (i.e., perception) of relationships with healthcare providers (Johnson, 2002). As such, feedback is a key concept for the proposed study as it is an integral part of the patient–provider relationship and relational empathy. The three core concepts are defined as follows.

Purposeful Action

The first core concept is *purposeful action,* which is the intentional decision to take prescribed medications based on perceived need, effectiveness, and safety (Johnson, 2002). Purposeful action specifies that a patient's individual perception of need, effectiveness, and safety determines whether the patient will intentionally take, alter, or

stop medications. In accordance with this core concept, if patients perceive medications as health-promoting they are more likely to take medications.

Patterned Behavior

Patterned behavior is the patient's determination to initiate and establish a ritual, habit, or pattern of taking prescribed medications through access, routine, and remembering (Horne et al., 2017; Johnson, 2002). Even when patients are committed to medication adherence, they may become unintentionally nonadherent due to an inability to access medications, interruption of routine, or a lack of reminders (Johnson et al., 1999). Patients need to be able to access medications, both physically and financially, to initiate treatment and maintain medication adherence. Patients also must remember to take their medication, which is facilitated through establishing routines and reminders that trigger memory. Of consideration, patterned behavior is distinct from cognitive ability, as research demonstrates cognitive ability is not always associated with medication adherence among older adults (Conn & Tylor, 2021).

Feedback

The third core concept is *feedback*. Feedback is the degree to which information, facts, prompts, or events influence the patient's appraisal of the need to take medication as prescribed (Johnson, 2002). This information may include personal (i.e., internal) responses, media messages, and communication from healthcare providers (Johnson et al., 1999). Patients use such feedback information to evaluate the need for medications in relation to their own condition. Patients may constantly appraise the need for treatment medications via feedback. The feedback patients receive affects both purposeful action and patterned behavior. Indeed, patients will maintain or modify adherence to treatment

based on feedback. Information gained from feedback often serves as an incentive to keep illnesses under control and can also serve as a reminder to take medications.

Summary

Understanding the MAM improves healthcare providers' ability to individualize discussion strategies to promote better communication between themselves and their patients (Norman & Conner, 1996). Such improved communication will ideally facilitate better patient–provider relationships. Relational empathy may be an aspect of feedback that patients receive from their healthcare provider (Fagiano, 2019). As such, its relationship with medication adherence is worthy of examination. Consistent with the relational empathy theory, better relationships may improve medication adherence in the short- and long-term among older adults.

Relational Empathy Theory

Relational empathy is an emerging theory developed by Mark Fagiano (2019). Fagiano acknowledged the vast amount research examining empathy and the current lack of consensus regarding the definition of empathy. He further noted that relational empathy and all other conceptualizations of empathy are similar in one important way: they are all social constructs that aim not only to describe an experience but to change the quality of that lived experience. Thus, relational empathy can shape habits and decrease suffering, which is why this construct is relevant in clinical healthcare encounters. Fagiano's aim was to move from concern regarding the complexity and multiplicity of empathy theories to a practical definition of empathy that can be applied in clinical encounters. As argued by Fagiano (2019), a practical and applicable definition of empathy would improve the healthcare organizations systems of practice, patient

satisfaction, and outcomes for patients. Fagiano (2019) further explained relation as the mode or manner by which two or more things are interrelated within an experience. He also drew from philosopher William James who described relation as a “pure experience” (Taylor, 1996). Fagiano altered the term empathy to relational empathy to avoid the multitude of empathy definitions that had influenced empathy research, and he described relational empathy as a set of three overlapping relations: feeling into, feeling with, and feeling for, which are described in the following sections.

The Relation of Feeling Into

The first relation is experienced when individuals *feel into* an object of perception or reflection. Feeling into an experience can also be described as “leaning into” thoughts, feelings, or situations. Individuals can feel into another person’s thoughts in which patients often share personal or important health concerns during the clinical encounter. Fagiano (2019) discussed this aspect of relation as the ability to feel into thoughts, feelings, and behaviors in order to connect with people and experiences outside of ourselves. Feeling into objects enhances our ability to empathize with both the similar and dissimilar lived experiences of other people.

The Relation of Feeling With

The second relation is experienced when individuals have a sense of being united, in concord, or in sync with another person. Also described as an interpersonal experience, this relation is noted most when individuals perceive that they grasp, feel, or have adopted the perspective of another person. Feeling with is also considered as empathic perspective taking. Fagiano (2019) noted two types of perspective taking: imagining how you would personally feel if you held another person’s perspective about a given

situation, and imagining how the other person perceives a given situation. Depending on the context, this relation, and sometimes the relation of feeling into, is experienced in different ways. Indeed, feeling with may be experienced in the following ways: (a) feeling an emotional connection with another person, (b) believing in an understanding of each other's point of view, (c) mentally simulating the others experience, (d) "catching" another person's mood, or (d) mimicking the body language of another.

The Relation of Feeling For

The third relation is experienced when a person cares for another and acts for their benefit and is also characterized by one's response to and concern for another. Fagiano (2019) described Jean Decety's (2012) definition of empathy as the capacity to share, understand, and respond with care to the affective states of another. Fagiano signified that one can feel with (i.e., sharing and understanding) another's state, and one is able to feel for (i.e., responding with care) the affective states of others. However, to engage in empathy defined in this way, one must correctly observe and identify others' states of being and experiencing. To do this well requires one, in the case of this research the healthcare provider, to correctly observe and identify with the states of their older adult patient. In other words, the provider feels into them with perceptual acuity, so that their sharing and understanding of the older adult's state informs the way the provider responds with care.

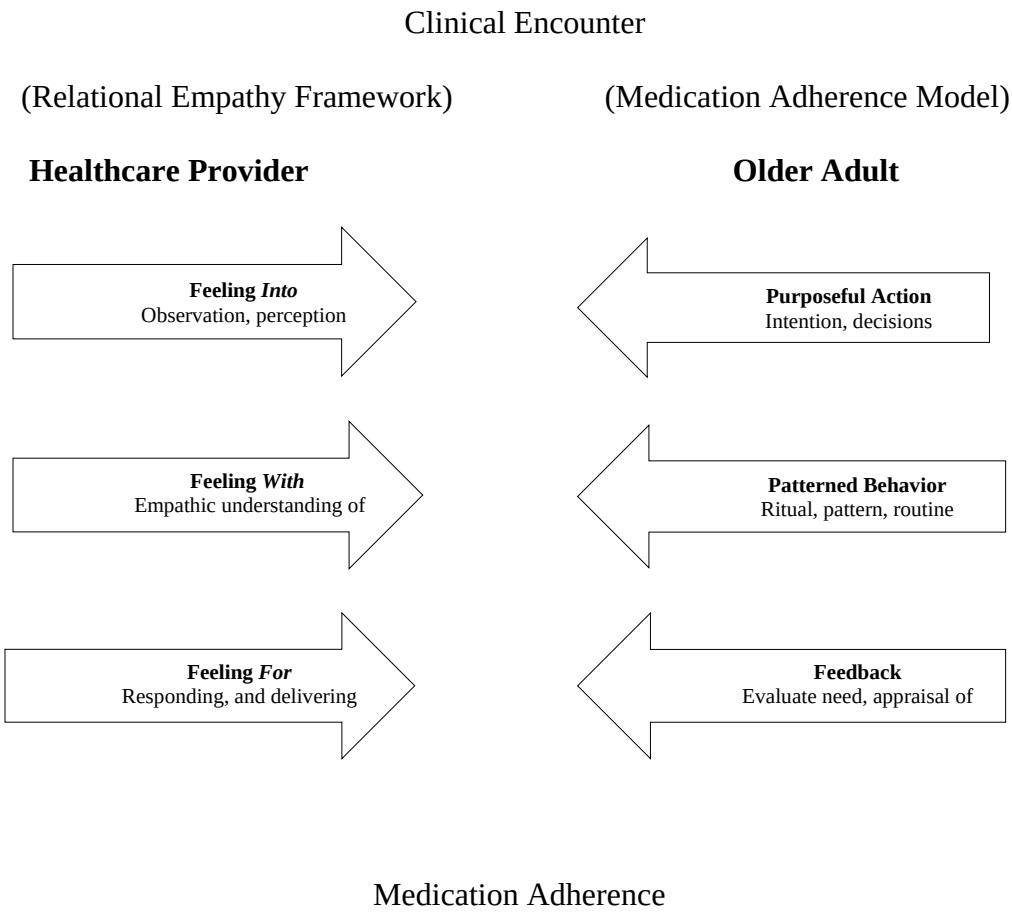
Application of Theoretical Framework

Relational empathy among healthcare workers can be conceptualized as perceiving and observing (feeling into) the condition of the patient in order to understand accurately (feeling with) the patients' health condition, and also to deliver medication

advice for the well-being of the patient (feeling for). Adopting a relational empathy framework in healthcare settings would help leaders in the healthcare field to foster initiatives that provide relational empathic healthcare. This is especially important given that the most common response among patients according to CAHPS healthcare surveys is that patients "don't feel cared for" (Lowen et al., 2011). Figure 1 displays the application of this theoretical framework in which the healthcare providers' use of relational empathy during a clinical encounter can be used to enhance older adults' perception of the provider's relational empathy to affect medication adherence.

Figure 1

Theoretical Framework



Research Design

This study utilized a cross-sectional design. The study design was feasible among older adults to reduce participant burden by collecting data quickly at one point in time via survey questionnaires. Due to limited data and literature to support the direction or relationship of older adults' perceptions of relational empathy in their healthcare provider and medication adherence, this exploratory and descriptive study laid the groundwork for future research initiatives to determining whether perceptions of relational empathy are a stronger predictor of medication adherence than other identified variables including medication beliefs, gender, and level of education (see Table 1).

Major Variables

Table 1

Table of Major Variables

Variable Type	Variable Construct
Dependent Variable	Medication Adherence
Independent Variable	Perception of Relational Empathy
Control Variables	Medication Beliefs, Gender, and Level of Education

This study used descriptive and inferential statistics to answer the following research questions:

1. Does a relationship exist among older adults' perceptions of relational empathy in their healthcare provider and medication adherence?

2. Do older adults' perceptions of relational empathy in their healthcare provider predict medication adherence when controlling for medication beliefs, gender, and level of education?

Research Setting

This study was implemented in a community-based program that assists over 700 older adults to "age in place." The program is a federally funded Medicare/Medicaid insurance that provides all-inclusive care to older adults with goals to avoid long-term care placement, decrease hospitalizations, and maximize quality of life. Participants enrolled in the program have demonstrated (a) financial need, (b) two or more chronic illnesses (e.g., hypertension, chronic kidney disease), and (c) met the physical criteria for long-term nursing home care. Day centers are central to the program goals and provide participants with direct access to primary medical care, socialization, activities, physical therapy, occupational therapy, registered dietitians, home care coordinators, and social workers. Participants who live in the community are provided transportation to their designated day center and attend from one to five days per week, depending on level of need. The researcher worked in collaboration with administrative assistants and staff at each day center and received a letter of cooperation from the program's Executive Director, who is responsible for all three individual day centers located in the cities of West Palm Beach, Delray Beach, and Greenacres, Florida.

Sample

This study utilized a non-probability, purposive sample. The unit of study included adults aged 65 and older who were enrolled in a community-based Medicare/Medicaid healthcare insurance program in Palm Beach County, Florida. Older

adults in the program were eligible for inclusion in the study if they both spoke English and demonstrated the cognitive capabilities required for informed consent, as determined by a Saint Louis University Mental Status (SLUMS) score of 23 or higher completed within the six months prior to the study, as confirmed by administrative assistants and staff (see Appendix A). Participants were not eligible and were excluded from the study if they were (a) cognitively impaired, (b) lived in an assisted living facility (ALF) or nursing home (SNF), and (c) were previously connected or affiliated with the researcher through their receipt of current mental health services.

Table 2

Sociodemographic Characteristics of Participants

Sample Characteristics	*n*	%
Gender		
Female	53	74
Male	19	26
Race		
Black	22	31
Hawaiian	1	1
White	49	67
Living Alone		
Yes	34	47
No	38	53
Level of Education		
Less than HS	11	16
HS Diploma	26	37
Some College	23	32
Bachelor's Degree	11	16
Age	*M* = 75.96	*SD* = 7.25	Range = 65-94

Note. *N* = 72

Sociodemographic information was taken from the demographic questionnaire, which collected information on participant's age, gender, race, level of education, and living status. Additional demographic information is presented in Table 2. Participants who reported being female comprised 76%, and those reporting as male, 26%. Recent Palm Beach County demographic profiles of older adults have indicated that gender is more equally distributed with 55% female and 45% male (Deptartment of Elder Affairs, 2021). However, higher numbers of female participants in this sample may result from the mean age being over age 75 among the participants in this study, and it is consistent with prior research that older adult women tend to live longer than older adult men (U.S. Census Bureau, 2021). Race categories for this study were determined by U.S. Census Bureau (2020), which classified responses to the race question in five categories: White, Black, Asian, American Indian or Native, and Hawaiian or Pacific Islander. The majority of participants in the sample were White (67%), which is lower than Palm Beach County's demographic profile of older adults, which reports 87% White. Black participants represented 31% of older adults in this study sample, which is higher than Palm Beach County's demographic profile of older adults aged 65 and over, in which only 11% are Black (Department of Elder Affairs, 2021). The higher proportion of Black participants in the present study may be because older Black older adults are more likely to rely on Medicaid/Medicare community-based programs for their medical care (Scommegna, 2021). Information on participants' ethnicity was not collected.

Level of education was generally low in this study sample with more than half of the participants reporting a high school education or less. This is inconsistent with current data on education across the United States, which reports only 24% of older adults aged

65 and over with a high school diploma or less education (Department of Elder Affairs, 2021). This inconsistency may due to the older mean age of this study sample (75 years) in which women particularly who were born between 1920 and 1959 have significantly lower educational attainment due to lack of opportunity within generational and societal expectations (Angissani et al., 2020). Participants in this sample further reported that 47% live alone, which is inconsistent with Palm Beach County demographic data indicating that only 24% of older adults aged 65 and over are living alone. This inconsistency may be due the specific community-based program setting that this study took place, which has the primary goal of helping older adults living in the community to "age in place."

Sample Size Calculation

A power analysis for this study was calculated using a fixed, linear multiple regression model estimate with one predictor and three covariates (G*Power, 3.1; Faul et al., 2007). An estimated effect size of .4 was be used. The effect size estimate of .4 was based on prior research examining the effect of medication beliefs and concerns on medication adherence (d =.35 - .49; Foot et al., 2015), and the effect of healthcare provider communication on medication adherence (d =.24 - .39; Zolnierek & DiMatteo, 2009). The current literature suggests healthcare provider communication and interaction may enhance perceptions of empathy during the clinical encounter which may improve medication adherence. Results indicated that to obtain 80% power, and a significance level of .05 a minimum sample size of 65 was required. Thus, the researcher recruited a total of 72 participants for this study.

Recruitment and Data Collection Procedures

Following the approval from the Florida Atlantic University (FAU) Institutional Review Board (IRB), the researcher disseminated and posted flyers to each of the three day center's administrative assistants informing them of the study's purpose, privacy and confidentiality, procedure, and timeline. To ensure autonomy, the researcher allowed older adult participants the ability to make their own decision to participate in the study. The researcher obtained verbal informed consent from each study participant, as the researcher did not collect any identifiable data. Each study participant received a printed paper copy of the consent form as well use of a printed paper copy of survey questions with enlarged font. The researcher explained data confidentiality to each participant, including how their data would remain anonymous, and reminded participants of their right to withdraw from the study at any time. A master identification file was stored separately on a password-protected computer to access only potential missing or contradictory information as recommended by Rubin and Babbie (2017). Risk to study participants was minimal and referral information was provided to participants stating the availability of an onsite social worker or healthcare provider for appropriate follow-up in the event of distress. Additionally, there was no coercion in terms of participant recruitment, as only the participants excluded from the researcher's current clinical caseload were selected to participate in the study.

Data were collected via Qualtrics^{xm} software during an onsite interview with each individual participant at the three day center locations. Prior to conducting interviews, the researcher was informed of eligible participants from each of the day center's administrative assistants and staff. The researcher approached each eligible participant in the common areas of the day centers and asked if they would like to participate in a study

regarding healthcare provider empathy and medication adherence. Once consent was initially received the researcher escorted each participant to a private area with only the researcher present to ensure confidentiality. The researcher further debriefed each participant with study details, gained verbal consent, offered an enlarged paper copy of research questions, and assisted with survey completion via a face-to-face interview format; this allowed the older adults with vision and/or manual dexterity challenges to participate. Each interview took less than 10 minutes, with data collection taking place over a four-week period in entirety during the fall of 2022.

Measures

All primary variables and accompanying measures appear next. Table 3 presents a concise list of all variables and measures.

Table 3

Operational Definitions of Major Variables

Variable	Operational Definition
Medication Adherence	Measured as an interval variable using ASK-12, a 12-item Likert scale yielding a score from 12 to 60
Relational Empathy	Measured as an interval variable using the CARE measure, a 10-item Likert scale yielding a score from 10 to 50
Medication Beliefs	Measured as an interval variable using the BMQ-Specific, consisting of two 5-item Likert subscales yielding a score from 0 to 25
Gender	Measures as a nominal variable with 0 = male, 1= female
Level of Education	Measured as a dichotomous variable with selections indicating 0 = high school or less, 1 = some college or more

Dependent Variable

Medication Adherence. Medication adherence was conceptually defined as the extent to which a patient's behavior (e.g., taking medications with respect to timing, dosage, and frequency) is in agreement with recommendations from their healthcare provider. For the purposes of this study medication adherence was operationally defined by the score on the Adherence Starts with Knowledge Scale (ASK-12; see appendix B). The ASK-12 is a streamlined, shorter version of the ASK-20 measurement tool which is used to examine barriers to medication adherence in patients with chronic diseases. This scale includes three adherence related subscales including behavior (five items), health beliefs (four items), and inconvenience/forgetfulness (three items), using a five-point Likert-scale for each item from 1 (*strongly agree*) to 5 (*strongly disagree*). The total score is the sum of all 12 items, with a total score range of 12-60. Higher ASK scores indicate more barriers to adherence or greater problems with adherence behaviors (Matza et al., 2009).

The ASK-12 total score demonstrated adequate internal consistency reliability with patients recruited from a university medical center presenting with asthma, diabetes, and congestive heart failure (Matza et al., 2009) resulting in a Cronbach's alpha of .75, and adequate test-retest reliability, with an intraclass correlation coefficient of .79. Convergent validity was demonstrated through correlations with self-report measures, with coefficients in the moderate range (Matza et al., 2009). The ASK-12 was also significantly correlated with other patient-oriented measures such as the Morinsky Scale (Moon et al., 2017). Known groups validity was achieved by discrimination between patients who reported missing a medication in the past week, and those who reported that they did not miss a dose ($p < 0.0001$). Differences between these two groups followed the

same pattern for the behavior ($p < 0.05$), and health beliefs and inconvenience/forgetfulness (both $p < 0.0001$) subscales (Matzra et al., 2009). In summary, the ASK-12 meets generally accepted standards for internal consistency reliability and test-retest reliability, making this tool a reliable and valid questionnaire for assessing patients' perceptions of potential medication adherence barriers. Strangely, for this sample Cronbach's alpha was .212, which may indicate poor interrelatedness between items or heterogeneous constructs. Furthermore, the ASK requires permission and user agreement for use (see Appendix C).

Independent Variable

Relational Empathy. Relational empathy was conceptually defined as the healthcare provider's ability to: (a) understand a patient's situation, perspective, and feelings, (b) communicate understanding and check its accuracy, and (c) act on that understanding in a helpful way (Mercer, 2002). For the purposes of this study, relational empathy was operationally defined with a score on the Consultation and Relational Empathy (CARE) measure (see Appendix D). The development of the measure was based on qualitative interviews with patients using repetitive processes to develop, validate, and test the CARE measure in clinical encounters with general practitioners, and with nurses. Ten items assessed patients' perceptions of relational empathy in their healthcare provider (e.g., "How good is the practitioner at making you feel at ease?"). The 10 items were rated on a 5-point Likert response scale from 1 (*poor*) to 5 (*excellent*; Mercer et al., 2004). The items were summed together such that greater scores indicated greater perceptions of relational empathy of the healthcare provider.

The scale's reliability and validity have been assessed in the context of routine nurse encounters in primary care (Bikker et al., 2015). Internal reliability of the final version of the CARE measure had high internal consistency with a Cronbach's alpha value of 0.97 (Bikker et al., 2015). The factor analysis from the validation study further supported the construct validity, as the CARE measure items loaded highly on one factor showing that they capture the same concept, which was different from overall satisfaction and patient enablement (Bikker et al., 2015). For this sample Cronbach's alpha was .946 indicating high reliability. Capturing patients' perceptions of care is now widely regarded as an important standard of high-quality healthcare systems, thus the use of the CARE measure aligns with current healthcare policies and procedures that focus on maintaining, enhancing, and monitoring empathic, person-centered care. The CARE measure has high face and construct validity, and internal reliability in primary clinical encounters, and is sufficient for educational and quality improvement purposes in nursing and medical settings (Bikker et al., 2015).

Control Variables

Medication Beliefs. Medication beliefs were defined as the patients' perceptions of personal need for medication and concerns about negative consequences (Thorneloe et al., 2018). Medication beliefs were operationalized as a score on the Beliefs about Medication Specific Questionnaire (BMQ-Specific; see appendix D). The BMQ-Specific consists of two 5-item subscales: the Specific Necessity subscale (i.e., beliefs about the necessity of taking medications to remain healthy) and the Specific Concerns subscale (i.e., concerns about the negative effects of taking specific medications). Example items included "Having to take my medications worries me" and "My health is dependent on

medications." The 10 items are rated on a Likert scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Items for each of the subscales are summed, with greater scores indicating stronger beliefs about the necessity or helpfulness of medications. The BMQ-Specific has satisfactory internal consistency with Cronbach's alpha values calculated for each subscale. The Specific Concerns subscale obtained Cronbach values among a variety of chronically ill patients including asthmatic patients at .80; diabetic patients at .74; cardiac patients at .76; psychiatric patients at .74 and general medicine at .86 (Horne et al., 1999). For this sample Cronbach's alpha was .703 indicating satisfactory reliability. The Specific Necessity subscale obtained the Cronbach alpha values, which included asthmatic patients at .75; diabetic patients at .80; renal patients at.73; cardiac patients at .76; and general medical at .65 (Horne et al., 1999). For this sample Cronbach's alpha was .823 indicating high reliability.

Gender. Gender was defined as a dichotomous variable of male or female. Participants will self-report their gender identity on the demographic questionnaire. Gender was coded 0 for male reposes and 1 for female responses.

Level of Education. Level of education was conceptually defined as the highest level of formal education that has been obtained. Participants self-reported their highest level of education achieved (less than high school diploma, high school diploma, some college, bachelor's degree, master's degree or PhD/professional degree). Results were then dichotomized into high school education or lower as 0 or some college and above as 1, as past research indicates that older adults who have at least some college exposure or more have reported higher medication adherence (Jin et al., 2016).

Additional Demographic Questions

The demographic questionnaire included two additional nominal level-of-measurement questions that were not included in the analysis but appear in the demographic Table 1. These were (a) Please indicate your race (White, Black, or African American, American Indian, or Alaska Native, Asian, or Hawaiian or Pacific Islander) and (b) Do you live alone? (yes or no). The final question was (e) Please indicate your age in years (continuous level of measurement).

Data Analyses

Preliminary Analysis

Before conducting final analysis, the survey data were cleaned and checked for accuracy after being imported directly into SPSS v. 27 from Qualtrics[xm]. Data preparation included computing scale totals for all three scales, examining the normality of the distributions for each variable, and checking the assumptions of a linear relationship between perceptions of relational empathy and medication adherence. Statistical outliers and other unlikely values were not expected, however they were examined visually using boxplots. There did not appear to be any illogical or inconsistent data responses. Missing data was handled using pairwise deletion in SPSS v. 27 so that all collected data was used (Kang, 2013). Assumptions of normality were examined to determine whether there were outliers among variables that may be impacting results. Descriptive statistics were analyzed using the demographic data in which measures of central tendency (e.g., mean, median, mode) and measure dispersion (e.g., standard deviation) were calculated for the continuous variable of age. The nominal level variable of level of education was also reported. The descriptive statistics table (Table 4) shows the interval LOM variables (relational empathy, medication adherence, and medication beliefs), which were normally

distributed; however, the kurtosis score for relational empathy was slightly above 1 (1.059).

Medication adherence (ASK-12) scores ranged from 12 to 60, with higher scores indicating increased barriers and problems with medication adherence. The mean scores in the present study population (M = 45.22) indicated moderately low medication adherence compared to the mean scores of the validated ASK-12 measurement tool, which originally sampled patients with chronic disease in a university medical center reporting an average score of 27 (Matzra et al., 2009). Perception of relational empathy (CARE) scores ranged from 10 to 50 with higher scores indicating increased perception of relational empathy. The mean score of the present study population was 20.86, which was relatively low compared to the mean scores of the validated CARE measurement that included adults within the context of routine nurse encounters in primary care (M = 47.1; Bikker et al., 2015). Medication beliefs (BMQ) scores ranged from 5 to 25 for each subscale (necessity and concerns), with higher scores indicating stronger beliefs. The mean scores for this study indicated lower mean scores for medication necessity (M = 10.19) and higher mean scores for medication concerns (M = 14.39). The necessity subscale was lower than mean scores in prior studies, but the concerns subscale was somewhat consistent with prior research when examining patients with chronic illnesses (e.g., sample of adults with asthma on the necessity subscale was M = 19.7, and concerns subscale was M = 15.8; cardiac patients M = 18.9 for necessity and M =13.8 for concerns (Horne et al., 1999; see Table 4).

Table 4

Descriptive Statistics

Variable	Min	Max	*M*	*SD*	Skewness	Kurtosis
Relational Empathy	10.00	43.00	20.86	6.67	.910	1.059
Medication Adherence	37.00	58.00	45.22	3.82	.303	.810
Medication Beliefs						
Necessity	5.00	18.00	10.19	2.98	.042	-.251
Concerns	8.00	25.00	14.39	4.01	.884	-.016

Note. $N = 72$

Final Analyses

The goal of the study was to examine the relationship between older adults' perception of relational empathy in their healthcare provider and medication adherence. In addition, the study examined whether older adults' perception of relational empathy in their healthcare provider was associated with medication adherence, beyond other predictive factors including medication beliefs, gender, and level of education. In order to address research question 1, a Pearson's *r* correlation analysis was used to determine if a significant positive relationship existed between relational empathy and medication adherence. Pearson's *r* provides information on the strength and direction of the linear relationships between variables that include interval levels of measurement (Cronk, 2020). In order to address research question 2, a linear regression analysis was used to examine whether older adults' perception of greater relational empathy in their healthcare provider predicted greater medication adherence while controlling for medication beliefs, gender, and level of education. A two-block model was used to compare the variance in

medication adherence (adjusted R^2) explained when examining just the control variables (block 1) and then with relational empathy added into the model (block 2). Linear regression was the most appropriate analysis, as it allows the prediction of one variable from several other variables when all variables are interval or dichotomous in their level of measurement (Cronk, 2020).

Chapter 4

Results and Discussion

Research Question 1

RQ1: Does a relationship exist among older adults' perceptions of relational empathy in their healthcare provider and medication adherence?

A Pearson correlation coefficient was calculated for the relationship between medication adherence and perception of relational empathy. A weak correlation that was not significantly linear was found (r (72) = -.113, p = .344). Relational empathy is not correlated with medication adherence in this sample (see Table 5).

Table 5

Bivariate Pearson Correlation for Study Variables

Variable	Relational Empathy	Medication Adherence
Relational Empathy	_	_
Medication Adherence	-.113	_

Note. N = 72

Research Question 2

RQ2: Do older adults' perceptions of relational empathy predict medication adherence when controlling for medication beliefs, gender, and level of education?

A two-block multiple linear regression analysis was conducted to examine the effect of perceptions of empathy on medication adherence. Model 1 included the control variables of gender, level of education, and medication beliefs (necessity and concerns). This model was not significant: F (4,66) = .655 score, p = .625 with R^2 of .038. Model 2 included the control variables with the addition of the independent variable (perception of relational empathy). Model 2 was also not significant: F (1,65) = .692, p = .409, with R^2 of .048. All p values in this regression model had values greater than .202 indicating there are no significant predictor variables of change in the medication adherence (see Table 6).

Table 6

Hierarchical Regression with Two Separate Models Using Independent and Control Variables

	Model 1				Model 2			
Variable	*B*	*SE B*	*β*	*p*	*B*	*SE B*	*β*	*p*
Gender	1.304	1.060	.153	.223	1.372	1.065	.161	.202
Level of Education	2.67	.506	.066	.600	.314	.511	.078	.541
Medication Concerns	-.036	.115	-.039	.752	.004	.125	.005	.972
Medication Necessity	.189	.159	.149	.239	.179	.160	.141	.267
Perception of Empathy					-.063	.075	-.110	.409

	Model 1	Model 2
R^2	.038	.048
F for change in R^2	.655	.692

Note. N = 72; *p < .05.

Discussion

Medication adherence continues to be a major health concern among older adults, while research identifying factors supporting or hindering medication adherence among this population continues to be largely underexamined. There is robust research on the use of empathy in healthcare for better outcomes for adults and that perception of care is key to person-centered care. Therefore, the primary aim of this study was to examine the relationship between older adults' perception of relational empathy in healthcare providers and its relationship to medication adherence.

Research Question 1

RQ 1: Does a relationship exist between older adults' perceptions of relational empathy in their healthcare provider and medication adherence?

There is a growing body of research supporting the use of empathy and relational empathy in healthcare settings and a number of associated positive outcomes (Moudastou, 2020; Dijke et al., 2019; Jeffry, 2016). However, contrary to the expectations that this relationship exists in other samples, there was no significant correlation between older adults' perception of relational empathy in their healthcare providers and medication adherence among the adults in this study. When examining the scores, participants generally reported somewhat low relational empathy and medication adherence. In fact, most participants in this study rated their perception of relational empathy from healthcare providers as *fair* and *poor* for most items. Lower empathy scores are consistent with some prior research, which has suggested that empathy among healthcare providers is declining (Hojat et al., 2009; Stratta et al., 2016; Howick et al.,

2017) and that older adults have reported a lack of empathy among their healthcare providers (Kerasidou et al., 2019).

Open-ended responses were not asked of participants, however, the primary investigator documented anecdotal verbal responses (not requested of participants but naturally occurring) given during the study interview to the CARE measure. A number of the participants felt their healthcare providers did not have enough time during the clinical encounter, and providers were often perceived as being too "rushed" to provide more empathic person-centered care. This perception may be due to increasing managed care requirements and expectations that can cause considerable strain on healthcare workers related to increased hours, emotional demands, new technology demands, understaffing, and high workloads; all of which result in less time with patients (Yi et al., 2020).

High workloads in particular can increase stress and burnout, as well as lead to passive behavior and emotional depletion among healthcare providers, which can negatively impact a patient's perception of empathy (Broetje et al., 2020). Ferri and colleagues (2015) suggested that declining empathy among nursing professionals due to burnout is concerning, particularly since healthcare industries have shifted in the last decade to incorporate a more patient-centered approach. These changes put a greater focus on the patient–provider relationship, thus increasing patient expectations for empathic care which subsequently increases demands on healthcare providers. A cross-temporal meta-analysis completed from 2009 to 2018 confirmed a steady decline in empathy among healthcare providers due to increased workloads (Yi et al., 2020). However, the analysis also indicated that healthcare providers who are skilled or

knowledgeable in managing their emotions while maintaining high workloads develop more adaptive ability to address patients' needs and can ultimately manage burnout more effectively (Yi, et al., 2020).

Some additional considerations for why medication adherence among this study population might not be related to empathy may also be due to the complexities of older adults' medication and healthcare needs. Older adults in this sample and program were more likely to have chronic illnesses that require them to take multiple prescription medicines. This is not uncommon, as research suggests that 40% of older adults take five or more medications per day (Kocurek, 2009). The older adults in this study setting receive their prescription medications in multiple forms, such as combinations of blister packs and in traditional prescription bottles, which may add to the complexity of medication management and hinder medication adherence. Additionally, medication adherence may not be related to relational empathy due to simple forgetfulness. Although this study sampled older adults who are not experiencing significant cognitive decline, there is normal forgetfulness associated with an aging brain (non-dementia-related cognitive decline) indicating that older adults may simply forget to take their medications or forget what was discussed with their healthcare provider (Austin et al., 2017).

Another consideration for the non-significant findings in this study could be due to the structured healthcare environment in which participants were sampled from. Structured adult day centers typically offer two basic types of day center programs: one is the social adult day center, consisting primarily of recreational programs, activities, and meals; and the second is the adult day health center, including more structured medical services (Agency for Healthcare Administration, 2022). Interestingly, the sample sites

used in this study included both social care and healthcare for older adults with wrap-around services including socialization, activities, and access to the interdisciplinary healthcare team (medical, dietary, physical therapy, and social services). Transportation is also provided to the day center, with older adults attending the day center from 1 to 5 days per week based on social and medical needs (Department of Elder Affairs, 2020). Study participants did not have a diagnosis of dementia but typically attended the day centers for more acute care needs due to emergent and ongoing moderate to high levels of medical need and social challenges. For example, many day center participants often lack support from friends or family and present with multiple comorbidities, including chronic illnesses with mental health challenges. In summary, the participants may not be experiencing significant cognitive issues but may still be dealing with higher levels of physical or other types of need that may interfere with their ability to perceive empathy or adhere to medication regimens.

Given a higher level of need, many of the older adults in this sample had higher expectations of the medical staff due to the convenience of having their healthcare providers onsite on a regular basis. Anecdotally, the author of this report is a staff member at all three study sites and has personally observed many day center participants with higher levels of need as more demanding of their healthcare provider's attention. Relatedly, they can become easily or frequently upset when they must be triaged or must wait to be seen by their primary care provider since they are not scheduled in advance for a medical appointment. Regardless of the ability and capacity of the day center resources to meet participants' needs, it is possible that patients who perceive more frequent distress may have a more negative perception of relational empathy from their healthcare

provider. Perhaps this sample of patients with higher level of need have higher expectations and feel less empathy from their healthcare providers, as reflected by their CARE measure ratings of primarily *fair* to *poor.*

There are other factors to consider in the complexity of medication adherence for older adults with multiple medication needs. For example, medication adherence may also be affected by the ongoing or emergent nature of frequent clinic visits as they can result in more numerous medication changes. In addition, medications are not given to the older adult during the patient–provider encounter; instead, the medication orders get entered into an electronic pharmacy system and then delivered to the older adult's home within a few days of the clinical encounter. Thus, there is a delay in the medication change that can affect when the older adult actually starts the new medication. Healthcare workers must also take extra time to reconcile all medications before prescribing new ones to prevent interactions between medications, which means that information on medication changes may not always be communicated during the patient–provider encounter. Therefore, emergent and unscheduled healthcare visits can result in multiple medication adjustments and delays in prescribing, which may directly affect adherence due to time or confusion about current medication regimen.

Another consideration related to the needs of older adults in this program are their sociodemographic or family structure characteristics. For example, this program enrolls a number of older adults with little or no family support. Combined with their lower socioeconomic status, which makes them eligible to participate, they may be experiencing worse than average somatic health problems. Prior research suggests that

older adults with weak social or family support systems and socioeconomic difficulties often require more resources and attention from the healthcare system (Boen et al., 2012).

Research Question 2

RQ2: Do older adults' perceptions of relational empathy predict medication adherence when controlling for medication beliefs, gender, and level of education?

Although the focus of this study was relational empathy and medication adherence, which was discussed in the prior section, it was also interesting to note that none of the control variables were significantly associated with medication adherence. Previous research related to gender as a factor in medication adherence has demonstrated mixed results in prior literature (Mahamoodi et al., 2019; Biffi et al., 2020). It is also important to note that gender has not been a central focus or clearly documented as a primary factor in studies of medication adherence among older adults. Prior research indicates that older adult women are generally more likely to adhere to medication regimens, particularly when they perceive better or higher levels of communication from their healthcare provider (Holt et al., 2013). Others have found that older White males have better medication adherence behaviors than females across multiple chronic illnesses (Rolnick et al., 2013). Although the present study included primarily women (74%), the mean score for medication adherence across all participants generally reflected moderately low medication adherence. Perhaps characteristics like participants' age or the severity or type of healthcare needs among those in this sample were more important in relation to medication adherence than the influence of gender.

Prior literature has also suggested that greater levels of education are associated with better medication adherence (Jin et al., 2016; Morinsky et al., 2008). Level of

education was generally low in the present study sample (53% of the study participants reporting a high school education or less) compared to national rates (24% of older adults aged 65 and over have a high school or less education; Department of Elder Affairs, 2021). This inconsistency may be due to the older mean age of the present study sample (M = 75), as individuals born between 1920 and 1959 have significantly lower educational attainment due to lack of opportunity and generational or societal expectations (Angissani et al., 2020). Lower educated older adults can lack understanding of the nature of their disease, the importance of treatment, and healthcare providers' instructions or advice (Pummapurath, 2021). Thus, the low variability in the present study sample may explain the lack of effect the variable of level of education has on medication adherence.

Medication beliefs have also been shown to influence medication adherence. In the present study, participants did not report strong beliefs in the necessity of their prescribed medications to maintain their health now and in the future, which is generally inconsistent with prior literature, which has shown that older adults who believe medications are necessary to maintain their health are more adherent to medications than those with higher levels of concern about medications (Clyne et al., 2017). Anecdotal responses during the interviews from some of the participants in this study indicated that some participants do not know what medications they are taking or why. Other anecdotal responses highlighted that some participants take multiple medications multiple times per day without knowing what most medications are for. Each of these factors may be a reason contributing to lower necessity scores.

Interestingly, participants indicated stronger concerns about potential adverse effects and dependence of prescribed medications. Researchers have found that older adults voice ongoing and significant concerns regarding dependence and long-term effects of their prescribed medications (Horne & Weinman, 1999). In another study by Rifkin and colleagues (2010), 30% of older adults reported nonadherence because they felt insufficiently informed about the risk of their prescribed medications. Perhaps participants in this study, particularly those with multiple diagnoses and chronic conditions, also reported stronger concerns about medications. From the verbal reports during interviews, the researcher noted many participants reflected that they take more medications now in their older age than they ever thought they would or indicated that they had some concerns that taking multiple medications could have an adverse effect on their health.

Although they were not included in this study, it is possible that other demographic characteristics of this sample may have influenced the study results. For example, the researcher used race categories that were determined by U.S. Census Bureau (2020), which classifies responses to the race question in five categories: White, Black, Asian, American Indian or Native, and Hawaiian or Pacific Islander. Ethnicity was not included in the present study. The majority of participants in the present sample were White (67%), which is lower than Palm Beach County's demographic profile of older adults (87% White; Department of Elder Affairs, 2021). Black participants represented 31% in this study sample, which is higher than Palm Beach County's demographic profile of older adults aged 65 and over which reports only 11% Black (Department of Elder Affairs, 2021). The higher Black population in this study sample may be because

older Black older adults are more likely to rely on Medicaid/Medicare and community-based programs (Scommegna, 2021). Research has also indicated that Black adults may report lower trust in their providers or medical treatment planning due to issues like historical or systemic racism (Jaiswal & Halkitis, 2019). Such experiences or perceptions could influence their decisions around medication or even their interactions with their healthcare providers.

Finally, the living arrangement of the present sample indicated that 47% of study participants live alone, which is inconsistent with Palm Beach County demographic data which reports that only 24% of older adults aged 65 and over are living alone (Department of Elder Affairs, 2021). This inconsistency may be due to the specific community-based program of the present study setting whose primary goal is to help older adults living in the community to "age in place." Older adults who live alone in the community more frequently fail to adhere to their medications due to complex regimens, poor organization, or lack of oversight (Smaje et al., 2018).

Strengths and Limitations

The current study was the first known study to examine older adult perceptions of relational empathy on medication nonadherence and serves as foundational research. Despite the null findings of this study, the implications of these findings still provide important considerations that may be helpful in formulating future research related to both relational empathy and medication adherence among older adults. In addition, the sample of older adults with higher levels of need who are also "aging in place" provides some unique context for understanding the complexity or uniqueness of relational empathy and medication adherence.

The primary limitations of this study include a homogenous study sample, reflecting predominantly White older adult females and persons with a high school diploma or less education. In addition, although sufficient power was achieved, this was a relatively small sample. The findings of this study are also limited in terms of generalizability due to the cross-sectional design of this research. The research also noted that there was an unexpectedly low Cronbach's alpha score on the medication adherence scale, which has been widely used and validated across multiple medical environments and samples in prior research. Although the findings do not seem overly positive, it is possible that the self-report nature of this study may have influenced the way that participants responded to the questions in this study. For example, the primary investigator of this study is a staff member at each of the day center locations, and participants may have thought their responses would initiate advocacy on their behalf for increased attention or support from their healthcare providers or changes in their care.

Another consideration is that this study only included data from older adult participants in the day centers and not data from their healthcare providers, who encounter many of the participants facing higher levels of physical need or adversity. Healthcare provider perception and patient personality are rarely discussed in the literature, however there are potential determinants that can change the provider's perception such as the nonadherent, unmotivated, or misinformed patients (Loyal et al., 2021). Therefore, it is possible that healthcare providers may have different perspectives or reports of participant status, compliance, patient–provider relationship, or needs. Finally, the study did not collect information on ethnicity, nor did it differentiate the type of living arrangement of each participant (e.g., if they were living with a roommate or

cohabiting with a partner or family member). Perhaps participants' cultural beliefs or relationship needs are met in other ways and relational empathy with their medical providers is less important. Collecting more detail detailed demographic information may have provided more information on the context of the sample of this study.

Recommendations

When considering implications for designing future research, the next step should be a qualitative study examining older adults' perceptions of relational empathy from their healthcare provider, how important it is for older adults to have a relationship with their healthcare provider, and what specific actions or interactions would indicate that their healthcare provider is incorporating empathic person-centered care. Given the lack of significance among the independent and control variables with the dependent variable, qualitative research may provide insight into other important factors for promoting empathic care and medication adherence among older adults. Although the findings of this study were not significant, person-centered care is still an important practice that demonstrates respect for older adults and supports the dignity and worth of a person; these values also align with the National Association of Social Work code of ethics (2017). Perhaps older adults have different perspectives or needs for person-centered care or relational empathy. It is also possible that the results of qualitative research could be used to inform, adapt, or develop a more valid measure of relational empathy for older adults or provide information for future quantitative research.

Another recommendation would be a quantitative study measuring healthcare providers' perception of empathy within the patient–provider relationship to determine level of match or similarity. If they are working with a higher need population, it is

possible that the healthcare provider may struggle more with empathy. For example, Stratta et al. (2016) conducted a qualitative study that identified emergent themes of healthcare providers' acknowledgement of a decline in empathy, largely due to the prioritization of patients' physical rather than psychological well-being. In addition, healthcare providers described how their value judgment of patients impacted their ability to empathize (e.g., age-related judgements on pain, depression, etc. were often viewed as a "normal" part of aging). Qualitatively examining healthcare providers' perceptions would also add to the research base on the patient–provider relationship by asking questions to the healthcare provider, such as: "Do you feel you have adequate time during the clinical encounter for higher need older adults?"; "How do you provide empathic care to older adults with higher levels of need?"; or "What resources or support do you need to provide more empathic care to older adults with high levels of need?."

Other recommendations for future research include looking at other potential factors that may be associated with medication adherence, such as the severity of health conditions. For example, examining diagnosis-specific medication adherence rates may provide valuable data for healthcare professions, as prior research suggests that older adults with hypertension and diabetes have the highest nonadherence rates (Punnapurath et al., 2021). Research should also examine the context of the healthcare system in which older adults are served. One aspect of the healthcare context would be the time allotted with patients during each clinical encounter, as providers often have limited time with patients. Future research could determine whether allowing for slightly longer appointments could be beneficial and improve medication adherence or relational empathy outcomes for older adults. Importantly, a number of the anecdotal verbal

responses from participants in the present study supported the notion that healthcare providers do not having enough time to provide person-centered empathic care during the clinical encounter. Additionally, participants reported a lack of clarity in their dosage, type, and purpose of their medications (complex medication factor). Thus, time may be an important factor in promoting both medication adherence and relational empathy.

More research is also needed on the role that participants' sociodemographic characteristics influence medication adherence and relational empathy. Recruitment of a more diverse sample could be helpful to better distinguish or identify potential confounding variables associated with the convenience sample at the three day centers included in this study. For example, a broader geographic sample, examining participants in both rural and more urban locations, participants with differing socioeconomic statuses, and levels of romantic or familial connections may have provided a little more information on variables that support or inhibit medication adherence and relational empathy. In addition, including a specific variable measuring ethnicity would also be helpful, as research on older adults from underrepresented backgrounds or culture is needed among current healthcare literature. For example, according to Palm Beach County demographic information, 10% of the older adults living in Palm Beach County are Hispanic (Department of Elder Affairs, 2021). Finally, alternative study designs may yield other important results. For example, older adult participants have various healthcare providers and interactions over time that may influence their perceptions of medication adherence and relational empathy. Thus, a longitudinal design may be an important future research direction, as perceptions can be measured over time.

Practice and Programmatic Recommendations

Practice should continue to focus on patient-centered care specific to older adults (Bowling et al., 2019), as research has found that older adults who perceive a lack of empathy in healthcare providers have also reported higher dissatisfaction with care, and lower empathy is associated with increased medical mistakes and malpractice cases (Howick et al., 2017). Research recommendations were previously noted for enhancing understanding of older adults and the context of medication adherence and relational empathy. However, designing an empathy-focused framework for use in a clinical context with older adults would be a helpful follow-up initiative for the healthcare industry when more research is conducted. Current research supports the effectiveness of empathy training in healthcare (Paulus & Meinken, 2022); however, there is little consistency in content, populations, or methods.

A potential framework for comparison would be the medication-related consultation framework (MRCF), which is a patient-centered approach that includes exercises to help healthcare providers evaluate and develop skills such as active listening and increase the use of open and closed-ended questioning when consulting patients about medication adherence (Krska, 2013). Additionally, Fagiano (2019) recommended a 3-step relational empathy model specific to clinical encounters that includes observation and perception, using empathic understanding behaviors, and responding and delivering advice. All of these steps could be beneficial in defining an overarching relational empathy framework for use in healthcare, specifically with older adult populations. Another empathy training worth considering with older adults was created by medical professors at Harvard Medical School. They developed an evidenced-based empathy education course for physicians and leaders named “Empathetics” that includes training

on foundational empathy and relational skills education to improve patient experience scores. This training includes three interactive 60-minute courses, divided into 20-minute modules (Massachusetts Medical Society, 2022). Importantly, research suggests that empathy training may be more effective if spread over time rather than at one point in time because the benefits of empathy training (e.g., improved patient outcomes, perceptions of care) outweigh the costs associated with having more consistent trainings (Paulus & Meinken, 2022).

Despite the lack of significant findings in this study, the low reports of medication adherence and relational empathy also highlight the importance of initial education for medical and nursing students and professionals. Researchers have found that empathy may decrease around the third year of medical training (Hojat et al., 2019; Jeffrey, 2017). Thus, broad training and curricula that includes learning activities specific to geriatric populations would enhance empathic patient-centered care. Simulation has been suggested as a novel approach for students to learn empathy for older adults with the use of simulation suits (Lee & Teh, 2020). Some simulation suits include gloves, weighted vest, glasses, elbow/knee wraps, and sandbags that are designed to give students the opportunity to experience the impairments many older adults face (e.g., eye narrowing, decreased grip, restricted mobility) in an effort to enhance empathic reactions in students. Researchers found that, interestingly, empathy scores initially increased after students used the suits; however, three months after the simulation intervention empathy scores reverted back to baseline which further supports that empathy training is likely more effective if spread out over time (Paulus & Meinken, 2022).

Additionally, Florida nurses have six continuing education (CE) requirements, yet there are no requirements related to empathy or customer service-oriented education. There are, however, optional empathy CE trainings that describe the benefits of empathy in healthcare, ramifications for practitioners who fail to practice empathy, and how to provide care to patients in stressful circumstances. It could be beneficial to mandate and offer CE empathy trainings within organizations serving older adults, as it would not only benefit nursing staff by enhancing empathy but allow nursing staff to gain additional CE credits. Relatedly, it may be beneficial for geriatric healthcare organizations to develop a quality care initiative (through their quality assurance departments) to research and design empathy-based trainings for their agency. Starting with administrative efforts and organizational support may provide a more feasible and acceptable framework for promoting more empathic healthcare for older adults. Finally, research has indicated that younger healthcare providers, in particular, have reported less exposure to the needs and strengths of older adults; however, all healthcare providers may benefit from training intended to increase their sensitivity to older adults (Heise et al., 2012). Thus, large scale and education-based approaches to promoting and supporting practitioners' knowledge of older adults' healthcare needs could help diminish the potential for agism in healthcare encounters and medical practice (Heise et al., 2012).

Conclusion

As the aging population continues to grow, more research should be considered to reflect the needs of this population. Perception and quality of healthcare are important factors to consider in improving outcomes for older adults. The present study provided foundational examination of older adults' perceptions of relational empathy as a strategy

to improve medication adherence in older adults. Although present study findings were inconclusive in supporting the association between relational empathy and medication adherence, secondary findings or considerations related to the low perception of relational empathy with healthcare providers and moderately low medication adherence provided a context for a thoughtful consideration of the implications of this study. Despite the null findings, anecdotal evidence from the in-person interviews also supports the need for person-centered care among older adults. Thus, the overall implications and findings of this research still provide important considerations for designing future research initiatives, specifically initiatives that promote a framework for understanding and practice of empathy during the clinical encounter with older adults.

Appendices

Appendix A

SLUMS Cognitive Assessment Tool

List of eligible study participants with scores >23 provided by day center administrative assistants

VAMC
SLUMS EXAMINATION

Questions about this assessment tool? E-mail aging@slu.edu

Name_____ Age_____

Is the patient alert?_____ Level of education_____

__/1 1. What day of the week is it?

__/1 1. What is the year?

__/1 1. What state are we in?

4. Please remember these five objects. I will ask you what they are later.
Apple Pen Tie House Car

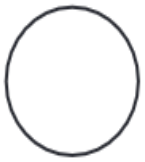
5. You have $100 and you go to the store and buy a dozen apples for $3 and a tricycle for $20.
1. How much did you spend?
__/3 2. How much do you have left?

6. Please name as many animals as you can in one minute.
__/3 0 0-4 animals 1 5-9 animals 2 10-14 animals 3 15+ animals

__/5 7. What were the five objects I asked you to remember? 1 point for each one correct.

8. I am going to give you a series of numbers and I would like you to give them to me backwards. For example, if I say 42, you would say 24.
__/2 0 87 1 649 1 8537

9. This is a clock face. Please put in the hour markers and the time at ten minutes to eleven o'clock.
2 Hour markers okay
__/4 2 Time correct



1 10. Please place an X in the triangle.

__/2 1 Which of the above figures is largest?

11. I am going to tell you a story. Please listen carefully because afterwards, I'm going to ask you some questions about it.
Jill was a very successful stockbroker. She made a lot of money on the stock market. She then met Jack, a devastatingly handsome man. She married him and had three children. They lived in Chicago. She then stopped work and stayed at home to bring up her children. When they were teenagers, she went back to work. She and Jack lived happily ever after.
2 What was the female's name? 2 What work did she do?
__/8 2 When did she go back to work? 2 What state did she live in?

_____ TOTAL SCORE

SCORING

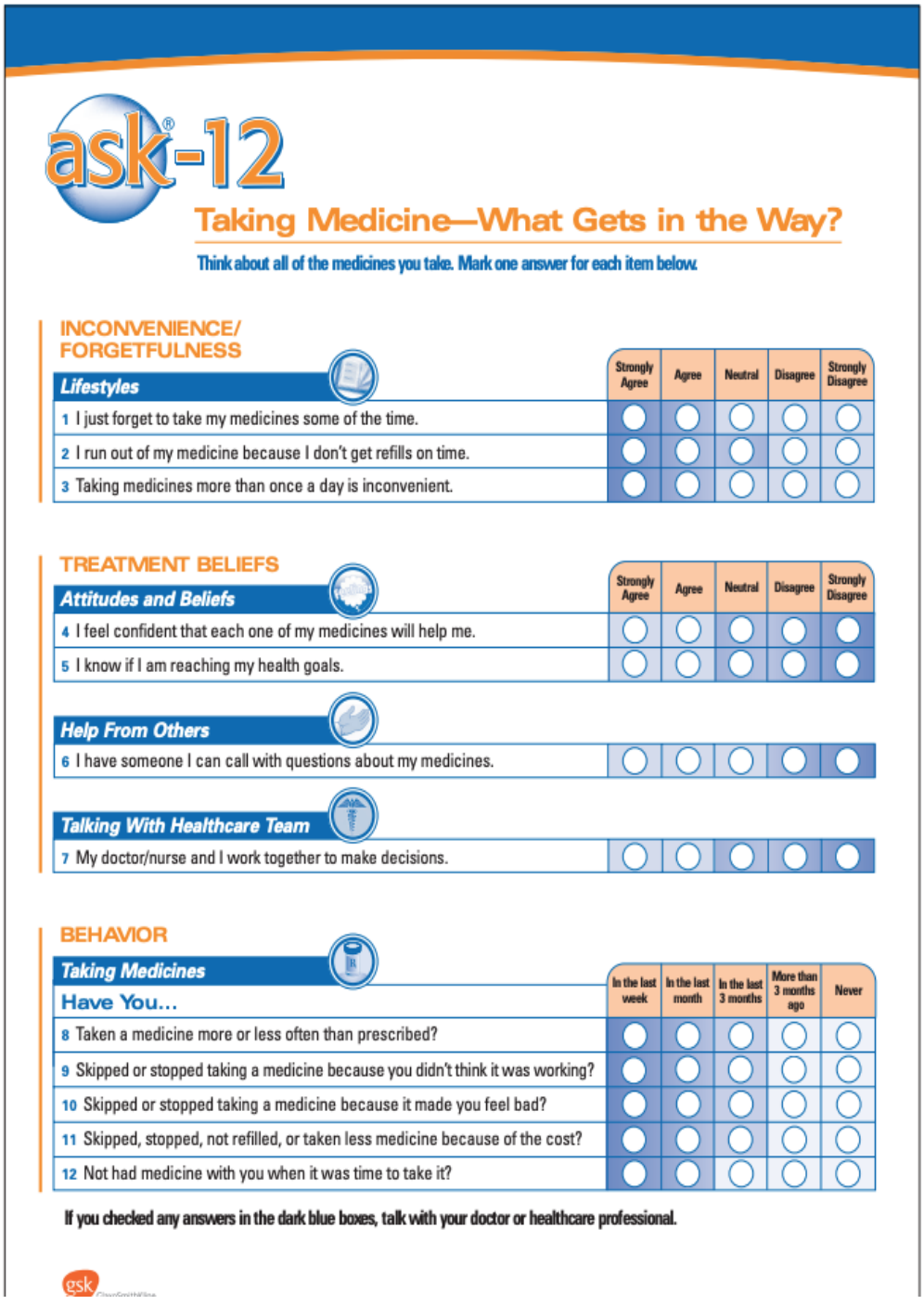
High School Education		Less than High School Education
27-30	Normal	25-30
21-26	Mild Neurocognitive Disorder	20-24
1-20	Dementia	1-19

CLINICIAN'S SIGNATURE DATE TIME

SH Tariq, N Tumosa, JT Chibnall, HM Perry III, and JE Morley. The Saint Louis University Mental Status (SLUMS) Examination for detecting mild cognitive impairment and dementia is more sensitive than the Mini-Mental Status Examination (MMSE) - A pilot study. *Am J Geriatr Psych* 14:900-10, 2006.

Appendix B

ASK-12



ask®-12

Taking Medicine—What Gets in the Way?

Think about all of the medicines you take. Mark one answer for each item below.

INCONVENIENCE/ FORGETFULNESS

Lifestyles

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
1 I just forget to take my medicines some of the time.	○	○	○	○	○
2 I run out of my medicine because I don't get refills on time.	○	○	○	○	○
3 Taking medicines more than once a day is inconvenient.	○	○	○	○	○

TREATMENT BELIEFS

Attitudes and Beliefs

	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
4 I feel confident that each one of my medicines will help me.	○	○	○	○	○
5 I know if I am reaching my health goals.	○	○	○	○	○

Help From Others

6 I have someone I can call with questions about my medicines.	○	○	○	○	○

Talking With Healthcare Team

7 My doctor/nurse and I work together to make decisions.	○	○	○	○	○

BEHAVIOR

Taking Medicines

Have You...	In the last week	In the last month	In the last 3 months	More than 3 months ago	Never
8 Taken a medicine more or less often than prescribed?	○	○	○	○	○
9 Skipped or stopped taking a medicine because you didn't think it was working?	○	○	○	○	○
10 Skipped or stopped taking a medicine because it made you feel bad?	○	○	○	○	○
11 Skipped, stopped, not refilled, or taken less medicine because of the cost?	○	○	○	○	○
12 Not had medicine with you when it was time to take it?	○	○	○	○	○

If you checked any answers in the dark blue boxes, talk with your doctor or healthcare professional.

gsk

Appendix C

ASK-12 User Agreement No. 75225

SPECIAL TERMS No75225

These User License Agreement Special Terms (Special Terms) are issued between Mapi Research Trust ("MRT") and Elizabeth Manresa (User).

These Special Terms are in addition to any and all previous Special Terms under the User License Agreement General Terms.

These Special Terms include the terms and conditions of the User License Agreement General Terms, which are hereby incorporated by this reference as though the same was set forth in its entirety and shall be effective as of the Special Terms Effective Date set forth herein.

All capitalized terms which are not defined herein shall have the same meanings as set forth in the User License Agreement General Terms.

These Special Terms, including all attachments and the User License Agreement General Terms contain the entire understanding of the Parties with respect to the subject matter herein and supersedes all previous agreements and undertakings with respect thereto. If the terms and conditions of these Special Terms or any attachment conflict with the terms and conditions of the User License Agreement General Terms, the terms and conditions of the User License Agreement General Terms will control, unless these Special Terms specifically acknowledge the conflict and expressly states that the conflicting term or provision found in these Special Terms control for these Special Terms only. These Special Terms may be modified only by written agreement signed by the Parties.

1. User information

User name	Elizabeth Manresa
Category of User	Student
User address	777 Glades Rd., Boca Raton, 33431, Florida , United States
User VAT number	
User email	emanresa@fau.edu
User phone	5616449103
Billing information	777 Glades Rd., Boca Raton, 33431, Florida , United States

© Mapi Research Trust,2022 . The unauthorized modification, reproduction and use of any portion of this document is prohibited.

2. General information

Effective Date	Date of acceptance of these Special Terms by the User : 09 Jul 2022
Expiration Date (Term)	Upon completion of the Stated Purpose
Name of User's contact in charge of the request	Elizabeth Manresa

3. Identification of the COA

Name of the COA	ASK-12 - Adherence Starts with Knowledge 12
Author	GlaxoSmithKline Research and Development Limited (GSK)
Copyright Holder	GlaxoSmithKline Research & Development Limited (GSK)
Copyright notice	©2008 GlaxoSmithKline. All rights reserved
Bibliographic reference	Matza LS, Park J, Coyne KS, Skinner EP, Malley KG, Wolever RQ. Derivation and validation of the ASK-12 adherence barrier survey. Ann Pharmacother. 2009 Oct;43(10):1621-30 (PubMed_abstract)
Module(s)/version(s) needed	• ASK-12_AU1.0

© Mapi Research Trust,2022 . The unauthorized modification, reproduction and use of any portion of this document is prohibited.

4. Context of use of the COA

The User undertakes to use the COA solely in the context of the Stated Purpose as defined hereafter.

4.1 Stated Purpose

Clinical Practice

Type of use*	Educational purpose
Planned Term*	Start: 07/2022 End: 12/2022
Number of enrolled patients/subjects	70
Number of estimated failed patients/subjects	0
Number of sites	3
Number of submissions of the COA for each enrolled patient/subject	
Mode of administration*	• Paper • Electronic
If electronic administration, please indicate mode of data collection	• Hand held device: lap top
Use of IT Company (e-vendor)	No

4.2 Country and languages

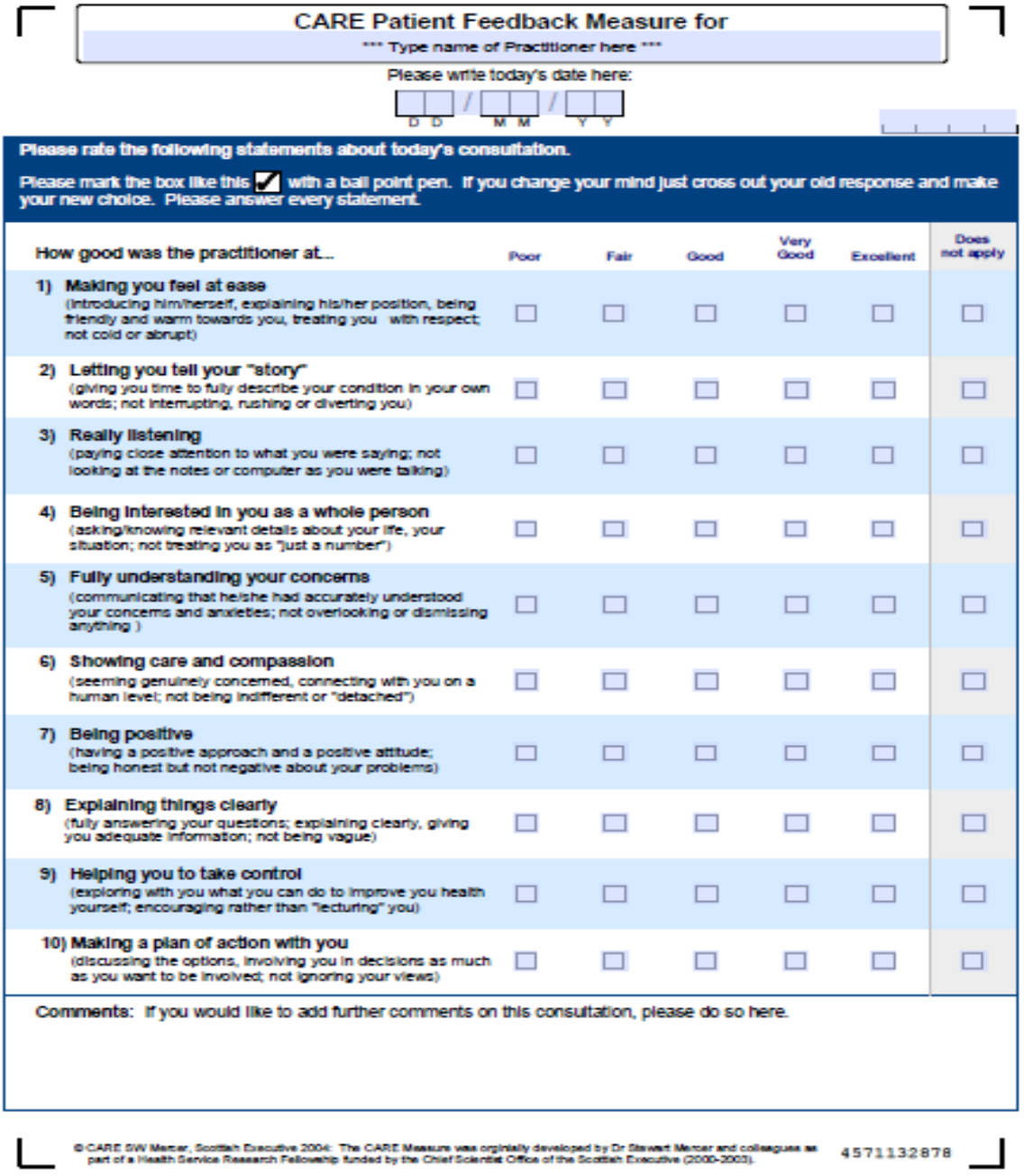
MRT grants the License to use the COA on the following countries and in the languages indicated in the table below:

Version/Module	Language	For use in the following country
ASK-12_AU1.0	English	the USA

© Mapi Research Trust,2022 . The unauthorized modification, reproduction and use of any portion of this document is prohibited.

Appendix D

Consultation and Relational Empathy Measure (CARE)



CARE Patient Feedback Measure for

*** Type name of Practitioner here ***

Please write today's date here:

D D / M M / Y Y

Please rate the following statements about today's consultation.

Please mark the box like this ☑ with a ball point pen. If you change your mind just cross out your old response and make your new choice. Please answer every statement.

How good was the practitioner at...	Poor	Fair	Good	Very Good	Excellent	Does not apply
1) **Making you feel at ease** (introducing him/herself, explaining his/her position, being friendly and warm towards you, treating you with respect; not cold or abrupt)	☐	☐	☐	☐	☐	☐
2) **Letting you tell your "story"** (giving you time to fully describe your condition in your own words; not interrupting, rushing or diverting you)	☐	☐	☐	☐	☐	☐
3) **Really listening** (paying close attention to what you were saying; not looking at the notes or computer as you were talking)	☐	☐	☐	☐	☐	☐
4) **Being interested in you as a whole person** (asking/knowing relevant details about your life, your situation; not treating you as "just a number")	☐	☐	☐	☐	☐	☐
5) **Fully understanding your concerns** (communicating that he/she had accurately understood your concerns and anxieties; not overlooking or dismissing anything)	☐	☐	☐	☐	☐	☐
6) **Showing care and compassion** (seeming genuinely concerned, connecting with you on a human level; not being indifferent or "detached")	☐	☐	☐	☐	☐	☐
7) **Being positive** (having a positive approach and a positive attitude; being honest but not negative about your problems)	☐	☐	☐	☐	☐	☐
8) **Explaining things clearly** (fully answering your questions; explaining clearly, giving you adequate information; not being vague)	☐	☐	☐	☐	☐	☐
9) **Helping you to take control** (exploring with you what you can do to improve you health yourself; encouraging rather than "lecturing" you)	☐	☐	☐	☐	☐	☐
10) **Making a plan of action with you** (discussing the options, involving you in decisions as much as you want to be involved; not ignoring your views)	☐	☐	☐	☐	☐	☐

Comments: If you would like to add further comments on this consultation, please do so here.

©CARE SW Mercer, Scottish Executive 2004: The CARE Measure was orginally developed by Dr Stewart Mercer and colleagues as part of a Health Service Research Fellowship funded by the Chief Scientist Office of the Scottish Executive (2000-2003).

4571132878

Appendix E

Beliefs about Medications - Specific Measure (BMQ-Specific)

Rated: strongly agree, agree, uncertain, disagree, strongly disagree

My health, at present, depends on my medicines
Having to take medicines worries me
My life would be impossible without my medicines
Without my medicines I would be very ill
I sometimes worry about long-term effects of my medicines
My medicines are a mystery to me
My health in the future will depends on my medicines
My medicines disrupt my life
I sometimes worry about becoming too dependent on my medicines
My medicines protect me from becoming worse

Note:
To elicit beliefs about individual components of the treatment regimen the reference statement should refer to the medicine by name e.g. *Your views about aspirin prescribed for you* Additionally items can refer to a named illness e.g. *Your views about medicines prescribed for your asthma*

Appendix F

Demographics Questionnaire

1. Please indicate you Gender: (*nominal, dichotomous)*
    A. Male
    B. Female
2. Please indicate your race: (*nominal)*
    A. American Indian or Alaska Native
    B. Asian
    C. Black or African American
    D. Hawaiian or Pacific Islander
    E. White
3. Do you live alone? (*nominal, dichotomous*)
    A. Yes
    B. No
4. What is your highest level of education? (*ordinal recoded to dichotomous*)
    A. Less than high school diploma
    B. High school diploma
    C. Some college
    D. Bachelor's degree
    E. Master's degree
    F. PhD/professional degree
5. What is your age in years? _____ (*continuous*)

References

Administration on Aging. (2017). *Profile of Older Americans.* https://www.acl.gov/sites/default/aging-america/2017older-americans-profile

Ajzen, I., & Fishbien, M. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin*, *84*(5). https://doi.org/10.1037/0033-2909.84.5.888

American Medical Association. (2015). *Medication adherence: Improve patient outcomes and reduce costs.* https://edhub.ama.org/steps-forward module/270259

Angissani, A., Lee, J., & Meijer, E. (2020). The gender gap in education and late-life cognition: Evidence from multiple countries and birth cohorts. *Journal of Economics and Aging, 16,* 115-116. https://doi.org/10.1016/j.jeoa.2019.100232

Arthur, A., Maben, J., Wharrad, H., Aldus, C., Sarre, S., Schneider, J., Nicholson, C., Barton, G., Cox, K., & Clark, A. (2015). Can healthcare assistant training improve the relational care of older people? Study protocol for a pilot cluster randomized controlled trial. *BMC Trials, 16,* 559. https://doi.org/10.1186/s13063-015-1077-3

Austin, J., Klein, K., Mattek, N., & Kaye, J. (2017). Variability in medication taking is associated with cognitive performance in nondemented older adults. *Alzheimers Dementia, 6,* 210-213. https://doi.org/10.1026/j.dadm.2017.02.003.

Bayne, H. (2013). Creative and novel approaches to empathy: A neo-Rogerian perspective. *Journal of Mental Health Counseling, 35*(1), 29-42. https://doi.org/10.17744/mehc.35.1.5q375220327000t2

Betzler, B. (2019). The relational value of empathy. *International Journal of Philosophical Studies, 27*(2). https://doi.org/10.1080/09672559.2019.1598081

Biffi, A., Rea, F., Iannaccone, T., Filippelli, A., & Corraro, G. (2020). Sex differences in the adherence of antihypertensive drugs: A systematic review with meta-analysis. *BMJ, 10*(7). https://doi.org/10.1136/bmjopen-2019-036418

Bikker, A., Fitzpatrick B., Murphy, D., & Mercer, S. (2015). Measuring empathic, person-centered communication in primary care nurses: Validity and reliability of the consultation and relationship empathy (CARE) measure. *BMC Family Practice, 16*(149), 149. https://doi.org/10.1186/s12875-015-0374-y

Bosworth, H., Granger, B., Mendys, P., Brindis, R., Burkholder, R., Czajkowski, S., Daniel, J., Ekman, I., Ho, M., Johnson, M., Kimmel, S., Liu, L., Musaus, J., Schrank, W., Whalley, E., Weiss, K., & Granger, C. (2011). Medication adherence: A call for action. *American Heart Journal, 162*(3), 412-424. https://doi.org/10.1016/j.ahj.2011.06.007

Bowling, C., Whitson, H., Theodore, M., & Johnson, I. (2019). The 5 t's: Preliminary development of a framework to support inclusion of older adult research. *Journal of American Geriatrics, 67*(2), 342-346. https://doi.org/10.1111/jgs.15785

Broetje, S., Gregor, J., & Bauer, G. (2020). The key job demands and resources of nursing staff: An integrative review of reviews. *Frontiers in Psychology, 11*(84). https://doi.org/10.3389/fpsyg.20.00084PMID: 32082226

Brown, M., Brussell, J., Dutta, M., Davis, K., Strong, K., & Mathew, S. (2016). Medication adherence: Truth and consequences. *American Journal of Medical Sciences, 4*(351). https://doi.org/10.1016/j.amjms.2016.01.010

Centers for Disease Control and Prevention. (2017). *Understanding medication nonadherence.* https://www.cdc.gov/mmwr/volumes/66/wr/mm6645a2.htm

Center of Medicare and Medicaid. (2021). *Cost of medical nonadherence.* https://www.cms.gov/Research-Statistics-Data-and-Systems/Research

Chen, T. & Wen, C. (2012). Medication adherence among geriatric outpatients prescribed multiple medications. *American Journal of Geriatric Pharmacology*, *10*(1), 61-68. https://doi.org/10.1016/j.amjopharm.2011.11.005

Chinn, P., & Kramer, M. (2005). *Theory and Nursing.* Mosby Publications.

Cho, M., Shin, D., Chang, S., Lee, J., Jeong, S., Kim, S., & Sun, K. (2018). Association between cognitive impairment and poor antihypertensive medication adherence in elderly hypertensive patients without dementia. *Scientific Reports, 8(*1), Article 11688. https://doi.org/10.1038/s41598-018-29974-7

Cicolini, G., Comparcini, D., Flacco, M., Capasso, L., Masucci, C., & Simmetti, V. (2016). Self-reported medication adherence and beliefs among elderly in multi-treatment: A cross sectional study. *Applied Nursing Research, 131*(6). https://doi.org/10.16/j.apnr.2015.11.011

Clyne, B., Cooper, J., Boland, F., Hughes, C., Fahey, T., & Smith., S. (2017). Beliefs about medication among older patients with polypharmacy: A mixed method study in primary care. *British Journal of General Practice, 67* (660), 507-518. https//doi.org/10.3399/bjgp17x691073

Conn, V., & Taylor, S. (2021). Cognitive impairment and medication adherence. *Gerontological Nursing, 7,* 41-47. https://doi.org/10.3928/0098-9134-19940701-09

Cronk, B. (2020). *How to use SPSS: A step by step guide to analysis and interpretation* (11th ed.). Routledge.

Daley, D., Deane, K., Gray, R., Clark, A., Pfeil, M., Sabanathan, K., Worth, P., & Myint, P. (2014). Adherence therapy improves medication adherence and quality of life in people with Parkinson's disease: A randomized control trial. *International Journal of Clinical Practice, 68*(8), 963-971. https://doi.org/10.111/ijcp.12439

Decety, J. (2012). *Empathy: from bench to bedside.* MIT Press.

Decety, J. (2020). Empathy in medicine: What it is and how much we really need it. *American Journal of Medicine, 133(*5), 561-566. doi.org/10.1016/j.amjmed.2019.12.012

Del Canale, S., Lois, D., Maio, V., Wang, X., Rossi, G., Hojat, M., & Gonnella, J. (2012). The relationship between physician empathy and disease complications: An empirical study of primary care physicians and their diabetic patients in Parma, Italy. *Journal of the Association of American Medical Colleagues, 87,* 1243-1249. https://doi.org/.1097/ACM.0b013e3182628fbf

Department of Elder Affairs. (2021). *Profile of older Floridians: Palm Beach profile.* https://elderaffairs.org/wp-content/uploads/palm-beach-profile-2021.pdf

Department of Health and Human Services. (2018). *America's health literacy: Why we need accessible health information.* https://ahrq.gov/sites/files/wysiwyg/health-literacy/dhhs-2008-isssue-brief.pdf

Dijke, J., Nistelrooij, I., Bos, P., & Duyndam, J. (2019). Towards a relational conceptualization of empathy. *Nursing Philosophy*, *21*(3). https://doi.org/10.1111/nup.12297

Eisenberg, N., Eggum, N., & Giunta, L. (2010). Empathy-related responding with prosocial behavior, aggression, and intergroup relations. *Social Issues and Policy Review*, *4*(1), 143-180. https://doi.org/10.1111/j.1751-2409.2010.01020.x

Etingen, B., Miskevics, S., & Lavela, S., (2016). Assessing associations of patient-reported perceptions of patient-centered care as supplemental measures of healthcare quality. *Journal of General Internal Medicine, 1*(1), 10-20. https://doi.org/10.1007/s11606-015-3557-2

Fagiano, M. (2019). Relational empathy. *International Journal of Philosophical Studies*, *27*(2), 162-179. https://doi.org/10.1080/09672559.2019.1598086

Faul, F., Erdfelder, E., Lang, A., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, *39*, 175-191. https://doi.org/10.3758/BF03193146

Ferri, P., Guerra, E., Marcheselli, L., Cunico, L., & Rosaria. (2015). Empathy and burnout: An analytic cross-sectional study among nurses and nursing students. *Society Medicine of Natural Sciences, 86*(2), 105-115. https://www.iris.unimore.it/handle/11380/1075631

Foot, H., Caze, A., & Cittrell, N. (2015). The necessity-concerns framework predicts adherence to medication in multiple illness conditions: A meta-analysis. *Patient Education Counsel*, *99*(5), 706-717. https://doi.org/10.1016/j.pec.2015.11.004

Foster, A., Trieu, M., Azutillo, E., Shivashanka, H., & Lok, B. (2017). Teaching empathy in healthcare: From mirror neurons to educational technology. *Journal of Technology in Behavioral Science*, *2*(105). https://doi.org/10.1007/s41347-017-0019-1

Fulmer, T., Reuben, D., Auerbach, J., Fick, D., & Galambos, C. (2021). Actualizing better health and healthcare for older adults. *Health Affairs, 40*(2). https://doi.org/10.1377/hlfaff.2020.01470

Gatti, M., Jacobson, K., Gazmararian, J., Schmotzer, B., & Kipalini, B. (2009). Relationships between beliefs about medications and adherence. *American Journal of Health-System Pharmacy*, *66*(7), 657-664. https://doi.org/10.2146/ajhp080064

Hall, J., & Schwartz, R. (2017). Empathy present and future. *The Journal of Social Psychology*, *159*(3), 225-243. https://doi.org/10.1080/00224545.2018.1477442

Hansen, B., Hodgson, N., & Gitlin, L. (2016). It's a matter of trust: Older African Americans speak about their health care encounters. *Journal of Applied Gerontology*, *35*(10), 1058-1076. https://doi.org/10.1177/0733464815570662

Harmon, G., Lefante, J., & Krousel-Wood, M. (2006). Overcoming barriers: The role of providers in improving patient adherence to antihypertensive medications. *Current Opinion in Cardiology*, *21*(4), 310-315. https://doi.org/10.1097/01.hco.0000231400. 10104.e2

Heise, B., Johnson, A., Himes, V., & Wing, D. (2012). Developing positive attitudes toward geriatric nursing among millennials and generation xers. *Nursing*

Education Perspectives, *33*(3), 156-161. https://doi.org/10.5480/1536-5026-33.3.156

Hermans, L., Hartman, T., & Dielissen, P. (2018). Differences between gp perception of delivered empathy and patient perceived empathy: A cross sectional study in primary care. *British Journal of General Practice*, *68*(674), 621-626. https://doi.org/10.3399/bjgp18x698381

Hoffman, M. (1984). Toward a comprehensive empathy-based theory of prosocial moral development. *Constructive and Destructive Behavior.* https://doi.org/10.1037/10433-003

Hojat, M., Lois, M., Marham, D., Wender, F., Rabiowitz, R., & Gonnella, J. (2011). Physicians'empathy and clinical outcomes for diabetic patients. *Journal of the Association of American Medical Colleagues*, *86,* 359-364. https://doi.org/10.1097/ACM.0b013e3182086fel

Hojat, M., Vergare, M., Maxwell, K., George, B., Herrine, S., Isenberg, G., Veloski, J., & Gonella, J. (2009). The devil is in the third year: A longitudinal study on the erosion of empathy in medical school. *Academic Medicine*, *84*(9), 1182-1191. https://doi.org/10.1097/ACM.0b013e3181b17e55

Holt, E., Rung, A., Leon, A., Firestein, C., & Krousel-Wood, M. (2013). Medication adherence in older adults: A qualitative study. *Educational Gerontology*, *40*(3), 198-211. https://doi.org/10.1080/03601277.2013.802186

Horne, J., Madill, J., & Gilliand, J. (2017). Incorporating the 'theory of planned behavior' into personalized healthcare behavior change research: A call to action. *Personalized Medicine, 14*(6). https://doi.org/10.2217/pme-2017-0038

Horne, R., & Weinman, J. (1999). Patient's beliefs about prescribed medicines and their role in adherence to treatment in chronic physical illness. *Journal of Psychosomatic Research, 47*(6), 555-567. https://doi.org/10.1016/s0022-3999(99)00057-4

Horne, R., Weinman, J., & Hankins, M. (1999). The beliefs about medicines questionnaire: The development and evaluation method for assessing cognitive representation of medicine. *Psychology and Health, 4,* 1-24. https://doi.org/10.1080/08870449908407311

Howick, J., Moscrop, A., & Onakpoya, I. (2018). Effects of empathic and positive communication in healthcare consultations: A systematic review and meta-analysis. *Royal Society of Medicine, 111*(7), 240-252. https://doi.org/10.1177/014107681879477

Howick, J., Steinkopf, L., Ulte, A., Roberts, N., & Meissner, K. (2017). How empathic is your healthcare practitioner? *BMC Medical Education, 17*(1). https://doi.org/10.1186/s12909-017-0967-3

Jaiswal, J., & Halkitis, P. (2019). Towards a more inclusive and dynamic understanding of medical mistrust informed by science. *Behavioral Medicine, 45*(2), 79-85. https://doi.org/10.1080/08964289.1619511

Jeffrey, D. (2016). Empathy, sympathy, and compassion in healthcare: Is there a problem? Is there a difference? Does it matter? *Journal of Royal Society Medicine, 109*(2), 446-452. https://doi.org/10.1177/0141076816680120

Jeffrey, D. (2017). Communicating with a human voice: Developing a relational model of empathy. *Journal of the Royal College of Physicians Edinburgh, 47*(3), 266-270. https://doi.org/10.4997/JRCPE.2017.312

Jin, H., Kim, Y., & Rhie, S. (2016). Factors affecting medication adherence in elderly people. *Patient Preference and Adherence, 10,* 2117-2125. https://doi.org/10.2147/PPA.S118121

Johnson, M., (2002). The medication adherence model: A guide for assessing medication taking. *Research and Theory of Nursing Practice, 16*(3), 402-42. https://doi.org/10.1891/rtnp.16.3.179.53008

Johnson, M., Williams, M., Marshall, E. (1999). Adherent and nonadherent medication-taking in elderly hypertensive patients. *Clinical Nursing, 8*(4), 318-335. https://doi.org/10.1177/10547739922158331.

Kang, H. (2013). The prevention and handling of missing data. *Korean Journal of Anesthesiology, 64*(5), 402-406. https://doi.org/10.4097/kjae.2013.64.5.402

Kerasidou, A., Baeroe, K, Berger, Z., & Brown, A. (2019). The need for empathic healthcare systems. *Journal of Medical Ethics, 47*(12). https://doi.org/10.1136/medethics-2019-10592

Kocurek, B. (2009). Promoting medication adherence among older adults…and the rest of us. *Research to Practice, 22*(2), 80-84. https://doi.org/10.2337/diaspect.22.2.80

Krska, J., Gammie, S., & Childs, J. (2013). *Evaluating community pharmacists' consultation skills.* South London Health Innovation and Education. https://www.researchgate.net/publication/272454518_Evaluating_community_pharmacists'_consultation_skills

LaVela, S., Heinemann, A., Etingen, B., Locatelli, S., & Chen, D. (2015). Relational empathy and holistic care in persons with spinal cord injuries. *The Journal of Spinal Cord Injuries, 40(*1). https://doi.org/10.1080/10790268.2015.1114227

Lee, S., & The, P. (2020). Suiting up to enhance empathy toward aging: A randomized controlled study. *Frontiers in Public Health, 8*(376). https://doi.org/10.2337/diaspect.22.2.8010.3389/fpubh.2020.00376

Leventhal, H., Kelly, K., & Leventhal, E. A. (1999). Population risk, actual risk, perceived risk, and cancer control: A discussion. *JNCI Monographs, 1999*(*25*), 81-85. https://doi.org/10.1093/oxfordjournals.jncimonographs.a024214

Lewis, L., Aske, P., Randleman, S., & Shelton-Dunston, B. (2010). Medication adherence beliefs of community dwelling hypertensive African Americans. *Journal of Cardiovascular Nursing, 25*(3), 199-206. https://doi.org/10.1097/JCN.0b013e3181c7ccde

Lowen, B. A., Rosen, J., & Marttila, J. (2011). An agenda for improving compassionate care: A survey shows about half of patients say such care is missing. *Health Affairs, 30*(9), 1772-1778. https://doi.org/10.1377/hlthaff.2011.0539.

Loyal, D., Ricci, L., Villegente, J. Ayav, C., Kivits, J., & Rat, A. (2021). Healthcare providers' perception of therapeutic patient education efficacy according to patient and healthcare provider characteristics. *Chronic Illness*. https://doi.org/ 10.1177/17423953211058411

Mahamoodi, S., Jalal, Z., Hadi, M., Khan, T, Haque, M., & Shah, K. (2021). Prevalence of non-adherence to antihypertensive medication in Asia: A systematic review

and meta-analysis. *International Clinical Pharmacy*, *43*(3) 486-501. https://doi.org/10.1007/s11096-021-01236-z

Mahamoodi, S., Nahand, F., Shaghaghi, A., Shoostari, S., Jafarabadi, M., & Allahverdipour, H. (2019). Gender based cognitive determinants of medication adherence in older adults with chronic conditions. *Patient Prefer Adherence, 13*, 1733-1744. https://doi.org/10.2147/PAA.54219193

Marcum, Z., Hanlon, J., & Murray, M. (2017). Improving medication adherence and health outcomes in older adults: An evidence-based review of randomized controlled trials. *Drugs & Aging*, *34*,191-201. https://doi.org/10.1007/s40266-016-0433-7

Massachusetts Medical Society. (2022). *Empathetics: Evidenced-based empathy education for physicians and leaders.* www.massmed.org/continuing-education-and-events/online-CME/empathetics

Matza, L. S., Park, J., Coyne, K. S., Skinner, E. P., Malley, K. G., & Wolever, R. Q. (2009). Derivation and validation of the ASK-12 adherence barrier survey. *Annals of Pharmacotherapy*, *43*(10), 1621-1630. https://doi.org/10.1345/aph.1M174

Mead, N., & Bower, P. (2000). Patient centeredness: A conceptual framework and review of empirical literature. *Social Science and Medicine*, *1*(7), 1087-1100. https://doi.org/10.1016/s02779536(00)00098

Mercer, S., & Reynolds, W. (2002). Empathy and quality care. *PubMed, 52*(9). https://doi.org/10.1007/0-387-33608-7

Mercer, S. W., Maxwell, M., Heaney, D., & Watt, G. (2004). The consultation and relational empathy (CARE) measure: Development and preliminary validation

and reliability of an empathy-based consultation process measure. *Family Practice*, *21*(6), 699-705. https://doi.org/10.1093/fampra/cmh621

Miller, N., Hill, M., Kotte, T., & Ockene, I. (1997). The multilevel compliance challenge: Recommendations for a call to action: A statement to healthcare professionals. *CIRCA*, *95*(4). https://doi.org/10.1161/01.CIR.95.4.1085

Moon, S., Lee, W., Hwang, J., Hong, Y., & Morinsky, E. (2017). Accuracy of a screening tool for medication adherence: A systematic review and meta-analysis of the Morinsky medication adherence scale 8. *PloS ONE*, *12*(11). https://doi.org//10.1371/journals.pone.0187139

Morinsky, D. (2008). Predictive validity of a medication adherence measure for hypertension control. *Journal of Clinical Hypertension*, *10*, 348-354. https://escholarship.org/uc/item/3m37z2jc

Moudastou, M., Stavropoulou, A., Philalithis, A., & Koukouli, S. (2020). The role of empathy in health and social care professionals. *National Library of Medicine*, *8*(1). https://doi.org/10.3390/healthcare8010026

Mukhtar, O., Weinman, J., & Jackson, H. (2014). Intentional nonadherence to medications by older adults. *Drugs & Aging*, *31*(149). https://doi.org/10.1007/s40266-014-0153-9

National Association of Social Workers. (2017). NASW code of ethics. Retrieved November 27, 2022 from https://www.socialworkers.org/About/Ethics/Code-of-ethics/Code-of-ethics-English

National Bureau of Economic Research. (2020). *National Institute on Aging.* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5077271/

National Council on Aging. (2021). *Get the facts on healthy aging.* https://ncoa.org/article/get-the-facts-on-healthy-aging

National Institute of Health. (2017). *Factors affecting medication adherence in elderly people.* https://www.nia.nih.gov/research/dbsr/national-bureau-economic-research-nber-disability

Norman, P., & Conner, M. (1996). *The role of social cognition models in predicting health behaviors: Future directions.* Open University Press.

Park, D., Hertzog, C., Levethal., H., Morrell, R., Leventhal, E., Birchmore, D. Martin, M., & Bennett, J. (2015). Medication adherence in rheumatoid arthritis patients: Older is wiser. *Journal of American Geriatrics, 47*(2), 172-183. https://doi.org/10.1111/j.1532-5415.1999.tb04575.x

Paulus, C., & Meinken, S. (2022). The effectiveness of empathy training in healthcare: A meta-analysis of training content and methods. *International Journal of Medical Education, 13,* 1-9. https://doi.org/10.5116/ijme.61d4.4216

Phatak, H., & Thomas, J. (2006). Relationships between beliefs about medications and nonadherence to prescribed chronic medications. *Annals of Pharmacology, 40*(10), 1737-1742. https://doi.org/10.1345/aph.1H153

Pummapurath, S., Vijayakumar, P., Patty, P., Krishna, S., & Thomas, T. (2021). A study of medication compliance in geriatric patients with chronic illness. *Journal of Family Medicine and Primary Care, 10*(4), 1644-1648. https://doi.org/10.4103/jfmpc.jfmpc_1302_20

Quin, K., Semalulu, T., & Orom, H. (2015). Elder and caregiver solutions to improve medication adherence. *Health Education Research, 30*(2). https://doi.org/10.1093/her/cyv009

Rifkin, D., Laws, M., Rao, M., Balakrishnan, V., Sarnak, M., & Wilson, I. (2010). Medication adherence behavior and priorities among older adults with CKD: A semi structured interview study. *National Library of Medicine, 56*(3), 439-46. https://doi.org/10.1053/j.ajkd.2010.04.021

Rolnick, S., Pawlowski, P., Hedblom, B., Asche, S., & Bruzek, R. (2013). Patient characteristics associated with medication adherence. *Clinical Medical Resources, 11*(2), 54-65. https://doi.org/10.3121/cmr.2013.1113.

Rosenstock, I. (1974). Historical origins of the health belief model. *Health Education & Behavior*. https://doi.org/10.1177/109019817400200403

Rosenstock, I., Strecher, V., & Becker, M. (1988). Social learning theory and the health belief model. *Health Education and Behavior, 15*(2). https://doi.org/10.1177/109019818801500203

Rubin, A. & Babbie, E. (2017). *Research methods for social work*. Cengage Learning.

Schlenk, E., Bernardo, L., Organist, L., Klem, M., & Enberg, S. (2008). Optimizing medication adherence in older patients: A systematic review. *Journal of Clinical Outcomes Management, 15(*12), 595-606. PMD: 19424450; PMD: PMC2677827

Schrooten, I., & Jong, M. (2017). If you could read my mind: The role of healthcare providers empathic and communicative competencies in client satisfaction with consultations. *Health Communication, 32*(1), 111-118. https://doi.org/10.1080/10410236.2015.1110002

Schuz, B., Marx, C., Wurm, S., Warmer, L., Ziegelmann, J. Schwarzer, R., & Tesch-Romer. (2011). Medication beliefs predict adherence in older adults with multiple illnesses. *Journal of Psychosomatic Research, 70(*2), 179-187. https://doi.org/10.1016/j.jpsychores.2010.07.014

Scommegna, P. (2021). Unequal health care access and quality contribute to U.S. racial health disparities among older adults. *Today's Research on Aging, 41*. https://prb.org/resources/unequal-health-care-access-and-quality -contribute-to-u-s-racial-health-disparities-among-older -adults/

Smaje, A., Clark, M., Raj, R., Orlu., M., Davis., D., & Rawle, M. (2018). Factors associated with medication adherence in older patients: A systematic review. *Aging Medicine, 1*(3), 254-266. https://doi.org/10.1002/agm2.12045

Squier, R. (1990). A model of empathic understanding and adherence to treatment regimens in practitioner-patient relationships. *Social Science & Medicine, 30*(3), 325-339. https://doi.org/10.1026/0277-9536(90)90188-x

Stratta, E., Riding, D., & Baker, P. (2016). Ethical erosion in newly qualified doctor's perceptions of empathy decline. *International Journal of Medical Education, 6*(286). https://doi.org/10.5116/ijme.57b8.48e4

Sveneaus, F. (2014). The relationship between empathy and sympathy in good healthcare. *Medicine, Health Care and Philosophy, 18*(2). https://doi.org/10.1007/s11019-014-9601-x

Taylor, E. (1996). *William James on consciousness beyond the margin* (pp. 93-95). Princeton University Press.

Thomas, D., Newcomb, P., & Fuso, P. (2018). Perception of caring among patients and nurses. *Journal of Patient Experience*, *6*(3), 194-200. https://doi.org/10.1177/2374374373518795713

Thorneloe, R., Griffiths, C., Esley, R., Ashcroft, D., & Cordingley, L. (2018). Intentional and unintentional medication nonadherence in psoriasis: The role of patients' medication beliefs and habit strength. *The Journal of Investigative Dermatalogy*, *138*(4), 785-794. https://doi.org/10.1016/j.jid.2017.11.015

Toefilo, T., Veras, R., & Silva, V., Cunha, N., Oliviera, J., & Vasconcelos, S. (2018). Empathy in the nurse-patient relationship in geriatric care: An integrative review. *Nursing Ethics*, *26*(6), 1585-1600. https://doi.org/10.1177/0969733018787228

U. S. Census Bureau. (2020). *About the topic of race.* United States Government. https://www.census.gov/topics/race/about.html

U.S. Census Bureau. (2021). *A long life doesn't always mean a healthy one*. United States Government. https://www.census.gov/library/stories/2021/05/long-life-does-not-always-mean-healthy-life-in-old-age.html

Verloo, H., Chiolero, A., Kiszio, B., Kampel, K., & Santschi, T. (2017). Nurse interventions to improve medication adherence among discharged older adults: A system review. *Age and Ageing*, *46*(5). https://doi.org/10.1093/ageing/afx076

World Health Organization. (Sept, 2020). *Aging and Health: Key facts.* https://www.who.int/news-room/fact-sheets/detail/ageing-and-health

Yap, A., Thirumoorthy, T., & Kwan, Y. (2016). Medication adherence in the elderly. *Journal of Clinical Gerontology and Geriatrics*, *7*(2), 64-67. https://doi.org/10.1016/j.jegg.2015.05.001

Yi, X., Sicheng, X., & Yang, H. (2020). Changes in empathy of nurses from 2009-2018: A cross-temporal meta-analysis. *Nursing Ethics, 28*(5), 558-589. https://doi.org/10.1177/0969733020968163

Zolnierek, K., & DiMatteo, M. (2009). Physician communication and patient adherence to treatment: A meta-analysis. *Medical Care, 47*(8), 826-834. https://doi.org/10.1097/MLR.0b013e31819a5accc