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Impact of Primary Care Providers' Beliefs on Intentions to Conduct Brief Cognitive Assessments

Debra Antista-Bianchi
Walden University

<u>Walden University</u>

College of Education and Human Sciences

This is to certify that the doctoral dissertation by

Debra Antista-Bianchi

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Review Committee
Dr. Theresa Gibble, Committee Chairperson, Health Education and Promotion Faculty
Dr. Patricia Talbert, Committee Member, Health Education and Promotion Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2025

Abstract

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Debra Antista-Bianchi

MSHEP, Walden University, 2018

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Dissertation Submitted in Partial Fulfillment

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Doctor of Philosophy

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Abstract

The 2011 Patient Protection and Affordable Care Act (PPACA) mandated that Primary Care Providers (PCPs) offer brief cognitive assessments during the Medicare Annual Wellness Visit (AWV), but this practice was inconsistent at best. This study investigated factors that influenced PCPs intentions to routinely assess cognition during the AWV. The theory of planned behavior (TPB) was used to assess the relationship between PCPs' behavior beliefs, subjective norm beliefs, perceived behavioral control (PBC) beliefs, and external control factors and their intentions to conduct brief cognitive assessments during the AWV. Using a quantitative correlational design, a cross-sectional online survey was administered to 86 PCPs. The results indicated that behavior beliefs were the strongest predictor of PCPs' intentions to conduct brief cognitive assessments during the AWV, while PBC beliefs and subjective norm beliefs were also statistically significant. External control factors were not statistically significant in this model. The findings support interventions targeting PCPs that promote awareness regarding the benefits of early detection and diagnosis of Alzheimer's disease and related dementia (ADRD), knowledge and self-efficacy, and positive social norms. This study contributed to positive social change by shedding light on the relationship between PCP beliefs and their intentions to conduct brief cognitive assessments during the AWV. Future interventions that support PCPs in routinely offering brief cognitive assessments during the AWV would increase opportunities for them to address modifiable risk behaviors, identify treatable health issues, diagnose ADRD at the earliest stage, and help their patients and families access treatment, care and support earlier in their journey.

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Dedication

I dedicate this dissertation to my family members and yours who experienced dementia symptoms but were never properly diagnosed. My beloved grandma Marcy, the matriarch and light of our lives. My brilliant mother Claire, who never had the opportunity to pursue higher education, this is for you! My darling Eric, who has walked this journey with me every day for nearly 30 years, always loving, kind, and so very supportive, you are my best friend. To my girls, Tiffany, Kahlah, and Marcella, and my granddaughters, Isla, Paloma, and Lyric, I love you madly! My prayer is that you will never have to endure the heartache of caring for a person with Alzheimer's disease or another dementia, and that you will bear witness to advancements in science, including prevention, treatments, and ultimately a cure for Alzheimer's disease in your lifetime.

Acknowledgments

I extend my gratitude to my chair, Dr. Theresa Gibble, for her guidance and support during this lengthy journey. There were times when I considered changing course, but she was always steady, and that made the difference. Many thanks to Dr. Patricia Talbert, my second committee member, and to my many professors who inspired my love of higher education, challenged me to do more, and encouraged me on. No one did more for me in this regard than Dr. Janette Castellanos when I was at the University of California, Irvine. I must also acknowledge and thank my longtime mentor and friend, Dr. Nancy Colocino, whose influence on my life is so multifaceted. To say that I would not be where I am today without Nancy is not an overstatement!

I also want to thank my colleagues at the Alzheimer's Association who supported my academic pursuits, especially Kelly Osthoff, my mentor, MPH practicum preceptor, and friend, and Danelle Hubbard, our regional Health Systems Director. Both lovingly and generously shared their knowledge and insights regarding our work and cheered me on. Danelle also introduced me to Dana Sohmer, who allowed me to observe two cohorts of the Alzheimer's Association Project Echo program. It was there that my research topic was born and I am forever grateful.

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Chapter 1: Introduction to the Study

Introduction

Early detection and diagnosis of Alzheimer's disease and related dementias (ADRD) was the topic of this study, which focused on factors that facilitated or inhibited primary care providers' (PCPs') intentions to routinely conduct brief cognitive assessments when serving their older patients during their Medicare Annual Wellness Visit (AWV). A mandate, which was written into the 2011 Patient Protection and Affordable Care Act (PPACA), required that PCPs assess cognition during the AWV (Alzheimer's Association [AA], 2014; AA, 2019; Gerontological Society of America [GSA], 2015; U.S. Department of Health & Human Resources [HHS], 2011; Romano et al., 2020). To support this requirement, many health education and promotion interventions aimed at influencing PCP practice behaviors in this domain have been developed since 2011 (AA, 2017a; AA, 2017b; AA, 2018; AA, 2019; GSA, 2020; AA, 2020; AA & Centers for Disease Control and Prevention [CDC], 2019; American Medical Association [AMA], 2019; Galvin & Sadowsky, 2012; Romano et al., 2020). Despite the plethora of resources, toolkits, algorithms, and education interventions readily available to PCPs, most Medicare eligible patients reported that they were not routinely assessed for cognitive impairment during their AWV (AA, 2019; AA, 2020; Mattke et al., 2023), even when dementia symptoms were suspected (Bernstein et al., 2019). Therefore, the question was why? What was needed to influence this PCP practice behavior outcome in primary care?

Background information regarding the global and national prevalence rates of ADRD, and the consequential call for early detection and diagnosis in primary care settings was presented in this section. Further, evidence was presented that supported the need for health education and promotion efforts targeting PCPs to support their practice of routinely assessing cognition during the AWV. Next, a brief overview of interventions and their limitations was offered. Finally, the opportunity to assess factors that may inform future development, implementation, and/or evaluation of health education and promotion efforts was discussed.

Background

Alzheimer's disease and related dementia (ADRD) continued to be a global health issue affecting more than 55 million people worldwide, at a cost of 1.3 trillion (US) annually (AA, 2025; Alzheimer's Disease International [ADI], 2021; ADI, 2022; Shin, 2022; World Health Organization [WHO], 2022). In the United States alone, more than 7.2 million Americans were living with Alzheimer's disease, the most common cause of dementia (AA, 2025). Despite the high prevalence rate, ADRDs continued to go undetected and were underdiagnosed (ADI, 2021; ADI, 2022; AA, 2019; AA, 2020). In fact, it was estimated that between 75% and 90% of people living with dementia (PLWD) have not been diagnosed (Parker et al., 2020); with those living in low and middle-income countries most affected (ADI, 2021; ADI, 2022). Even in high-income countries, rates of dementia diagnoses were thought to be at or below 50% (AA, 2025; Parker et al., 2020). Often, patients were not diagnosed until their symptoms progressed to what would be considered moderate or late stage of their disease (AA, 2025). In addition, patients with dementia noted in their Medicare billing records were not always made aware of this assessment (AA, 2025).

These low rates of detection and diagnosis persisted despite evidence of known benefits (AA, 2019; AA, 2020; AA, 2025; ADI, 2021; Dubois et al., 2023; Hanna, 2020; Kamoga et al., 2019; Mattke et al., 2023; Parker et al., 2020; Steiner et al., 2020; Kirk Wiese et al., 2018). Consequently, the World Health Organization (WHO, 2017) identified early detection and diagnosis of dementia as a priority, setting a target that at least 50% of all countries meet a minimum of 50% diagnosis of ADRD by 2025 (ADI, 2021).

In 2011, the United States passed the National Alzheimer's Project Act (NAPA; HHS, 2011) which led to the National Alzheimer's Project and the development of a national response plan. Around the same time, the 2011 PPACA was established, which included a provision for Medicare to cover the cost of an AWV for adults over the age of 65 (AA, 2019; AA, 2020; HHS, 2011). Since ensuring early detection and diagnosis of ADRD was an emerging global and national priority, the PPACA was written to include a mandate that PCPs perform brief cognitive assessments as part of the AWV (AA, 2014; AA, 2019; GSA, 2015; HHS, 2011). However, research commissioned by the Alzheimer's Association indicated that brief cognitive assessments were frequently omitted from the AWV (AA, 2019; AA, 2020; AA, 2022). In fact, just 16% of eligible adults reported participating in a brief cognitive assessment during their visit (AA, 2019). Further, less than half (47%) of PCPs surveyed indicated that their normal protocol included offering a brief cognitive assessment to their older patients (AA, 2019; AA, 2020; AA, 2022). Similarly, Bernstein et al. (2019) found that 43% of PCPs did not provide cognitive assessments even when they suspected impairment.

Problem Statement

In the decade following the passage of NAPA and the PPACA mandate that required PCPs to conduct brief cognitive assessments during the AWV, targeted interventions designed to promote knowledge and awareness among providers were developed and implemented. Over the years, toolkits (AA, 2019; GSA, 2020; Romano et al., 2020), policy briefs (AA, 2017a) and resources (AA, 2017a; AA, 2017b; AA, 2018; AA, 2019; AA, 2020; AA & CDC, 2019; AMA, 2019; Galvin & Sadowsky, 2012) that called for, informed and/or supported PCP-initiated cognitive assessments during the AWV were made readily available. Despite the availability of these resources, most eligible Medicare patients were not given brief cognitive assessments during the AWV (AA, 2019; AA, 2020; AA, 2022; Mattke et al., 2023).

To improve early detection and diagnosis rates in primary care, researchers often focused on barriers that impeded or factors that strengthened PCP's capacity to assess for ADRDs or provide dementia-related care (AA, 2020; AA, 2022). Lack of dementia-specific education was a commonly identified barrier among PCPs, with just half of the providers reporting having participated in training following their medical school and residency programs (AA, 2020; AA, 2022). This was important because, as Kamoga et al. (2019) discovered, providers who lacked dementia-related specialized training were less equipped to address the needs of patients with cognitive impairment. These providers also acknowledged dismissing signs and symptoms of dementia or limiting treatment to comorbidities. On the other hand, Kamoga et al. (2019) found that provider-focused education/training led to greater skills and confidence in utilizing cognitive testing tools to detect and diagnose dementia.

Another identified problem was that dementia-related health education, promotion, and training for PCPs were often limited in scope. These interventions tended to focus on knowledge, self-efficacy, and sometimes attitudes even though researchers discovered other factors that may have influenced PCP practice behaviors. For example, discomfort among providers engaging in dementia-related conversations with their patients was an important limitation in several studies (AA, 2022; Abe et al., 2019; Judge et al., 2019a; McIntosh, 2019; Wollney et al., 2022a; Vissenberg et al., 2018). In fact, Jacinto et al. (2020) found that this discomfort led providers to use euphemisms when talking about ADRDs with their patients. Stigmatic beliefs were also commonly held by providers (Bacsu et al., 2020; Werner et al., 2020), often expressed as concern that dementia diagnoses could cause patients to experience stigma/discrimination (Judge et al., 2019a; Leung et al., 2020). Oliveira et al. (2022) shared that structural stigma and discrimination associated with a dementia diagnosis perpetuated stigmatic beliefs and discrimination, which contributed to delayed diagnoses. A lack of awareness regarding community resources available to support their patients with a diagnosis (Judge et al., 2019a), or the belief that families would not be interested in utilizing them (Jacinto et al., 2020), were also expressed concerns among providers.

Purpose of the Study

This quantitative study assessed primary care providers' intentions to routinely offer brief cognitive assessments during their patients' AWV. The study applied the theory of planned behavior (TPB) which emphasized that intentions were predictive of behavior, and that they were the byproduct of behavior beliefs, subjective norm beliefs, and perceived behavioral control (PBC) beliefs (Ajzen, 1991; 2002; 2020). The results of this study may inform efforts to strengthen health education and promotion interventions designed to influence PCP practice behaviors, when increasing routine cognitive assessments as part of the AWV was their objective.

Research Questions and Hypotheses

RQ1: Is there a relationship between provider-identified behavior beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV)?

H01: There is no relationship between provider-identified behavior beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV).

Ha1: There is a relationship between provider-identified behavior beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV).

RQ2: Is there a relationship between provider-identified subjective norm beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV)?

H02: There is no relationship between provider-identified subjective norm beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV).

Ha2: There is a relationship between provider-identified subjective norm beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV).

RQ3: Is there a relationship between provider-identified perceived behavioral control (PBC) beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV)?

H03: There is no relationship between provider-identified control beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV).

Ha3: There is a relationship between provider-identified control beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV).

RQ4: Is there a relationship between external (actual) control factors that support or inhibit provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV)?

H04: There is no relationship between external (actual) control factors that support or inhibit provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV).

Ha4: There is a relationship between external (actual) control factors that support or inhibit provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV).

Theoretical Framework for the Study

The theory of planned behavior (TPB; Ajzen, 1991) was the theoretical framework that guided this study. The TPB asserted that intentions were predictive of behavior (Ajzen, 1991), making them a useful tool when assessing health education and promotion interventions. TPB research was designed to identify the subjects' behavior beliefs, subjective norm beliefs, and PBC beliefs associated with a given behavior, and then assess the relationship between those beliefs and the subjects' intentions to perform the behavior (Ajzen, 1991; 2002; 2020).

Behavior beliefs included PCPs' perception of the consequences associated with a dementia diagnosis (Dodd, 2020; Leung et al., 2020). Subjective norm beliefs were the perceptions and misconceptions of how behavior was perceived by others, including peers, patients, and/or caregivers (Francis et al., 2004). PBC beliefs included knowledge and self-efficacy (Ajzen, 2002) in the context of conducting brief cognitive assessments (Morgan et al., 2019), especially when symptoms were less apparent (AA, 2022; Leung et al., 2020). Further, the TPB suggested that control beliefs may be both internal and external, and that gaps might exist between perception of control and reality (Ajzen, 1991; 2002). Therefore, this research also included an assessment of external control factors that may have contributed to or inhibited actual behavioral control (the provider's ability to carry out their intentions).

Nature of the Study

This quantitative correlational study design used a cross-sectional online survey developed to measure four independent variables: behavior beliefs, subjective norm beliefs, PBC beliefs, and external (actual) control factors that supported or inhibited the dependent variable: provider intentions to routinely offer brief cognitive assessments during the AWV. This study followed the guidelines set forth in the TPB framework (Ajzen, 1991; 2002; 2019; 2020). The development of the survey instrument and measurements followed guidelines developed by Francis et al. (2004).

Definitions

Anosognosia: The inability to perceive or detect one's own cognitive decline because of their cognitive impairment (ADI, 2021; Custodio et al., 2020; Liss et al., 2021).

Annual Wellness Visit (AWV): Medicare patients' annual appointment with a primary care provider.

Brief cognitive assessment: For the purposes of the AWV mandate, the CMS (2021) defined brief cognitive assessments as an assessment of an individual's cognitive function by direct observation, with due consideration of information obtained by way of patient report, concerns raised by family members, friends, caretakers, or others (Cordell et al., 2013).

Dementia: An umbrella term used to describe symptoms that affect changes in memory, thinking, reasoning, behaviors, and more. Dementia was not caused by aging. Symptoms indicated a medical condition and the need for a diagnosis. Alzheimer's disease was the leading cause of dementia symptoms, but there were many other possible causes (AA, 2019; 2020; 2025).

Nihilistic beliefs: A term used to express a high level of pessimism or acceptance that an action was futile (Liss et al., 2021).

Patient Protection and Affordable Care Act (PPACA): Enacted in 2010, the PPACA established provisions for Medicare to cover the cost of the Annual Wellness Visit (AWV). The PPACA included a mandate that brief cognitive assessments be included in the AWV.

Primary Care Provider (PCP): For this study, a PCP was defined as any medical doctor (MD), Doctor of Osteopathic Medicine (DO), physician assistant (PA), nurse practitioner (NP), or nurse (RN) working in primary care settings.

Assumptions

There were two assumptions associated with this study. First, I assumed that participating PCPs responded honestly regarding their behavior beliefs, subjective norm beliefs, PBC beliefs, and external (actual) control factors associated with early detection and diagnosis of dementia. Second, I assumed that participants answered truthfully regarding their intentions and/or behaviors related to conducting brief cognitive assessments during the AWV.

Scope and Delimitations

The scope of this study was to assess whether there were relationships between PCPs' behavior beliefs, subjective norm beliefs, and PBC beliefs associated with early detection and diagnosis of ADRDs and their intentions to routinely conduct brief cognitive assessments during the AWV. In addition, this research sought to identify external control factors that inhibited or supported PCPs' intentions translating to practice behaviors. The scope of this study was limited to the practice of conducting brief cognitive assessments during the AWV. The population included MDs, DOs, PAs, NP, and RNs who worked in practice in primary care settings. Excluded providers were neurologists, neuropsychologists, geriatricians, and other specialists.

Limitations

While the TPB has been used successfully to predict and explain behaviors, several limitations were known. First, constructs that may have impacted intentions included the environment, economics, fear of reprisal, ambition, and past experiences (LaMorte, 2019). Some of these were considered in this study, under the actual control construct; however, ambition was not addressed here. Another potential limitation when conducting research utilizing self-report instruments was the potential for response biases, including social desirability bias (Association of Health Care Journalists [AHCJ], n.d.; Davin, 2022). Low participation rates were another potential limitation since the research relied on self-administered questionnaires. To address this barrier, multiple methods of recruitment were used to reach PCPs. Finally, PCPs may be vulnerable when answering questions disclosed non-compliance in completing cognitive assessments during the AWV, since this was a federal mandate (Walden University, n.d.). To protect the study population, anonymous participation, including the confidentiality of all participants (including their medical practice names and geographic locations), was ensured. A secure online survey platform was used. The data collected did not include any personal information, and the sample was stored on a secure drive.

Significance

This research assessed PCP behavior, subjective norm, and PBC beliefs that may have influenced their intentions to routinely offer cognitive screenings to their older patients during their AWV. These findings may inform the development of future health education and promotion interventions when provider practice-behaviors aligned with the global (WHO, 2017) and national (HHS, 2011) priority of advancing early detection and diagnoses of ADRDs was the objective. In addition, the result may be useful to those who currently deliver interventions to providers in this domain. For example, health educators may consider behavior beliefs, subjective norm beliefs, PBC beliefs, and/or external (actual) control factors that proved influential when updating or modifying their existing curriculum. Those who were currently delivering dementia education may find that they were, in fact, addressing some or all the belief constructs identified in the results. In those circumstances, the findings could inform adaptations to existing evaluation tools to include assessments of outcomes related to intentions.

Summary

Brief cognitive assessments during Medicare/Medicaid AWVs were a mandate of the 2011 PPACA; however, most patients continued to report that they were not assessed accordingly (AA, 2019; AA, 2020; AA, 2022). Providers acknowledged low adherence rates to this practice, despite resources and toolkits designed to influence these outcomes. This research assessed PCP behavior beliefs, subjective norm beliefs, PBC beliefs, and external control factors that influenced their intentions to routinely conduct brief cognitive assessments during the AWV. The purpose was to identify factors that were influential, since this information could be used when developing and/or evaluating future health education and promotion interventions that sought to improve PCP engagement in early detection and diagnosis practice behaviors in primary care settings.

In Chapter 2, the TPB was presented as the theoretical framework that guided this study. A review of the literature was presented, which included an assessment of the strengths and limitations of relevant PCP-targeted dementia-related health education and promotion efforts. The literature review also identified factors that may have influenced PCP intentions to assess the cognition of their older patients, while aligning these to the TPB.

Chapter 2: Literature Review

Introduction

At a global level, it was estimated that two-thirds of all people living with dementia (PLWD) were undiagnosed (ADI, 2021; Parker et al., 2020). Efforts to increase early detection and diagnosis of Alzheimer's disease and related dementia (ADRD) were called for, both internationally (Alzheimer's Disease International [ADI], 2021; World Health Organization [WHO], 2017) and in the United States (AA, 2019; AA, 2020). There has been consensus that brief cognitive assessments conducted in primary care settings were central to achieving this goal (AA, 2019; AA, 2020; ADI, 2021; Liss et al., 2021; Werner et al., 2020).

To improve early detection and diagnosis rates of ADRD in the United States, the 2011 Patient Protection and Affordable Care Act (PPACA) included a mandate that primary care providers (PCPs) perform brief cognitive assessments for all eligible patients during the Medicare Annual Wellness Visit (AWV) (AA, 2014; AA, 2019; GSA, 2015; HHS, 2011; National Archives, 2010; Romano et al., 2020). At the same time, the National Alzheimer's Project Act (NAPA) (HHS, 2011) called for provider-focused dementia education and training. In 2013, the Alzheimer's Association (AA) convened a group of experts, who developed the Alzheimer's Association Medicare Annual Wellness Visit Algorithm for the Assessment of Cognition (Cordell et al., 2013; Appendix A), as a tool to guide PCPs in their practice of conducting cognitive assessments during the AWV.

Over the past decade, information and toolkits that supported PCP-initiated cognitive assessments during the AWV were developed (AA, n.d.; AA, 2021; Centers for Medicare & Medicaid Services [CMS], 2021; Cordell et al., 2013; National Institute on Aging [NIA], 2021). Provider-focused education and training programs were also implemented locally and internationally (AA, n.d.; Mason et al., 2020; Morgan et al., 2019; Parveen et al., 2021; Smith et al., 2019; Werner et al., 2020).

This review of the literature assessed education interventions in terms of limitations and opportunities. Next, the review identified commonly expressed barriers and facilitators that impeded or supported PCP practice behaviors, aligning them to the TPB constructs of behavior beliefs, subjective norm beliefs, PBC beliefs, and external control factors to inform this research. This was important since the TPB asserted that interventions may have greater impact in terms of changing behavior when each of these factors were addressed (Ajzen, 1991; Francis et al., 2004).

Literature Search Strategy

A search of the literature was conducted to inform this study. Iterations of combined search terms were used, including dementia or Alzheimer's or cognitive impairment or memory loss; early detection; primary care or primary healthcare or primary healthcare; brief cognitive assessments; education or training; stigma or prejudice or attitude or discrimination. Databases searched included EBSCO, ProQuest, Science Direct, Wiley plus online using PubMed Open Access, Taylor and Francis Online, and NCBI/PMC Library. In addition, relevant sources cited in researcher articles were retrieved for review. Exclusions included research that assessed advanced assessment tools, including imaging and biomarker tests, since this study focused on early detection and the use of brief cognitive assessments in primary care during the AWV. Similarly, articles that focused solely on care management of ADRDs were excluded.

Theoretical Foundation

This quantitative study applied the TPB as the theoretical framework to identify and assess factors that influenced PCPs' intentions to engage in the desired clinical outcome of routinely initiating cognitive assessments of eligible patients during the AWV. The TPB highlighted the role intentions played in determining behavior, while emphasizing that they were the byproduct of behavior beliefs, subjective norm beliefs, and PBC beliefs (Ajzen, 1991; 2002; 2020).

Behavior beliefs were defined as the consequences of a given behavior, whether positive or negative (Ajzen, 1991). When it came to early detection and diagnosis of ADRD, both Dodd (2020) and Leung et al. (2020) noted that PCPs' perception of consequences (behavior beliefs) associated with a dementia diagnosis influenced their practice behaviors. Werner et al. (2020) suggested that behavior beliefs regarding dementia were also influenced by the PCP's perception of a diagnosis as useful or not.

Subjective norm beliefs were the perceived or overt expectations of others associated with a given behavior (Ajzen, 1991). Subjective norm beliefs may have included PCPs' perceptions or misconceptions of how their practice behaviors were perceived by peers, patients, caregivers, and others (Francis et al., 2004). In this domain, PCPs' perceptions of the how their organization's leadership, colleagues, other professionals, patients, and patients' families, viewed early detection may have impacted their decision to routinely conduct brief cognitive assessments. Subjective norm beliefs may have also been expressed as acceptance that early dementia symptoms were normal aging (Leung et al., 2020).

PBC beliefs were the PCPs' perception of their own skills to complete a given task (Ajzen, 1991; 2002). PBC beliefs were rooted in knowledge and self-efficacy, or the lack thereof. A sense of competency was important in the context of conducting brief cognitive assessments (Morgan et al., 2019), especially when symptoms were less apparent (Leung et al., 2020). Therefore, dementia training, as well as training to use assessment tools, may have positively influenced the desired practice behaviors, whereas lack of training might have inhibited those tendencies.

Ajzen (1991; 2002) also explained that control beliefs were both internal and external, and that gaps may have existed between perception of control and reality. Therefore, actual control was important in terms of intentions translating to behavior (Ajzen, 1991; 2002). For example, Romano et al. (2020) identified organizational and patient factors as variables that may be beyond the control of PCPs in this domain. Consequently, this research included an assessment of external factors that may have contributed to or inhibited actual (external) behavioral control (the provider's ability to carry out their intentions).

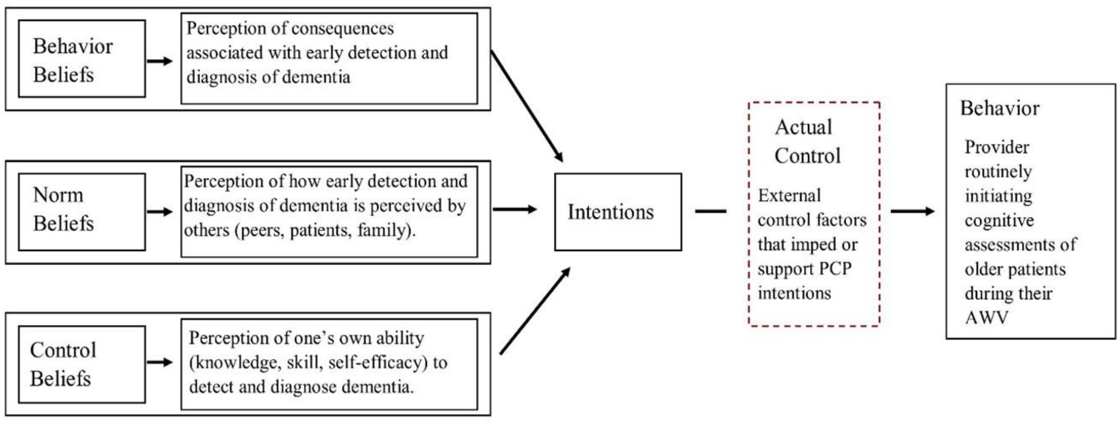
The TPB has been used to study healthcare providers intentions associated with numerous practice behaviors (Chiu et al., 2019; Hu, 2022; Klaic et al., 2019: Liu et al., 2019; McIntosh, 2019; Pikkemaat et al., 2021; Wang et al., 2022). Klaic et al. (2019)

applied the TPB to assess health care professionals' behaviors in the context of implementing evidence-based practice (EBP), which they noted was low. Here, the researchers explained that past interventions designed to promote EBP were effective at increasing knowledge and skills, but that there was no evidence of behavior change. Their research supported the premise that education/training of health care professionals that were not guided by a theoretical framework offered limited results in terms of behavior change. They suggested that the TPB was an appropriate framework for assessing healthcare professionals' behavior, subjective norms, PBC beliefs, their intentions, and actual control beliefs that might have mitigated or impeded intentions leading to desired behaviors.

Chiu et al. (2019) conducted a cross-sectional study to assess trained smoking cessation counsellors' intentions to engage in conversations that promoted smoking cessation and provided related support. Here, the researchers noted that while providers had opportunities to promote tobacco cessation, they were unlikely to initiate such conversations citing lack of knowledge and training, and misconceptions of limited resources that supported their patients as barriers. These were similarly expressed as barriers in the context of provider-initiated cognitive screenings and conversations.

Figure 1

Assessing Provider Intentions to Routinely Initiate Cognitive Assessments During the AWV



Literature Review Related to Key Variables and/or Concepts

This review of the literature began with an assessment of dementia education programs that targeted PCPs to explore strengths and limitations, as well as opportunities. Next, the literature review focused on barriers to, or facilitators of, PCPs' practice behaviors of routinely conducting brief cognitive assessments during the AWV. These were thematically grouped to align with the TPB constructs of behavior beliefs, subjective norm beliefs, PBC beliefs, and external control factors (Ajzen, 1991; 2002; 2020.

Provider-Focused Dementia Education and Promotion

Dementia-specific education and training for PCPs often led to knowledge acquisition, improved attitudes, and increased self-efficacy (Jennings et al., 2019; Lee et al, 2020; Lv et al. 2021, Macintosh, 2019; Mason et al., 2020). However, this was also identified as a consistent gap in literature since the interventions were often designed and evaluated in terms of these immediate outcomes. Longer-term outcomes, like change in practice-behaviors, were seldom evaluated. Even when clinical outcomes were assessed, limitations were frequently noted in the literature.

PCP-Focused Education and Training

Morgan et al. (2019) conducted a process evaluation associated with the development and implementation of an education intervention that targeted PCPs in rural settings and found that access to knowledge, information, and resources were important facilitators to early detection and diagnosis of ADRDs. Mason et al. (2020) assessed the impact of a dementia-related education/training program for practitioners (general practitioners and supervisors), in the context of confidence and attitudes related to early diagnosis and management of care. They found that participants had improved attitudes, confidence, and engagement in all groups following the education program, while noting the need for future research to assess the impact of the education program in terms of clinical practice outcomes. Similarly, the dementia education intervention implemented by Jennings et al. (2019) assessed providers' knowledge and attitudes regarding collaborative care while noting that evaluating behavior change in terms of clinical outcomes was outside the scope of their study.

Lee et al. (2020) compared a resident dementia education training program, where the intervention group rotation was in Primary Care Collaborative Memory Care Clinic (PCCMC) setting, and the control group experienced a traditional rotation. The evaluation of the intervention focused primarily on self-reported knowledge and confidence. While the researchers included a question regarding participants' intentions to apply their learning to their work in practice, there were no differences between the two groups. It was noted in their discussion that the researchers suggested the likelihood of improved outcomes in practice, however these statements were based solely on assumptions and theories.

McIntosh (2019) developed and assessed a dementia education program for PCPs that emphasized early detection as part of the AWV. Here, the researcher asserted that providers' lack of knowledge regarding dementia and community services were associated with missed diagnoses of dementia. The researcher also explained that more research was needed to assess whether the intervention resulted in improved outcomes in practice-behaviors.

Parveen et al. (2021) assessed the impact of dementia education and training on health and social care provider staff knowledge, attitudes, and confidence. Here, the researchers stated that dementia-related education and training had little impact on those domains. Rather, they asserted that external control factors (e.g., organizational climate) and individual factors (experience), were more influential.

Project ECHO (Extension for Community Healthcare Outcomes)

The Project ECHO hosted by the Alzheimer's Association (AA, n.d.), was a tele-education program that provided dementia-specific training to PCPs. This was a six-month, biweekly (12 one-hour sessions) education program in which PCP cohorts benefited from the expertise of multidisciplinary hosts, who provided brief topical didactic training at the beginning of each session. Participating PCPs submitted clinical cases for review and discussion, with input from the expert panel and their peers.

Broadly, a known limitation of professional education programs that employed the Project ECHO model, developed by the University of New Mexico (UNM, n.d.; 2019), was that the evaluations focused primarily on improved knowledge and increased confidence (self-efficacy). Despite the limited knowledge in terms of clinical outcomes, the format and duration of the Project ECHO intervention may have contributed to improved outcomes in the behavior, norm, and PBC beliefs that influenced provider intentions, even though those constructs were not measured. De Witt Jansen et al. (2018) noted the value of the ECHO model but suggested that the evaluations should have included outcomes in practice. Other ECHO-related studies consistently cited the need for further evaluation to determine if increased knowledge and self-efficacy gained through the program led to improvements in practice (Bikinesi et al., 2020; Chaple et al., 2018; Mehrotra et al., 2018).

De Witt Jansen et al. (2018) evaluated a teleECHO provider training regarding pain assessment and management of patients in late-stage dementia. In their study, the researchers evaluated knowledge, skills development, and dissemination as important outcomes, yet their narrative identified themes aligned with norms. For example, the program participants were reassured when their approach was consistent with the recommendations of the expert panel. They also valued hearing from peers, which allowed them to reframe some of their own expectations and self-judgment when approaching complex cases. Another interesting observation was the reluctance of some participants to share cases for review, which was a component of the ECHO format. Here, providers' feelings of being vulnerable or exposed were noted, especially when they were offered challenging cases for review by peers and the expert panel.

Barriers and Facilitators to Offering Brief Cognitive Assessments in Primary Care

Next, the review of the literature regarding behavior beliefs, subjective norm beliefs, PBC beliefs, and external (actual) control factors as barriers to, or facilitators of, providers' practice behaviors of screening for dementia was presented. Specifically, behavior beliefs which were the perception of positive or negative impacts of a given behavior; norm beliefs which were the perception of beliefs that others hold true and their influence on our own behavior; PBC beliefs which included knowledge, skills, competencies, and confidence to perform a given task; and external control factors that supported or subverted provider intentions. Giezendanner et al. (2019) found that the more barriers a provider perceived, the more likely they were to take a wait and see approach, rather than proactively seeking a diagnosis of ADRD.

Behavior Beliefs

The TPB framework (Ajzen, 1991; 2020) offered that behavior beliefs were the perception of consequences associated with a given behavior. In the context of early detection and diagnosis of ADRD, those beliefs included PCPs' perceptions of harm, benefits, and usefulness of early detection and diagnosis.

Providers' Attitude

Overall, providers held positive attitudes regarding their role in assessing cognition in primary care. In their study, de Levante Raphael (2022) reviewed 22 research articles and found that PCPs held positive attitudes regarding early detection of ADRDs as well as a level of consensus that they should assess the cognition of their older patients. Similarly, Giezendanner et al. (2019) found that most of the clinicians they surveyed held positive attitudes regarding early detection of ADRDs and Bernstein Sideman et al. (2023) found that most providers believed that they were responsible for early detection of ADRD, including the assessment of cognition.

Dementia Training and PCP Attitude

A 2019 survey commissioned by the Alzheimer's Association (2020) focused on PCP attitudes regarding their medical dementia-education and training experiences. The respondents indicated that they were duty bound to seek education and training opportunities beyond their limited medical school exposures. While Romano et al. (2020) noted that knowledge was associated with improved attitudes, research also indicated that most PCPs had not participated in dementia-specific training post grad (AA, 2020). In their study, Judge et al. (2019) heard from PCPs who shared that they did not have the training needed to diagnose ADRD, and that they struggled to differentiate between cognitive impairment and normal aging.

Perception of Harm

Providers who expressed concern that screening asymptomatic individuals for ADRDs, and the subsequent early diagnoses of MCI or ADRDs as potentially harmful to the patient, was a common theme in the literature (de Levante Raphael, 2022; Ford et al., 2020; Lai et al., 2019; Lu et al., 2022). Ford et al. (2020) found that when providers perceived an increased possibility of harm, and little in terms of benefit, they were less likely to seek diagnoses earlier. Similarly, Lai et al. (2019) noted that the perception of harm to the patient delayed diagnoses of ADRDs until it was unavoidable.

For many years, ethicists have weighed in on this matter, and their attitudes have varied. In 2017, Schermer and Richard published *On the reconceptualization of Alzheimer's disease*, where they asserted that the move to detect dementia at the preclinical or asymptomatic stage, which may or may not progress to AD, would have caused more harm than good. Rasmussen and Langerman (2019) added that early diagnoses may have created privacy rights issues that affected patients' rights to work, drive a car, access health insurance, or even manage their own financial affairs. Filbert et al. (2020) claimed that an ADRD diagnosis was a threat to the family income. Conversely, de Levante Raphael (2022) asserted that failure to disclose a diagnosis may be unethical since it would inhibit patient autonomy. Abe et al. (2019) also discussed ethical concerns when PCPs did not disclose, or when they included family members when presenting the diagnosis, though they noted that these practice behaviors may also be based on cultural values.

Negative Psychological Harm

Concern that early detection and diagnosis of ADRD may impact patients' mental health or well-being was often expressed by providers (de Levante Raphael, 2022). According to Leung et al. (2020), PCPs' apprehension may have been based on the perception that patients would experience increased stress and anxiety, or even fear, when given a diagnosis too soon. Abe et al. (2019) found that PCPs were often concerned that their patients would have experienced negative psychological consequences, adding that the providers may have also experienced distress. Schermer and Richard (2017) suggested that those who received a diagnosis too soon were “patients in waiting” who had to carry a label associated with increased anxiety, stress, and stigma.

Stigmatic Consequences

Stigma, as it pertained to providers’ own held views, were discussed later in subjective norm beliefs. Here, providers concerned that dementia diagnoses caused patients to experience discrimination (de Levante Raphael, 2022; Lu et al., 2022) were offered as behavior beliefs, since this was the consequence of the diagnosis. In multiple studies, providers expressed concern that harm would fall upon patients and families in the form of stigmatic labels when given a dementia diagnosis. Leung et al. (2020) found that PCPs were worried that PLWDs would be valued less in society while Judge et al. (2019a) asserted that early detection of ADRDs may have increased patients’ risk of suicide. Thus, the appeal of early detection and diagnosis may have been lost when providers were concerned about these negative consequences.

Perception of Benefits

Providers’ understanding of the benefits associated with routine cognitive assessments may have influenced their decision to routinely assess cognition as part of the AWV or to do so when dementia symptoms were suspected or observed. In 2009, Tripathi and Vibha wrote a seminal paper where they asserted that all ADRDs were treatable, even those caused by progressive degenerative diseases. This was an important position because it highlighted 1) the fact that not all dementias were caused by AD, and 2) treatment was more than a cure. Judge et al. (2019a) suggested that other known benefits, including PLWDs' access to resources, opportunities to attend to their affairs, improved care coordination, and more time living in community, may have mitigated negative consequences associated with an early diagnosis.

Autonomy

Protecting patient autonomy in healthcare included providing patients with the ability to determine what would happen next. Wolf et al. (2021) acknowledged that maintaining autonomy following a diagnosis of dementia was challenging. de Levante Raphael (2022) found that most patients favored providers' disclosing their diagnosis early, as it provided opportunities for planning and participation in decision-making regarding treatment. This theme was reiterated by Abe et al. (2019), who asserted that ethicists saw early detection as critical to supporting patient autonomy. Low et al. (2019) described PCPs failure to diagnose, or communicate a diagnosis, as deception, noting that this behavior failed to support autonomy.

Opportunity to Identify/Treat Reversible Causes of Dementia

There was a tendency for providers and lay people to use the terms dementia and AD synonymously, which suggested a lack of awareness that dementia was a syndrome, with multiple potential causes. While it was true that dementia symptoms were often caused by AD or another progressive degenerative disease including vascular dementia (VaD), dementia with Lewy bodies (DLB), and frontotemporal dementia (FTD), other possible causes of dementia symptoms exist (AA, 2020; AA, 2025; Frederiksen et al., 2024; Liss et al., 2021; Livingston et al., 2020). These included depression, medication side effects, excessive alcohol use, infections (e.g. urinary tract infections [UTI], HIV, syphilis, Lyme disease, or COVID-19), metabolic or endocrine conditions (e.g. Addison’s disease, Cushing’s disease, hypoglycemia), exposure to toxins (including heavy metals), normal pressure hydrocephalus (NPH) and more (Cleveland Clinic, 2022). Therefore, the importance of identifying and addressing reversible causes of dementia symptoms was highlighted in the reports and guidelines from the ADI (2021), AA (2020; 2022), APA Task Force for the Evaluation of Dementia and Age-Related Cognitive Change (APA, 2021), and GSA (2020). The AA (2020) explained that providers who routinely offered cognitive screenings during the AWV were uniquely positioned to identify and treat those conditions. The ADI (2021) asserted that it was the role of PCPs to identify and treat reversible causes of dementia when applicable.

Opportunity to Identify/Address Modifiable Risk Factors

Despite the perception that screening asymptomatic individuals may be harmful to patients, doing so offered PCPs opportunities to identify and address modifiable risk factors that might prove beneficial over time (Livingston et al., 2020; Rasmussen & Langerman 2019). The AA (2020) distinguished these efforts as risk reduction, rather than prevention since they did not obliterate the possibility of developing AD or another progressive neurogenerative disease. Still, the ADI (2021) offered that up to 40% of all dementias may benefit from addressing 12 modifiable risk factors.

Perception of Usefulness

Usefulness was another construct that fell under behavior beliefs because it informed the perceived value of the behavior (Werner et al., 2020). Thus, PCPs’ assessment of usefulness as a consequence of early detection and diagnosis may have led to negative or improved outcomes, including providers' intentions to screen for dementia. Usefulness was a concern expressed and consequently, reinforced, by the United States Prevention Services Task Force (USPSTF, 2015; USPSTF et al., 2020), who claimed that there was little evidence of harm or benefit associated with early detection/diagnosis of ADRDs (Livingston et al., 2020).

Nihilistic Beliefs

When it came to early detection and diagnosis of ADRDs, nihilistic beliefs persisted in the PCP community (Petrazzuoli et al., 2020). Leung et al. (2020) found that some providers were hesitant to diagnose dementia when they believed nothing could be done. Giezendanner et al. (2019) noted that for some, the diagnosis of dementia was not clinically actionable making the exercise of early detection and diagnosis futile. However, Giezendanner et al. (2019) also found that most PCPs did not hold nihilistic attitudes.

Cost Benefit Analysis

The staggering costs of ADRD were staggering (AA, 2019) which may have influenced PCPs perception regarding how useful early detection and diagnosis was. However, the consequences of early detection and diagnosis were associated with lower costs to health-systems (Sannemann et al., 2021). The AA (2019) added that early detection led to better care in practice as the organization strived to educate providers about care planning codes that could be billed to Medicare/Medicaid.

Quality of Life

Quality of life associated with early detection and diagnosis of ADRD was noted in the literature. Porsteinsson et al. (2021) explained that an early diagnosis improved PLWDs' quality of life and was associated with lower medical and long-term care costs. In addition, those who were diagnosed earlier had opportunities to access emerging treatments (AA, 2025) or explore participation in clinical trials meaningful (Besser et al., 2020). Besser et al. (2020) added that quality of life benefits were also realized when patient and family members' concerns regarding what was happening were addressed.

Subjective Norm Beliefs

Perceptions of what others believed about a given behavior may have influenced their decisions to engage in that behavior, or not (Ajzen, 1991; Francis et al., 2004). Subjective norms included two elements: 1) whether the person faced social pressure to participate in or refrain from the activity; and 2) an assessment of whether they would be judged favorably or negatively for participating in (or refraining from) a given behavior (Francis et al., 2004; Tang et al., 2021). In the context of subjective norms relating to provider-initiated cognitive assessments during the AWV, several considerations and themes were found in the literature.

PCP-Focused Dementia Outreach and Awareness Campaigns

When the AWV was first mandated in the PPACA, the Centers for Medicare and Medicaid Services (CMS) guidance was vague. Initially, PCPs were only told to use a validated, structured instrument when conducting cognitive assessments (AA, 2019). Shortly thereafter, the AA convened the Medicare Detection of Cognitive Impairment

Workgroup, made up of experts, who collectively developed operational recommendations to further normalize providers practice behaviors of offering brief cognitive assessments as a process of discovery in clinical settings (Cordell et al., 2013). The products developed by the workgroup for PCPs included the Alzheimer's Association Medicare Annual Wellness Visit Algorithm for the Assessment of Cognition (AA, n.d.b; Cordell et al., 2013) (Appendix A). Later, the AA (n.d.c.) created the Cognitive Assessment Toolkit which offered three validated assessment tools and three validated informant assessment tools. Over the years, outreach and awareness efforts that supported PCPs in assessing their patients' cognition continued.

Professional Peer Influences

Tang et al. (2021) identified credible sources as particularly influential social norm influences for provider decision-making. Messages from the medical community and dementia experts that contradicted or supported the desired outcome of conducting routine brief cognitive assessments during the AWV may have influenced PCPs perceived norms. An important consideration was that the USPSTF (2020) recommendations stated that cognitive assessments should only be conducted when subjective cognitive decline was reported or suspected. This position contradicted the PPACA mandate that routine cognitive assessments of all eligible Medicare recipients be conducted during the AWV, especially when providers interpreted the AWV as a screening/case-finding activity.

Differentiating Brief Cognitive Assessments from Screening/Case Finding. As advocates for routine brief cognitive assessments as part of the AWV, the Alzheimer's

Association (AA, 2019), another credible source, contradicted the USPSTF (2020) by differentiating assessments in primary care from screening activities performed in informal settings, such as health fairs or online. Their view was supported in the PPACA mandate itself, which framed detection of cognitive impairment as:

> Assessment of an individual's cognitive function by direct observation, with due consideration of information obtained by way of patient report, concerns raised by family members, friends, caretakers, or others (National Archives and Records Administration, 2020).

Perceived Nihilistic Norms

PCP's own assumptions that their patients and family members held nihilistic attitudes regarding early dementia diagnoses may have contributed to delays (Tang et al., 2021; Williamson, 2019). Therefore, dementia training for providers that addressed perceived nihilistic norms may have benefitted both the PCPs and their patients. Low et al. (2019) offered that PCPs had an opportunity to diminish nihilistic beliefs and despair experienced by their patients when their communication focused on functional capabilities and opportunities to access support, planning for the future, and living their best life. However, they acknowledged that this required time and a higher level of comfort when communicating diagnoses of ADRDs.

Providers' Own Stigmatic Beliefs

Dementia-related stigmatic beliefs were often held by PCPs and may have contributed to delayed practice behaviors that supported early detection, diagnosis, and care (Bacsu et al., 2020; Low & Purwaningrum, 2020). Aranda et al. (2023) explained that stigmatic views were rooted in the notion of deviance from norms. When these attitudes were held by PCPs, they may have avoided addressing the issue (Bacsu et al., 2020) and were less likely to include PLWDs in decision-making (Herrmann et al., 2018).

In their study of medical students seeking recommendations for those with dementia, Werner et al. (2020) noted that provider's own stigmatic beliefs including ageism, coupled with a lack of dementia-related knowledge and training, were barriers to patient diagnosis and care. On the other hand, Werner et al. (2020) found that increased knowledge was associated with lower stigmatic beliefs while noting that stigma was a mediating factor to knowledge uptake and behavioral outcomes in practice. Bacsu et al. (2020) called for more research that addressed dementia-stigma prevention interventions for providers to support early detection, diagnosis, and care.

Perceived Behavior Control Beliefs

PBC beliefs in the context of early detection and diagnosis of dementia included knowledge and self-efficacy. Providers' lack of knowledge of dementia symptoms, low confidence in diagnosing, and fear of misdiagnosing were commonly expressed concerns. In the TPB framework, Ajzen (2002) acknowledged that knowledge and self-efficacy played an important role in providers' behavioral intentions.

Knowledge & Self-efficacy

Providers expressed the need for dementia education and training frequently in the literature (AA, 2020; Arsenault-Lapierre, 2021; Gaster et al., 2024; Bernstein Sideman et al., 2023). Still, the AA (2020; 2022) found that only half of the PCPs they surveyed had participated in training following their medical school and residency programs. This was especially important given that Kamoga et al. (2019) found that providers who lacked dementia-related specialized training were less equipped to address the needs of patients with cognitive impairment. In this study, providers acknowledged that they dismissed signs and symptoms or limited treatment to comorbidities.

According to Judge et al. (2019b), dementia was a complex health issue that created challenges for PCPs in terms of differentiating between normal aging, mild cognitive impairment (MCI), AD, and other dementia. In this study, the researchers identified training needs in five domains: 1) diagnosis, 2) disclosure, 3) signposting of local services and supports, 4) counseling, and 5) management of behavioral and psychological symptoms of dementia (BPSD). Sodri et al. (2022) asserted that PCP confidence to diagnose or manage dementia influenced their intentions and impacted patient outcomes. Morgan et al. (2019) explained that training providers how to conduct assessments and manage patients increased their confidence.

In Rural Settings

Rural communities often had higher proportions of older adults living in them (Kirk Wiese et al., 2018). Consequently, rural communities were also disproportionately affected by ADRDs and access to care was limited since there were fewer, if any, specialists (Morgan et al., 2019). Even when specialists were available, they were often far away (ADI, 2019). This led to delayed diagnoses and poor outcomes including comorbid health issues, earlier and more frequent hospitalizations, and longer stays (ADI, 2019). Thus, the need for PCPs to detect and diagnose ADRDs was exacerbated.

However, PCPs in these spaces may have faced additional barriers to accessing information or training. Kirk Wiese et al. (2018), whose research focused on providers in rural communities, suggested that PCPs may not have knowm that cognitive assessments were required during the AWV. This finding was also observed by de Levante Raphael (2022).

Diverse Communities

Providers' efforts in serving diverse communities may have been impeded when they lacked cultural competency regarding how dementia was perceived or understood (de Levante Raphael, 2022). In these settings, Vissenberg et al. (2018) shared that the lack of validated screening instruments for different cultures was also a barrier.

Diagnostic Criteria

The Diagnostic and Statistical Manual Fifth Edition (DSM5) provided criteria that informed and supported providers in assessing MCI and ADRD, however it was complex, making it difficult for many to apply (Jacob, 2014). Bernstein et al. (2019) found that most providers were unfamiliar with published criteria. Early attempts had been made by Jacob (2014), the ADI (2021), and others to support providers understanding. For example, the ADI (2014) explained that at least two cognitive domains should be impacted to establish a diagnosis of dementia. Arvanitakis et al. (2019) articulated the same requirement, then added that sometimes it was possible to diagnose dementia when just one domain was impaired. They suggested that such changes were due to brain disease or injury, while identifying many of the possible causes of dementia symptoms. These explanations, designed to simplify the diagnostic criteria, were also complex.

Unfortunately, the consequences associated with PCPs' limited understanding of diagnostic criteria were not limited to delayed or incomplete (non-specific) diagnoses. Petrazzuoli et al. (2020) explained that providers were likely to prescribe AD drugs to patients, even when they did not have AD, had multiple comorbid health issues, and/or were at a later stage of their dementia.

Using Screening Instruments

Using and interpreting the results of standardized cognitive assessments was a commonly identified challenge. Sabbagh et al. (2020) noted that screening instruments were often poorly designed, making them less intuitive to use. Even when screening tools were used in primary care, PCPs' low confidence in interpreting the results was commonly expressed (Bernstein et al., 2019; de Levante Raphael, 2022).

Resources that Support PLWDs and Families

Community resources offered PCPs an interprofessional approach that supported PLWDs and their care partners (Beck et al., 2021). However, PCPs' often lacked knowledge regarding community resources and services that supported their patients (Beck et al., 2021; Judge et al. 2019a) and their families (McIntosh, 2019). Some PCPs even expressed doubt that families would be interested in utilizing available resources (Jacinto et al., 2020).

Communication

Provider communications that were direct and early in the diagnosis process were associated with improved care outcomes (Jacinto et al., 2020). However, McIntosh (2019) cited discomfort among providers in having dementia-related conversations.

PCPs’ lack of knowledge regarding dementia-related symptoms and low confidence in providing a diagnosis were barriers that may have contributed to PCP hesitation when assessing or disclosing dementia diagnoses (de Levante Raphael, 2022). Jacinto et al. (2020) and other researchers observed that providers often used euphemistic terms when speaking to their patients about ADRD. For example, when PCPs talked about Alzheimer’s disease specifically, they favored alternative word choices like memory issue or dementia, believing that their patients and family members would find these less distressing or confusing (Wollney et al., 2022b). However, this perception was inconsistent with the literature, which suggested that PLWDs and family members favored direct communication, and that the use of more specific terms caused less confusion and/or distress (Wollney et al., 2022n).

Romano et al. (2020) found that provider training regarding reversible causes of dementia may have mitigated the discomfort providers felt about ADRD conversations. PCPs who reported confidence in disclosing dementia diagnoses did not use a one-size-fits-all approach. Instead, they tailored their approach to the patient/family by asking them about their communication preferences. This supported training interventions that emphasized the use of patient- and family-centered communication strategies as helpful (Wollney et al., 2022b).

Actual Control

Ajzen (1991; 2002) explained that control beliefs were both internal and external, and that gaps may have existed between perception of control and reality. Consequently, actual control may have influenced pro-behavior intentions translating to actual behaviors

(Ajzen, 1991; 2002). Therefore, factors that contributed to or inhibited actual behavioral control, and therefore the provider's ability to engage in the desired behavior, were explored.

Organizational Factors

As Ajzen explained, factors beyond the control of the PCP may have inhibited or even derailed their intentions to routinely offer brief cognitive assessments during the AWV. Romano et al. (2020) identified organizational or operational considerations that may be beyond providers' control, including staffing issues, lack of time, or health care systems that do not recognize how important early detection and diagnosis of ADRDs are to their patient and families. Bernstein Sideman et al. (2023) observed feedback from providers regarding time and reimbursement structures as systemic challenges that may have influenced their decision to assess cognition as well as their approach to care management. The issue of time constraints was consistently identified as a barrier in primary care settings by the AA (2019; 2022; 2025).

Patient and Family Factors

In their research, Parker et al. (2020) identified barriers to help seeking behaviors of persons who experienced dementia symptoms and their care partners, and how these contributed to delayed diagnoses. These included fear, stigmatic beliefs, lack of knowledge, minimizing symptoms, and denial. Researchers have also asserted that patients intentionally hid their symptoms (Judge et al., 2019a). However, this may have been due to anosognosia, described as the patients' inability to recognize their own cognitive changes (ADI, 2021; Custodio et al., 2020; Liss et al., 2021). Regardless of the cause, the patients' failure to disclose dementia symptoms may have influenced PCPs' decisions to assess cognition given the USPSTF (2020) guidelines.

Culture and Language

Addressing the diverse needs of the population served may have presented challenges associated with early detection and diagnosis of ADRDs (AA, 2022). In their study, Vissenberg et al. (2018) explored barriers that may have impeded providers care of immigrants with dementia, including obstacles that affected early detection, diagnosis, and care. The results of their survey revealed that two-thirds (65%) of providers identified significant barriers associated with supporting immigrant patients with dementia. These included limited validated screening instruments, language barriers, difficulty recognizing dementia warning signs in the population, patients seeking care later in the disease process, caregiver burden, and stigmatization. They placed these barriers in three thematic categories: early detection of dementia, diagnostic barrier, and care needs. Vissenberg et al. (2018) also identified patients' culture, language, and stigmatic (taboo) beliefs as potential barriers that may be beyond the PCPs control.

Summary and Conclusions

This review of the literature supported the need for provider-focused dementia education and training interventions that aimed to influence and predict outcomes in terms of PCP practice behaviors at the end of the training. The review highlighted a myriad of education interventions developed to support early detection, diagnosis, and support of patients with ADRD and their limitations. Most interventions focused largely on immediate outcomes (e.g., knowledge attainment, increased confidence) but practice behaviors were seldom assessed.

In Chapter 3, the quantitative research design and methods used in this study were presented. This included the rationale for this research and the use of the TPB framework. The methodology, including the instrumentation to be used to identify the behavior beliefs, subjective norm beliefs, PBC beliefs, and external control factors that may have influenced provider intentions to routinely assess cognition during the AWV were described.

Chapter 3: Research Method

Introduction

This quantitative study assessed providers' intentions to routinely offer brief cognitive assessments during their patients' Medicare Annual Wellness Visit (AWV), mandated in the 2011 Patient Protection and Affordable Care Act (PPACA) with low compliance rates. The literature review identified multiple behavior beliefs, subjective norm beliefs, perceived behavioral control (PBC) beliefs, and external control factors that may have influenced PCP practice-behaviors. The results of this study may inform future health education and promotion interventions and evaluations when influencing PCP behaviors in this area was the goal.

In this chapter, the rationale for this study and the decision to apply the TPB framework used to identify factors that support or impede providers' intentions to routinely conduct brief cognitive assessments during the AWV were presented. The proposed methodology was detailed, including defining the target population, sampling frame, and recruitment methods. The development of the survey instrument was described, as well as steps taken to ensure reliability. Data collection and analysis methods were defined.

Research Design and Rationale

This quantitative correlational study design used a cross-sectional online survey that focused on PCP behavior beliefs, subjective norm beliefs, PBC beliefs, and external control factors (independent variables) that supported or inhibited provider intentions to routinely offer brief cognitive assessments during the AWV (dependent variable). In

Chapter 2, the review of the literature provided insights regarding how the TPB domains might have acted as barriers or facilitators to PCP behaviors, but little was known regarding which TPB variables were most influential or how they acted together to influence those intentions. The results of this research could inform future development, implementation, and/or evaluation of provider-focused dementia education, promotion, and/or training interventions when influencing higher levels of adherence to the PPACA mandate to routinely administer brief cognitive assessments during the AWV was a desired outcome.

Methodology

This quantitative correlational study design utilized a cross-sectional online survey, developed following guidelines in the TPB framework (Ajzen, 1991; 2002; 2019a; 2019b; 2020). The medical-focused TPB instrument (Appendix B, C, D), developed by Francis et al. (2004), was adapted to fit the context of dementia and the practice of offering brief cognitive assessments during the AWV (Appendix E, F). PCPs were recruited to complete the self-administered questionnaire. The model developed by Francis et al. (2004) provided instructions regarding scoring and calculating composite variables used in the analysis. Mean scores and correlation (r) statistics were used to assess and describe the relationships between the independent variables (IVs) behavior beliefs, norm beliefs, PBC beliefs, and external factors and the dependent variable (DV) providers' intentions to conduct brief cognitive assessments during the AWV. Descriptive statistics frequencies were also assessed and reported.

Population

The target population for this study was primary care providers (PCPs), including medical doctor (MD), Doctor of Osteopathic Medicine (DO), physician assistant (PA), nurse practitioner (NP), or nurse (RN) in primary care settings, who were responsible for conducting the AWV, a Medicare/Medicaid entitlement for patients who were at least 66 years of age. The Kaiser Family Foundation (2022a; 2022b; 2022c) estimated that there were currently 144,949 family medicine/general practice PCPs, 119,789 PAs, and 267,996 NPs working in the United States.

Sampling and Sampling Procedures

Sampling Method

A non-probability purposive sampling was the primary sampling method used for this study. PCPs were actively and passively recruited using multiple methods to engage the target population. Further, PCPs who were invited to complete the survey were asked to consider sharing the invitation with a colleague since this snowball sampling technique might have helped to reach more providers.

Procedures

The procedures for this study included the following steps. First, the TPB questionnaire developed by Francis et al. (2004) (Appendix D) was adapted for this study. Francis et al. (2004) published their procedures, guidelines, and tools in the public domain and have expressly indicated that they may be utilized without permission when cited appropriately (Appendix B). Still, outreach to Dr. Francis seeking permission was conducted, and her expressed permission was granted via email (Appendix G).

After the instrument was adapted, a small group of PCPs was recruited to review the questionnaire. Their feedback informed changes before the final questionnaire was built in SurveyMonkey for this study. Next, email, social media posts, and direct connect social media requests were used to invite PCPs to participate. These communications included a link to the questionnaire. The online process began with instructions and informed consent, where the respondents clicked through as their acknowledgement. Once the sample size was reached, the data was downloaded for analysis in SPSS.

Sampling Frame

The targeted sampling frame included PCPs in the United States defined as MDs, DOs, PAs, NP, or RNs working in primary care settings. Specialists, including neurologists, geriatricians, and other specialists, were excluded from the study given their advanced training and expertise, and the study's stated purpose of assessing PCP intentions to routinely screen for, rather than treat, cognition during the AWV. Primary care settings included private practices, community clinics, urgent care/primary care dual practices, family medicine, and family health outpatient clinics (e.g., university outpatient and Federally Qualified Health Centers [FQHCs]), where PCPs were responsible for conducting, or issuing orders for, brief cognitive assessments during the AWV.

Power Analysis

Sample size for correlation statistics, when the null hypothesis was zero, the correlation coefficient set at 0.3, and power at .80, was assessed (Bujang & Baharum, 2016). In this scenario, Bujang and Baharum (2016) stated that the sample size should be 84. Similarly, guidelines developed by Francis et al. (2004) suggested a sample size of 80 as sufficient for this TPB study. Finally, the results using the G*Power tool indicated that a sample size of 67 was acceptable. While the minimum of 67 may have been considered acceptable, a minimum of 80 to 84 participants was determined acceptable, as recommended by Francis et al. (2004) and Bujan and Baharum (2016), respectively.

Procedures for Recruitment, Participation, and Data Collection

PCPs working in primary care settings were recruited using both active and passive strategies. These included announcements or posts on listservs, social media (e.g., LinkedIn, Facebook, Twitter) targeted unpaid outreach to PCPs or specialized groups where PCPs were identified as a primary audience. Examples included outreach to social media groups or page administrators when their membership included the targeted audience. In this scenario, administrators were asked to disseminate the invitation to participate in the research or for permission to do so. Outreach to professional organizations was also conducted, where their leadership was asked to disseminate the invitation and survey link to providers in their networks. Direct email was used to send personal invitations and to disseminate the recruitment letter to providers.

Informed Consent

The research participation communications included pertinent information regarding the study, an invitation to participate, the link to the instrument, the amount of time needed to participate, and steps taken to protect participants' privacy, specifically that no identifiable information was collected. The first page of the online questionnaire (Appendix F) served as the informed consent. Respondents acknowledged their informed consent when they clicked through to participate.

Pilot Study

The first draft of the Francis et al. (2004) modified questionnaire was reviewed by a small group of PCPs, to ensure comprehension and clarity, aligning to the guidance offered by the principal investigator (Appendix H). The pilot study participants were asked to download the questionnaire to review. Next, they completed a questionnaire (Appendix E) that asked for feedback regarding the instrument itself. Revisions to the draft were made based on their feedback. The revised survey instrument was developed in SurveyMonkey, the online platform used to administer the study (Appendix F).

Instrumentation and Operationalization of Constructs

The correlational study design utilized a cross-sectional online survey that was designed to assess behavior beliefs, subjective norm beliefs, PBC beliefs, and external control factors that may have influenced PCP intentions to assess the cognition of their patients who were >65 years of age during the AWV. While the TPB framework suggested the need for an elicitation study during the development of the research instrument, Francis et al. (2004) had already developed a questionnaire (Appendix B, C, D) that was 1) specific to health care providers, and 2) in the context of PCP health screening behaviors of the patients in their practice. This instrument was adapted for this study (Appendix E). Modifications to the survey were informed by the desired outcome (brief cognitive assessments during the AWV) and the themes identified in the literature review.

Data Analysis Plan

The model developed by Francis et al. (2004) included the survey instrument and instructions when preparing the TPB variables for analysis. The survey instrument utilized a 7-scale scoring system, where a low score represented a negative response and a high score indicated a favorable response (Francis et al., 2004). Some items required reverse coding prior to analysis (Appendix C). Since the questionnaire included more than one question for the dependent and independent variables, Francis et al. (2004) provided guidance regarding calculating composite mean scores to be used in the analysis. SPSS software was used to produce descriptive statistics and to calculate the composite mean scores. Multiple regression analysis was conducted using the composite mean scores created to serve as the dependent variable (intention) and each of the four independent variables (behavior beliefs, subjective norm beliefs, PBC beliefs and external control beliefs). Pearson correlation statistics were used to assess the strength and direction of their linear relationships.

Threats to Validity

Validity was an assessment of how well research results represent both those who participated in the study, as well as those who did not (Patino & Ferreira, 2018). Internal validity was a measurement of truth of the study population (Patino & Ferreira, 2018). Threats to internal validity may have included errors in measurement (Patino & Ferreira, 2018). In this study, internal validity included the possibility that the respondents may not have been truthful due to potential biases or fear of repercussions (LaMorte, 2019; Rosenman et al., 2011). External validity referred to whether the results of the research were generalizable to similar others (Patino & Ferreira, 2018). To increase validity, Patino and Ferreira (2018) suggested broad inclusion criteria that represented the population. For PCPs, the inclusion criteria were MD, DO, PA, NP, and RNs who work in primary care practices and settings.

Ethical Procedures

The Walden University Institutional Review Board (IRB) reviewed and approved the research design and methods prior to the start of the study. All required protocols and guidelines adhered to the IRB process and approval. Steps to obtain participants' informed consent included a survey landing page that began with the nature and value of the study, steps taken to ensure the respondents' privacy (no identifiable information was collected). Respondents were unable to continue into the questionnaire without clicking through, which served as their informed consent.

Summary

This quantitative correlational study sought to identify behavior beliefs, subjective norm beliefs, PBC beliefs, and external control factors (independent variables) that supported or inhibited provider intentions to routinely offer brief cognitive assessments during the AWV (dependent variable). The results of this research may inform future health education and promotion efforts focused on the defined PCP practice behavior: routinely conducting brief cognitive assessments during the AWV. This could contribute to positive social change by supporting or strengthening PCPs' capacity to detect cognitive impairment sooner, address treatable conditions, diagnose AD or other progressive dementias, and support their patients' access to treatments or clinical trials.

Chapter 4: Results

Introduction

The purpose of this quantitative study was to assess primary care providers' (PCPs) intentions to conduct brief cognitive assessments during their patients' Medicare Annual Wellness Visit (AWV). The theory of planned behaviors (TPB) was used to understand the relationship between the dependent variable (DV) intentions and each of the independent variables: IV1, behavior beliefs; IV2, subjective norm beliefs; IV3, perceived behavioral control (PBC) beliefs; and IV4, external control factors. This study assessed four research questions:

RQ1: Is there a relationship between provider-identified behavior beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV)?

RQ2: Is there a relationship between provider-identified subjective norm beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV)?

RQ3: Is there a relationship between provider-identified control beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV)?

RQ4: Is there a relationship between external (actual) control factors that support or inhibit provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV)?

In Chapter 4, the data collection processes used in this study were described, including the adaptation of the TPB Health Questionnaire developed by Francis et al. (2004) and the critique by PCPs of the adapted instrument prior to implementation. Steps taken to recruit PCPs were discussed. The data was also described, including the size of the sample, inclusion and exclusion factors, and descriptive statistics. Since the model developed by Francis et al. (2004) was followed, the methods used to create composite variables for the statistical analysis were described. Finally, the statistical tests, assumptions, and analysis of the data were presented, along with the findings of this study.

Pilot Study

Since the instrument used for this study was well established, and the changes made were contextual, the decision to omit a pilot study, and instead invite a small group of clinicians to review the instrument for comprehension and clarity was made. This was consistent with comments from the principal investigator who developed and validated the instrument (Appendix I). First, a draft of the adapted TPB questionnaire (Appendix E) was created and shared electronically with three PCPs. Two of the PCPs completed an assessment, in Survey Monkey (Appendix J), where they provided feedback regarding comprehension and clarity. Overall, the respondents recommended only a few changes. One suggested re-wording of question three (Q3), which originally said, “If I assess my patients for cognitive decline, I will detect problems at an early stage.” They suggested rephrasing it to say, “If I assess my patients for cognitive decline, I may detect problems at an early stage.” Their feedback also noted a typographical error on question seven

(Q7). The second respondent expressed concern regarding the methodology itself, stating "Assessing the attitudes / expectations of neurologists and other physicians is going to be difficult to if not impossible without asking them." However, since respondents' perceptions of what others thought were the focus of the TPB, those questions were retained. Lastly, both participants stated that the length of the survey may be too long and that some questions were redundant. Since the study instrument was an adaptation of a validated tool (Francis et al., 2004), I did not make substantive changes to the length of the final questionnaire (Appendix D).

Data Collection

The study population of interest was PCPs working in primary care settings. Specialists, including neurologists and geriatricians, were excluded. I collected data from September 2023 until March 2025 using SurveyMonkey as outlined in Chapter 3.

Recruitment and Response Rates

Participants were recruited using strategies that sought to engage the target population. This was an arduous process, with low response rates during the first year. Multiple methods of outreach were utilized, including sending invitations via direct email to leaders at PCP-related membership organizations. In the latter scenario, the membership organization contacts were invited to share the invitation to participate with their members. I utilized social media (Facebook and LinkedIn), sending direct messages that invited existing or new contacts to participate. I posted the invitation on my own social media pages, on appropriate (PCP-related) Facebook pages, while utilizing public settings that would allow others to share and repost. I joined PCP-specialized social media groups/pages and requested permission to post the invitation in those spaces. The strategy that yielded the best results proved to be direct messaging PCPs in LinkedIn, with an invitation to participate.

A total of 106 respondents participated in the research. A review of the data was carried out to ensure that the respondents met the inclusion criteria and that they completed the questionnaire. A total of 20 responses were discarded. Of those, 13 were excluded because the participants did not meet the inclusion criteria. Six were discarded because the respondents exited without completing the survey or did not complete the intention-related questions, which were central to the analysis. One was discarded because the provider indicated that they did not see patients aged 65 and older. The final research sample, N = 86, exceeded the G*Power calculation of 67, and the Francis et al. (2004) suggested sample size of 80 to 84.

Description of the Sample

Of the 86 respondents, 22 (25.6%) were MDs, two (2.3%) were DOs, two (2.3%) were PAs, 53 (61.6%) were NPs, and seven (8.1%) were RNs (Table 1).

Table 1

Primary Care Provider Type

Type	N	%
Medical Doctor (MD)	22	25.6%
Doctor of Osteopathic Medicine (DO)	2	2.3%
Physician Assistant (PA)	2	2.3%
Nurse Practitioner (NP)	53	61.6%
Registered Nurse (RN)	7	8.1%

A total of 27 participants (31.4%) indicated that they worked in private practice/family medical settings, 34 (39.5%) worked in family outpatient clinics (including Federally Qualified Health Centers [FQHCs]), and 25 (29%) worked in other settings (Table 2).

Table 2

Provider Practice Type

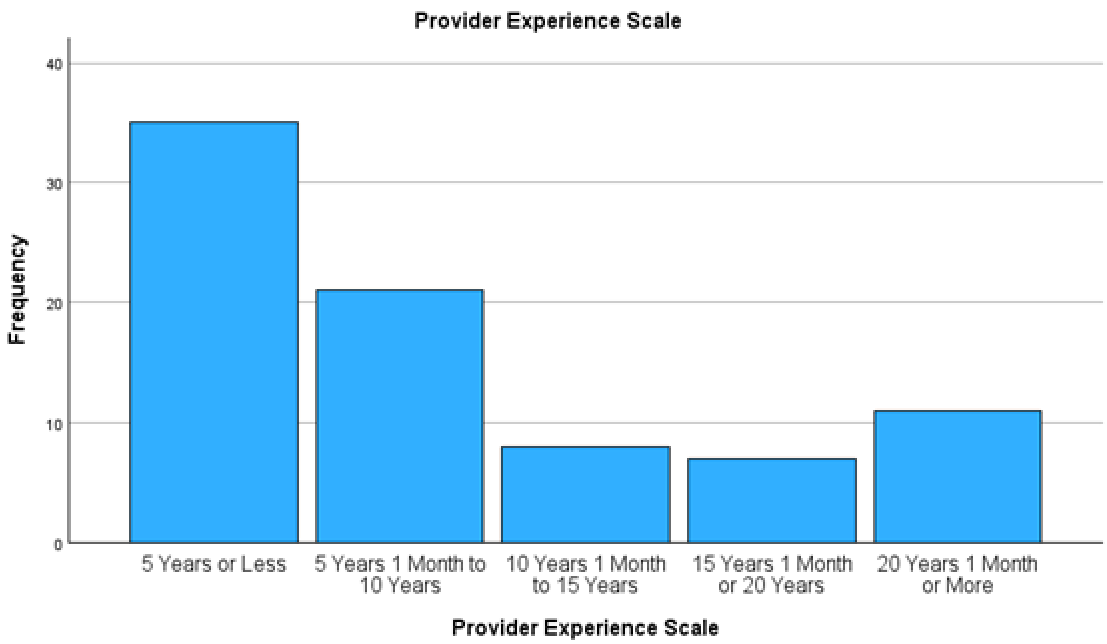
What is the type of medical practice where you work: select one	N	%
Private practice/family medicine setting	27	31.4%
Family outpatient clinic setting (includes outpatient clinics and/or other Federally Qualified Health Centers [FQHCs]. D	34	39.5%
Other	25	29.1%

Experience in Practice

The respondents reported their experience, which ranged from eight months to 42 years Their responses were recoded to fall on a 5 year scale (Figure 2), where 35 (40.7%) had 5 years of experience or less, 21 (24.4%) had between 5 years, 1 month and 10 years of experience, eight (9.3%) had between 10 years, 1 month and 15 years of experience, 7 (8.1%) had between 15 years, 1 month and 20 years of experience, 11 (12.8%) had 20 years, 1 month or more of experience. Four respondents did not report how long they had been a provider.

Figure 2

PCP Experience in Practice (Years and Months)



PCP Training

When asked if they had participated in training specific to early detection and diagnosis of Alzheimer's and other dementia, 45 (52.3%) of the respondents indicated that they had prior training, while 41 (47.7%) had not (Figure 3). A total of 61 (70.9%) of the respondents indicated that they participated in training specific to using one or more screening tools used to assess cognition, while 25 (29.1%) did not (Figure 4).

Figure 3

PCP Trained in Early Detection of ADRD

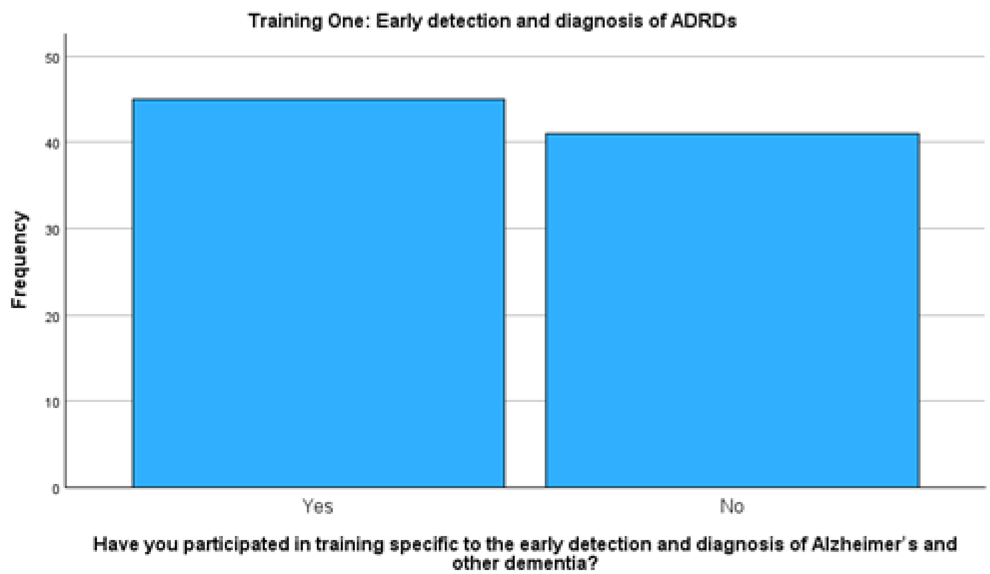


Figure 4

PCP Trained to Use One or More Screening Tools

Personal Connection to ADRDs

A total of 33 (38.4%) respondents reported that they had a direct family connection to a person who was living with Alzheimer's disease or related dementia (ADRD), while 53 (61.6%) did not. However, 50 (58.1%) respondents indicated a direct family connection to a person who had passed away after living with ADRD, while 36 (41.9%) had not. Twenty-one (24.4%) of the PCPs had a direct family connection to a person living with dementia and had lost a person who had been living with ADRD. For both questions, a direct family connection was defined as a spouse, partner, grandparent, parent, sibling, aunt, uncle, or cousin.

Table 3

Personal Connection Crosstabulation

		Yes	No
Do you have a direct family connection to a person you are close to who is living with Alzheimer's or another dementia?	Yes	21	12
	No	29	24
Total		50	36

Results

Following the model offered by Francis et al. (2004), the analysis of the data began and was completed in three steps. First, indirect measures of behavior, subjective norm, and perceived behavioral control (PBC) were assessed as they would shed light on the PCPs' assessment regarding each belief. Next, composite means were created to measure generalized intention and the direct measures of attitude, subjective norm, PBC, and external control beliefs, scores that were then used as proxies for the dependent variable (DV) and independent variables (IVs). Finally, multiple regression analysis was used to measure the strength of the relationship between the DV and IVs.

Step One: Calculate Total Attitude, Norm, and Perceived Behavior Control Scores

I began by calculating a Total Attitude Score (A), Total Norm Score (N), and Total Perceived Behavior Control Score (PBC). These scores served as indirect measures of behavior, subjective norm, and PBC beliefs. The calculations would produce either a positive or negative score for each belief, reflecting the respondents' assessment of each belief.

Total Attitude Score (A)

Eight questions, listed in Tables 4 and 5, were used to calculate a Total Attitude Score (A) to assess the PCP behavior beliefs associated with conducting brief cognitive assessments during the AWV. Here, four Behavior Belief scores on the unlikely /likely scale, as seen in Table 4, were multiplied by their paired Outcome Evaluation score on the extremely undesirable / extremely desirable scale in Table 5.

A = (Q1*Q11) + (Q2*Q10) + (Q3*Q12) + (Q4*Q9) (Francis et al., 2004). Since there were a total of four (4) paired items, the possible range of total scores was (7x+/-3) x 4 = -84 to +84. The calculated Mean seen in Table 6 of 43.62 for Total Attitude Score (A) reflected a moderate positive attitude towards assessing cognition, since positive scores were indicative of favorable beliefs, and negative scores reflected unfavorable beliefs regarding the practice of assessing cognition

Table 4

Behavior Beliefs

Question Number	Question	Measure
Q1	If I assess cognition during the AWV, I will feel that I am doing something positive for the patient.	1 to 7
Q2	It causes a lot of worry and concern for older patients if they are found to have signs of dementia	1 to 7
Q3	If I assess my patients for cognitive decline, I may detect problems at an early stage	1 to 7
Q4	If I detect dementia symptoms, I have to see those patients more often	1 to 7

Note. a. Q1 to Q4 measure 1 Unlikely to 7 Likely

Table 5

Outcome Evaluation

Question Number	Question	Measure
Q9	*Seeing my patients more often is*	-3 to +3
Q10	*Worry and concern experienced by my patients if they are found to have dementia symptoms is*	-3 to +3
Q11	*Doing something positive for my patients is*	-3 to +3
Q12	*For my patients, detecting problems at an early stage is*	-3 to +3

Note. a. Q9 to Q12 measure -3 extremely undesirable to +3 extremely desirable.

Table 6

Mean Scores for Total Attitude (A), Norm (N) and Perceived Behavior Control (PBC) Score

		Total Attitude Score (A)	Total Norm Sore (N)	Total Perceived Behavior Control Score (PBC)
N	Valid	85	80	85
	Missing	1	6	1
Mean		43.62	28.91	22.25

Total Norm Score (N)

Next, I calculated a Total Norm Score (N), to assess the PCP subjective norm beliefs associated with conducting brief cognitive assessments during the AWV. This measure used four Norm Beliefs in Table 7 that evaluated injunctive and descriptive norms and four Motivation to Comply questions in Table 8 that assessed the PCPs experiences associated with social pressure to conduct brief cognitive screenings during their patients' AWV. Each of the Norm Belief scores were multiplied by the paired Motivation to Comply score. N = (Q24*Q15)+(Q25*Q13)+(Q26*Q16)+(Q27*Q14) (Francis et al., 2004). Since there were a total of four (4) items, the possible range of total scores was (7x+/-3) x 4 = -84 to +84. The calculated Mean of 28.91 for *Total Norm Score (N)* in Table 6 suggested that PCPs' experienced weak positive social pressure to assess their older patients' cognition during the AWV.

Table 7

Norm Beliefs

Question Number	Question	Measure
Q13	*Neurologists think I (should not/ should) routinely assess patients' cognition during the AWV*	-3 to +3
Q14	*My patients would (disapprove / approve) of my routinely assessing their cognition during the AWV*	-3 to +3
Q15	*Other PCPs (do not / do) routinely assess patients' cognition during the AWV*	-3 to +3
Q16	*The government would (disapprove / approve) of me routinely assessing patients' cognition during the*	-3 to +3

Note. a. Q13 measure -3 should not / + 3 should; b. Q14 and Q16 measure -3 disapprove / +3 approve; c. Q15 measure -3 do not / + 3 do

Table 8

Motivation to Comply

Question Number	Question	Measure
Q24	*Doing what other PCPs do is important to me*	1 to 7
Q25	*Doing what neurologists think I should do is important to me*	1 to 7
Q26	*The government's approval of my clinical practice is important to me*	1 to 7
Q27	*The approval of my patients is important to me*	1 to 7

Note. a. Q24 to Q27 Measure of 1 Not at All to 7 Extremely

Total Perceived Behavior Control Score (PBC)

Then I calculated the *Total Perceived Behavioral Control (PBC) Score* to assess providers' control beliefs. This measure used three questions in Table 9 that measured their *Control Belief Strength* (after recoding) and three questions in Table 10 that measured their *Control Belief Power*. Each of the *Control Belief Strength* scores on the strongly disagree/strongly agree scale were multiplied by their paired *Control Belief Power* score on the less likely / more likely scale.

PBC = (Q6recode*Q30) + (Q5recode*Q28) + (Q8recode*Q29) (Francis et al., 2004). Since there were a total of three (3) paired items, the possible range of total scores was (7x+/-3) x3 = -63 to +63. The calculated Mean of 22.24 for Total Perceived Behavior Control (PBC) in Table 6 suggested that PCPs had weak to moderate levels of positive behavioral control regarding assessing their patients' cognition during the AWV.

Table 9

Control Belief Strength

Question Number	Question	Measure
Q5 recode	*The tools used to assess cognition are very accurate*	1 to 7
Q6 recode	*I have enough time to routinely assess every patient's cognition during the AWV*	1 to 7
Q8 recode	*Patients who come to the AWV consultation are prepared or willing to participate in brief cognitive assessments.*	1 to 7

Note. a. Measure of 1 Strongly Disagree to 7 Strongly Agree

Table 10

Control Belief Power

Question Number	Question	Measure
Q28	I am (less likely / more likely) to routinely assess patients' cognition during the AWV if I have accurate screening tools	-3 to +3
Q29	I am (less likely / more likely) to routinely assess cognition during the AWV if the patient expresses concern or describes symptoms associated with subjective cognitive decline	-3 to +3
Q30	I am (less likely / more likely) to routinely assess patients' cognition during the AWV if I feel rushed in the consultation	-3 to +3

Note. a. Q28 to Q30 measure -3 Less Likely to +3 More Likely

Step Two: Calculate Composite Dependent and Independent Variables

Next, I calculated a composite score for the dependent variable (DV) intentions and composites scores of the direct measures of the four independent variables (IV), behavior, subjective norm, PBC, and external control factors. Each of these scores were used to assess the strength of the variable, and they were used in the multiple regression analysis described later in this chapter.

Generalized Intention Mean

A total of three questions, as seen in Table 11, were used to calculate a Generalized Intention Mean for each respondent. The three questions used reflected provider intentions, "I expect to", "I want to", and "I intend to" since they were direct statements of intention. SPSS was used to calculate a combined mean score for each respondent, and this composite score was used as the DV Intention to conduct brief cognitive assessment during the AWV.

Table 11

Questions Used to Calculate a Composite Score for the Generalized Intention Mean used as the Dependent Variable (DV) Intention to conduct brief cognitive assessment during the AWV

Question Number	Question	Measure
Q33	I expect to routinely assess cognition of my older patients during their AWV even if they do NOT mention symptoms that are associated with subjective cognitive decline.	1 to 7
Q38	I want to routinely assess patients' cognition during the AWV.	1 to 7
Q40	I intend to routinely assess my patients' cognition during their AWV.	1 to 7

Note. a. Q33, Q37, and Q40 measure 1 Strongly Disagree to 7 Strongly Agree

Direct Attitude Mean

Three questions that used bipolar adjectives (harmful/beneficial; wrong thing/right thing to do; and bad/good practice) were used to calculate a Direct Attitude Mean, as seen in Table 12. This composite score was used as the *IV1 Behavior Beliefs* for each respondent.

Table 12

Questions Used to Calculate a Composite Score for Direct Attitude Mean Used as the Independent Variable 1 (IV1) Behavior Beliefs

Question Number	Question	Measure
Q20	Overall, I think that routinely assessing patients' cognition during the AWV is	1 to 7
Q22	Overall, I think that routinely assessing patients' cognition during the AWV is	1 to 7
Q23	Overall, I think that routinely assessing patients' cognition during the AWV is	1 to 7

Note. a. Q20 measure 1 Harmful to 7 Beneficial; b. Q22 measure: 1 Wrong thing to do to 7 Right thing to do; c. Q23 measure: 1 Bad practice to 7 Good practice

Subjective Norm Mean

Three questions listed in Table 13 were used to calculate the Subjective Norm Mean (with Q32 recoded to reflect a positive statement). This composite score was used as *IV2 Subjective Norm Beliefs* for each respondent.

Table 13

Questions Used to Calculate a Composite Score for Subjective Norm Mean Used as the Independent Variable 2 (IV2) Subjective Norm Beliefs

Question Number	Question	Measure
Q32 Recode	People who are important to me think that I should assess patient cognition (recoded from the negative "should not assess patient unless the patient expresses concern or describes symptoms associated with cognitive decline")	1 to 7
Q34	I feel under social pressure to routinely assess patient cognition during the AWV	1 to 7
Q39	I am expected to routinely assess patient cognition during the AWV	1 to 7

Note. a. Measure: 1 Strongly disagree to 7 Strongly agree

Perceived Behavioral Control (PBC) Mean

Four questions in Table 14 were used to calculate the Perceived Behavior Control (PBC) Mean. This composite score was used as *IV3 Perceived Behavioral Control Beliefs* and featured questions that measured self-efficacy.

Table 14

Questions Used to Calculate a Composite Score for Perceived Behavioral Control (PBC) Mean Used as the Independent Variable 3 (IV3) Perceived Behavioral Control Beliefs

Question Number	Question	Measure
Q35	I am confident that I can routinely assess patient cognition during the AWV if I want to)	1 to 7
Q37	For me to routinely assess patient cognition during the AWV is	1 to 7
Q41	I have at least one accurate cognitive screening tool that I have been trained to use	1 to 7
Q42	I am comfortable discussing dementia and dementia-related symptoms with my patients	1 to 7

Note. a. Q35, Q41, Q42 measure: 1 Strongly disagree to 7 Strongly agree; b. Q37 measure: 1 Difficult to 7 Easy

External Control Mean

Four questions in Table 15 (three recoded to reflect positive statements) were used to calculate an External Control Mean. This composite score was used as the *IV4 External Control*. These variables focus on the PCPs' perception of factors that may be outside of their control (accuracy of assessment tools, having enough time, patients' preparedness/willingness to participate, decision making authority).

Table 15

Questions Used to Calculate a Composite Score for External Control Mean Used as the Independent Variable 4 (IV4) External Control

Question Number	Question	Measure
Q5recode	*The tools used to assess cognition are very accurate*	1 to 7
Q6recode	*I have enough time to routinely assess every patient's cognition during the AWV*	1 to 7
Q8recode	*Patients who come to the AWV consultation are prepared or willing to participate in brief cognitive assessments;* and.	1 to 7
Q36	*Whether I routinely assess patient cognition during the AWV consultation is up to me*	1 to 7

Note. a. Measure: 1 Strongly disagree to 7 Strongly agree

Calculating Total Means for the DV and IVs

After the Composite Means for the DV Intentions (Table 11) and IV1 Behaviors Beliefs (Table 12), IV2 Subjective Norm Beliefs (Table 13), IV3 Perceived Behavior Control (Table 14), and IV4 External Control (Table 15) were calculated for each respondent, a total mean score for each variable was produced in SPSS as seen in Table 16. This data provided further insight regarding the overall strength of the providers' intentions, behavior beliefs, subjective norm beliefs, perceived behavioral control beliefs, and external control factors that may influence their intentions.

Table 16

Total Mean Score for Each Composite Mean for DV and IV Variables

	Mean	Std. Deviation	N
General Intention Mean	6.21	1.06	86
Direct Attitude Mean	6.67	.76	86
Subjective Norm Mean	4.76	1.02	86
Perceived Behavior Control (PBC) Mean	5.91	1.01	86
External Control Mean	4.42	1.14	86

Note. a. General Intention Mean (Table 7) calculated as the composite score for the dependent variable (DV) Intention; b. Direct Attitude Mean (Table 8) calculated as the composite score for the independent variable (IV1) Behavior Beliefs; c. Subjective Norm Mean (Table 9) calculated as the composite score for the independent variable (IV2) Subjective Norm Beliefs; d. Perceived Behavior Control (PBC) Mean (Table 10) calculated as the composite score for the independent variable (IV3) Control Beliefs; e. External Control Mean (Table 11) calculated as the composite score for the independent variable (IV4) External Control

The General Intention Mean of 6.21 with a standard deviation (SD) of 1.06 indicated that the PCPs in this sample had strong favorable intentions to assess cognition. The Direct Attitude Mean of 6.67, SD of .76, reflected strong favorable attitudes regarding assessing cognition. The Subjective Norm Mean of 4.76, SD of 1.02 suggested weak norm beliefs regarding social pressure to assess cognition. The Perceived Behavior Control (PBC) Mean of 5.91, SD of 1.01 suggested a moderate level of perceived behavior control regarding. Finally, the External Control Mean of 4.42, SD of 1.14 revealed that external factors were only slightly influential.

Step Three: Multiple Regression

To assess the strength of the relationship of the composite means calculated for the DV Intentions (General Intention composite mean, Table 11), and IV1 Behavior Beliefs (Direct Attitude composite mean, Table 12), IV2 Norm Beliefs (Subjective Norm composite mean, Table 13), IV3 Perceived Behavior Control (PBC) Beliefs (PBC composite mean, Table 14), IV4 External Control (External Control composite mean, Table 15), I performed a multiple regression test in SPSS.

Model Level

As seen in Table 17, the model summary had the multiple R =.756, R2= .585, adjusted- R2 =.565, and the standard error of the estimate = .69. Based on the R2 data, I inferred that 58.5% of the variability in the DV may be explained by the combination of IV1, IV2, IV3, and IV4.

Table 17

Regression Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.765[a]	.585	.565	.69720	2.077

Note. a. Predictors: (Constant), ExternalControlMean, SubjNormMean, DirectAttitudeMean, PBCMean; b. Dependent Variable: Generalized Intention Mean

Further, the ANOVA analysis, as seen in Table 18, indicated that the combined IVs statistically significantly predicted the DV, $F(4, 81) = 28.557$, $p < .001$ which was below the established alpha ($\alpha = .05$).

Table 18

ANOVA Table: Results of Regression Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	55.526	4	13.881	28.557	<.001[b]
	Residual	39.373	81	.486		
	Total	94.899	85			

Note. a. Dependent Variable: Generalized Intention Mean; b. Predictors: (Constant), ExternalControlMean, SubjNormMean, DirectAttitudeMean, PBCMean

Since there were four research questions in this study, further analysis was needed to assess each IV and their relationship to the DV. Therefore, the coefficients data in

Table 19 was used to evaluate whether they predicted the DV while controlling for each other.

Table 19

Regression Coefficients[a]

Model		Unstandardized Coefficients B	Unstandardized Coefficients Std. Error	Standardized Coefficients Beta	T	Sig.	Collinearity Statistics Tolerance	Collinearity Statistics VIF
1	(Constant)	-1.221	.739		-1.652	.102		
	IV1 Behavior Beliefs (Direct Attitude Mean)	.642	.121	.461	5.299	<.001	.678	1.475
	IV2 Subj Norm Beliefs (Subjective Norm Mean)	.183	.078	.176	2.356	.021	.920	1.087
	IV3 PBC Beliefs (PBC Mean)	.327	.098	.313	3.350	.001	.586	1.706
	IV4 External Control (External Control Mean)	.077	.075	.083	1.029	.307	.790	1.266

Note. a. Dependent Variable: Generalized Intention Mean

RQ1**:** Is there a relationship between provider-identified behavior beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV)?

The coefficients data indicated that for every one unit increase in IV1 Behavior Beliefs, ($B = .642$, $\beta = .461$, $p < .001$), the respondent's Intention to conduct brief cognitive assessment during the AWV (DV) will change by .461 units, controlling for IV2, IV3, and IV4. Here, the p-value was below the established alpha ($\alpha = .05$), therefore I rejected the null hypotheses for RQ1.

RQ2: Is there a relationship between provider-identified subjective norm beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV)?

For every one unit increase in IV2 Subjective Norm Beliefs, ($B = .183$, $\beta = .176$, $p = .021$), the respondent's Intention to conduct brief cognitive assessment during the AWV (DV) will change by .176 units, controlling for IV1, IV3, and IV4. Here, the p-value was statistically significant and the null hypotheses for RQ2 was rejected.

RQ3: Is there a relationship between provider-identified control beliefs associated with early detection and diagnosis and provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV)?

For every one unit increase in IV3 Perceived Behavioral Control (PBC) Beliefs, ($B = .327$, $\beta = .313$, $p > .001$), the respondent's Intention to conduct brief cognitive assessment during the AWV (DV) will change by .313 units, controlling for IV1, IV2, and IV4. For IV3, the p-value was statistically significant, therefore I rejected the null hypotheses for RQ3.

RQ4: Is there a relationship between external (actual) control factors that support or inhibit provider intentions to routinely offer cognitive assessments to patients during the Medicare Annual Wellness Visit (AWV)?

The results of the analysis revealed that for every one unit increase in IV4 External Control, ($B = .077$, $\beta = .083$, $p > .307$), the respondent's intention to conduct brief cognitive assessment during the AWV (DV) will change by .083 units, controlling for IV1, IV2, and IV3. For IV4, the p-value was not statistically significant. Therefore, I failed to reject the null hypothesis for RQ4.

Meaningfulness

Since three independent variables (IV1, IV2, and IV3) had p-values that were statistically significant at the $\alpha = .05$, the standardized beta (β) for each variable in Table 19 was used to assess the strength of each variable and the role they played in predicting provider intentions.

IV1 Behavior Beliefs had a standardized beta ($\beta = .461$) which indicated that this variable was meaningful, and it served as the strongest predictor of provider intentions in this context. This assessment was supported by the calculated Mean of 43.62 for Total Attitude Score (A) (Table 6) and the Direct Attitude Mean of 6.67 in Table 16. IV2 Subjective Norms standardized beta ($\beta = .176$) was the lowest of the three variables deemed statistically significant, though its role in terms of influencing provider intentions was modest. This was consistent with the calculated Mean of 28.91 for Total Norm Score (N) (Table 6) and the Subjective Norm Mean of 4.76 in Table 16, both of which indicated that subjective norm beliefs were the weakest of the statistically significant predictors of provider intentions. IVC3 PBC Beliefs standardized beta ($\beta = .313$) suggested a meaningful and moderate role in terms of influencing providers' intentions. Agan, this was consistent when compared to the calculated Mean of 22.24 for Total Perceived Behavior Control (PBC) (Table 6) which reflected weak to moderate PBC influence in assessing cognition and the Perceived Behavior Control (PBC) Mean of 5.91 in Table 16, that suggested a moderate level of influence.

Finally, IV4 External Control was not statistically significant in this model and did not meaningfully contribute to the DV providers' intentions. This weak association was substantiated by the External Control Mean of 4.42 in Table 16, which also suggested a very low positive level of external influence regarding the practice of assessing cognition.

Regression Diagnostics

Six multiple regression test assumptions were assessed for this analysis. As seen in Table 17, the Durbin-Watson test for independence yielded a score of 2.077 which indicated that there were no correlations between residuals. The VIF statistics (IV1 = 1.47, IV2 = 1.09, IV3 = 1.71, and IV4 = 1.27) in Table 19 were all well-below 10, satisfying the assumption of multicollinearity. As seen in Table 20, the Cook's distance statistic of .00 to .51 was <1, confirmed that there was no undue influence between predictor variables. The well-distributed histogram in Figure 5 supported the assumption of normal distribution of errors. Finally, the scatter plot in Figure 6 suggested that a relationship did not exist, which supported the assumption of homoscedasticity.

Table 20

Descriptive Statistics of Residuals[a]

	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	3.4745	7.3836	6.2093	.80824	86
Std. Predicted Value	-3.384	1.453	.000	1.000	86
Standard Error of Predicted Value	.083	.357	.158	.058	86
Adjusted Predicted Value	3.4373	7.4511	6.2153	.80436	86
Residual	-2.19905	1.27806	.00000	.68060	86
Std. Residual	-3.154	1.833	.000	.976	86
Stud. Residual	-3.249	1.876	-.004	1.020	86
Deleted Residual	-2.33349	1.33923	-.00595	.74475	86
Stud. Deleted Residual	-3.462	1.907	-.013	1.046	86
Mahal. Distance	.223	21.357	3.953	3.988	86
Cook's Distance	.000	.513	.020	.062	86
Centered Leverage Value	.003	.251	.047	.047	86

Note. a. Dependent Variable: Generalized Intention Mean

Figure 5

Histogram of Multiple Regression Residuals for Assessing Normality

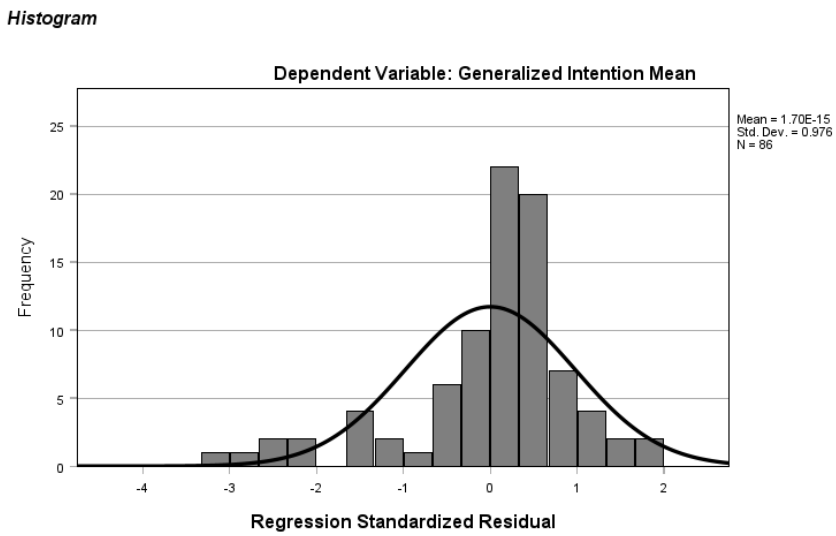
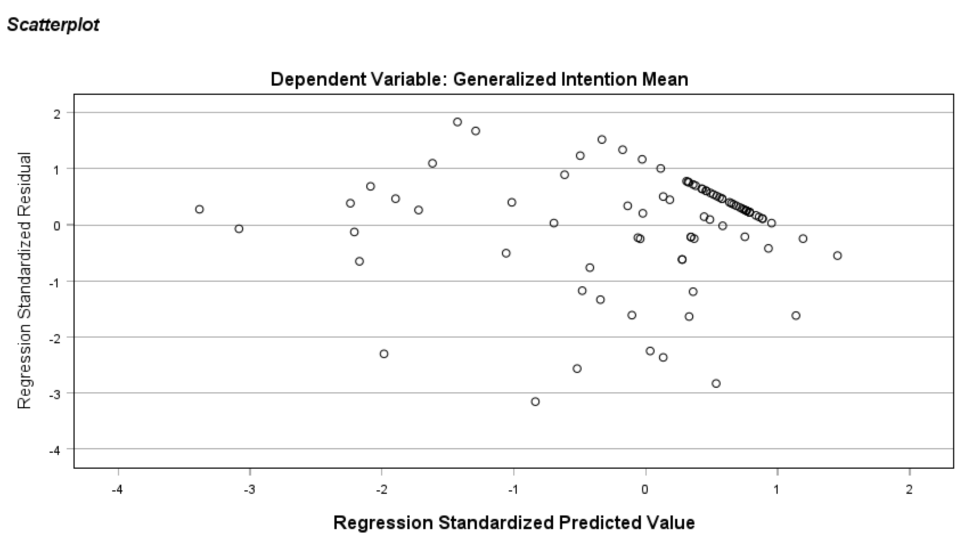


Figure 6

Residuals vs. Predicted Values: Scatterplot for Assessing Homoscedasticity



Summary

In Chapter 4, I described the development and assessment of the survey instrument, and the methods used to recruit participants to the study. I provided descriptive statistics including the type of providers who participated, their practice settings, experience, relevant training, and whether they had a personal connection to ADRD.

Next, I described the methods used to calculate and analyze the data, following steps outlined in the model developed by Francis et al. (2004). First, I calculated a Total Attitude Score (A), Total Norm Score (N), and Total Perceived Behavior Control Score (PBC) to assess the strength of the relationship between behavior, subjective norm, and perceived behavior control and the intention to conduct brief cognitive assessments. Second, I calculated composite mean scores for the DV and each of the IVs which were later used in the multiple regression analysis. Then, I presented the results of the analysis which indicated that IV1 Behavior Beliefs, IV2 Norm Beliefs, and IV3 Perceived Behavioral Control (PBC) were statistically significant in predicting the DV Intentions to Conduct Brief Cognitive Intentions. The results indicated that IV1 Behavior Beliefs were the strongest predictor of providers' intentions to conduct brief cognitive assessments. Provider intentions were also influenced by IV3 Perceived Behavior Control (PBC) and IV2 Subjective Norms, though the latter was the weakest of those constructs. IV4 External Control was not significant in this model.

In Chapter 5, I offered an interpretation of the research findings, discussed the study's limitations, and presented recommendations for health educators who may seek to influence or support PCPs in the practice behavior of conducting brief cognitive assessments during the Medicare Annual Wellness Visit (AWV). Finally, I presented recommendations for further study. The implications of the research were presented, as were my final conclusions.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

There were more than 7 million Americans living with Alzheimer's disease and related dementia (ADRD) in the United States, but most cases continued to go undetected or undiagnosed (Wollney et al., 2022a). To support early detection in primary care, the Center for Medicare and Medicaid Services (CMS, 2022) included a mandate that primary care providers (PCPs) conduct brief cognitive assessments during their patients' Annual Wellness Visit (AWV) in the 2011 Patient Protection and Affordable Care Act (PPACA; AA, 2014; AA, 2019; GSA, 2015; HHS, 2011). More than a decade had passed and still, most older adults were not routinely assessed during the AWV (AA, 2019; AA, 2020; de Levante Raphael, 2022; GSA, 2015). This continued to be true despite the development of guidelines, toolkits, and training programs that supported this practice behavior (AA, 2017a; AA, 2017b; AA, 2018; AA, 2019; GSA, 2017; GSA, 2020; AA, 2020; AA & CDC, 2019; AMA, 2019; Galvin & Sadowsky, 2012; Romano et al., 2020).

The purpose of this quantitative study was to assess the relationship between providers' intentions to conduct brief cognitive assessments during the AWV and their behavior beliefs, subjective norm beliefs, perceived behavior control (PBC) beliefs, as well as external control factors often cited as influential. This research was based on the theory of planned behavior (TPB), which asserted that intentions predicted behaviors, and that they were informed by behavior, subjective norm, and perceived behavior control (PBC) beliefs.

A review of the literature identified numerous efforts to support, influence, and/or evaluate PCP practice behaviors in the context of assessing their patients' cognition. The research identified several themes that were important. These included a lack of dementia-specific education or training (AA, 2019; Kamoga, 2019), or training that was limited to knowledge, confidence, and sometimes attitudes. Nihilistic beliefs (Bacsu et al., 2020; Giezendanner et al., 2019; Leung et al., 2020; Petrazzuoli et al., 2020), PCP discomfort addressing dementia with their patients (Abe et al., 2019; Jacinto et al., 2020; Judge et al., 2019a; McIntosh, 2019; Vissenberg et al., 2018), and concerns regarding patients facing stigmatic reprisals (de Levante Raphael, 2022; Judge et al., 2019a; Leung et al., 2020; Wollney et al., 2022) were also noted. Operational conditions beyond the providers' control were also commonly cited barriers. These included the perception that their patients did not want a diagnosis (Wollney et al., 2022), culture or language barriers (Vissenberg et al., 2018), and providers' expressed concerns that they did not have enough time to conduct the assessments (AA, 2019; de Levante Raphael, 2022).

The study population included PCPs (MD, DO, PA, NP, or RNs) who worked in primary care settings. The respondents participated in an online questionnaire, adapted from a validated TPB instrument developed by Francis et al. (2004). A total of 105 individuals responded, and 86 were included in the final sample. The majority were NPs (61.6%) and MDs (25.6%), though there were small representations from RNs (8.1%), DOs (2.3%), and PAs (2.3%) (Table 1). The analysis of the data included several steps, following the guidance of Francis et al. (2004). First, Total Attitude Score (A), Total Norm Score (N), and Total Perceived Behavior Control Score (PBC) scores were calculated, as described in Chapter 4. Next, composite scores for each respondent were created and used as the Dependent Variable (DV) and each of the four Independent Variables (IV1, IV2, IV3, and IV4). These included the General Intention Mean (Table 11) which served as the composite score for the DV Intention; the Direct Attitude Mean (Table 12) used for the IV1 Behavior Beliefs; Subjective Norm Mean (Table 13) used for the IV2 Subjective Norm Beliefs; Perceived Behavior Control (PBC) Mean (Table 14) used for IV3 Control Beliefs; and External Control Mean (Table 15) used for IV4 External Control. The total mean scores for all five composite means (Table 16) were also calculated, providing insight regarding he strength of each variable. Finally, a multiple regression analysis was completed to assess the strength of the relationship between the composites created for the DV and each of the IVs.

The results of the regression analysis revealed that behavioral beliefs were the strongest predictors of PCP intentions to conduct brief cognitive assessments during the AWV. PBC beliefs were moderately influential, and subjective norm beliefs were statistically significant but less influential. In this model, external control factors were not statistically significant.

In this chapter, the results of the study presented in Chapter 4 were interpreted, offering key findings, limitations of the study, and recommendations for health educators. Potential implications associated with the findings were also discussed, as were my final conclusions.

Interpretation of the Findings

The TPB assertion that behaviors were informed by intentions, and that intentions were influenced by behavior, subjective norm, and PBC beliefs, was explored in this study. Here, PCPs' intentions to conduct brief cognitive assessments were high, as seen in the General Intention Mean of 6.21 (Table 16) on a scale of 7. The PCP behavior, subjective norm, and PBC beliefs were also positive, though there was variance in their strength. Multiple regression analysis was used to assess the relationship between the DV Intention (General Intention Mean, Table 11) and IV1 Behavior Beliefs (Direct Attitude Mean, Table 12), IV2 Subjective Norm Beliefs (Subjective Norm Mean, Table 13), IV3 Control Beliefs (PBC Mean, Table 14), and IV4 External Control (External Control Mean, Table 15) and the strength of each belief in terms of influencing PCP intentions to assess their patients' cognition during the AWV.

Intentions and Behavior Beliefs

The results of the multiple regression analysis indicated that behavior beliefs, or the PCPs perception of the consequence of the practice behavior (Ajzen, 1991; 2020), were the strongest predictor of provider intentions to assess cognition. Behavior beliefs may include perceptions of harm or benefits. The literature revealed many examples of both. For example, providers' concern regarding the negative consequences or harm associated with early detection of ADRDs (Abe et al., 2019; Filbert et al., 2020; Leung et al., 2020; Rassmussen & Langerman, 2019) led to delays in early detection and diagnoses (Ford et al., 2020; Hui Lai et al., 2019). These negative beliefs persisted despite evidence of benefits associated with early detection of cognitive symptoms (Reiss et al., 2022).

These included opportunities to identify treatable conditions (AA, 2020; ADI, 2021; APA, 2021; GSA, 2020; Reiss et al., 2022); address modifiable risk factors, and support patient autonomy (Abe et al., 2019; Lowe et al., 2019), and that most patients preferred knowing their status (de Levante Raphael, 2022). The long-term benefits associated with early detection and diagnosis of ADRDs included opportunities to participate in treatments and/or clinical trials (AA, 2020; AA, 2025; Besser et al., 2020; Reiss et al., 2022), lower costs associated with care (Sannemann et al., 2021), and improved quality of life. While behavior beliefs were the strongest predictor of providers' intentions to conduct brief cognitive assessments during the AWV, in this study, they were not acting alone.

Intentions and Subjective Norm Beliefs

The regression analysis indicated that subjective norm beliefs, which consisted of PCPs' personal assessment regarding what others believed to be true or valued in terms of their practice of conducting brief cognitive assessments during the AWV (Ajzen, 1991; Francis et al., 2004), influenced providers' intentions to assess cognition. This was consistent with research from Tang et al. (2021), who found that social norm interventions that included messaging from credible sources and promoted in-group norms influenced provider practice behaviors. In this study, norm beliefs were statistically significant, however they were not as strong an influence on PCP intentions to conduct brief cognitive assessments during the AWV. However, Ajzen (2019) explained that the weaker, yet statistically relevant, weight of a belief may be due to low response variability among the study participants. In this scenario, interventions that promote positive social norms regarding the desired practice behavior might increase variability and consequently, the strength or weight of the belief. Conversely, Ajzen (2019) also noted that the low weight may just mean that subjective norm interventions would be less likely to influence intentions and the desired practice behavior. These competing possibilities support the need for more research.

Intentions and Perceived Behavioral Control (PBC)

The regression results in this study indicated that providers' control beliefs, measured as PBC, and included knowledge, skills, and self-efficacy, were also influential. The importance of education and training in supporting the PCPs' practice of assessing patients' cognition was well established (Lee et al., 2020; McIntosh, 2019; Morgan et al., 2019). Specifically, knowledge and confidence influenced PCPs' practice behaviors around early detection and diagnoses of ADRDs (AA, 2020; Wollney et al., 2022). At the same time, PCPs' lack of knowledge regarding diagnostic criteria and training on the use of standardized screening instruments and how to interpret results were identified barriers (Bernstein et al., 2019; de Levante Raphael, 2022). However, the notion that knowledge alone does not change behavior may be an important take-away of this research given the strength of behavior beliefs, though more research is warranted.

Intentions and External Control Factors

In this study, external control factors had the weakest relationship to PCP intentions in the overall model and were not statistically significant. External control factors included providers' assessments of forces outside their control (Table 15) such as the accuracy of assessment tools, having enough time, patients' preparedness and/or willingness to participate in the assessment, and the providers' decision-making authority. This finding was a surprise given that time constraints were frequently cited as important barriers (AA, 2019; Parveen et al., 2021) as was research that suggested patients may not be forthcoming in disclosing their dementia symptoms (Judge et al., 2019a). Future research regarding the strength of behavior, subjective norm, and/or PBC as potential mitigators of external control barriers is warranted, and may inform future health education interventions.

Limitations of the Study

This research sought to engage primary care providers (PCPs) including medical doctor (MD), Doctor of Osteopathic Medicine (DO), physician assistant (PA), nurse practitioner (NP), or nurse (RN) working in primary care settings, inviting them to participate in an online questionnaire. Limitations identified in this study included selection bias and social desirability bias.

Selection Bias

The potential for selection bias in this research was noted since PCP motivation to participate in an online study may be influenced by interest in the research topic or relevance to their professional/personal experiences (Rubenstein & Furnier, 2021). Davin (2022) referred to research outside the PCPs' scope of practice as potentially influential. Other potential barriers to participation included a general lack of interest (Rahman et al., 2011) or willingness to participate (Tawo et al., 2019), time constraints (Davin, 2022). These factors may be more pronounced when the target population was known to be difficult to reach/engage in research, as was observed here. Further, the disproportionate representation of NPs (61%) and MDs (25.6%) in the sample compared to just a few DOs (2.3%), PAs (2.3%), and RNs (8.1%) may indicate the need for future research that focuses on one or more of these provider types.

Social Desirability Bias

PCPs participating in research that assessed their practice behaviors may answer questions more favorably to avoid negative appraisal by the researcher (AHCJ, n.d.; Davin, 2022). In this study, no personal information was collected from the respondents, but that does not mean that they were not influenced by this bias. Consequently, overstating intentions to, or beliefs about, the task of conducting brief cognitive assessments during the AWV may have occurred.

Recommendations

The goal of this study was to assess the strength of the relationship between PCP behavior, subjective norm, and control beliefs, including PBC and actual (external) control, and their intentions to routinely conduct brief cognitive assessments during their older patients' AWV. The multiple regression analysis indicated that behavior beliefs acted as the strongest predictor of PCPs' intentions to conduct brief cognitive assessments. Further, PBC and subjective norm beliefs also proved to be statistically significant, with PBC having a moderately predictive effect and subjective norms a weak effect. External control factors in this model were not statistically significant. According to Ajzen (2019), health educators may interpret the weight or strength of the three statistically significant variables in different ways.

First, the strength of behavior beliefs in this study indicated that health educators prioritize addressing PCPs' perceptions of perceived negative consequences associated with early detection and diagnosis of ADRDs. More research regarding which behavior beliefs were the stronger influences of providers' intentions may help health educators develop more effective interventions. Also, since Ajzen (2019) explained that changing existing behavior beliefs may be more difficult than introducing new ones, health educators may find success when they emphasize known benefits and patient preferences (AA, 2025). More research here is called for, as this approach would align with Petrazzuoli et al. (2017) findings that when benefits to early detection and diagnosis were known, providers were more apt to assess cognition even when they were concerned about potential harm.

Subjective norm beliefs were statistically relevant in this model, though they were the weakest of the predictors of PCP intentions to conduct brief cognitive assessments during the AWV. Ajzen (2019) pointed out that interventions that strengthen weaker beliefs may lead to changes in providers' intentions. This was supported by Deng & Liu (2022), who found that integrating positive social norm messaging, including personal norms, into interventions increased PCPs' subjective norm beliefs. Tang et al. (2021) research also supported the use of social norms campaigns to influence PCPs practice behaviors, noting that these interventions may be scaled to reach larger populations. Therefore, more research regarding the effectiveness of social norms marketing in supporting PCP subjective norm beliefs and their intentions to assess patients' cognition during the AWV is recommended.

Further, understanding the strength of each subjective norm variable in this study may inform the development of a campaign.

Since PBC beliefs were the second strongest predictor of provider intentions in this research, the value of health education and promotion interventions that support providers' knowledge acquisition, skill development, and self-efficacy associated with early detection of ADRDs were supported. However, health educators may seek to explore the intersection of PBC and behavior beliefs to strengthen interventions. Further, research regarding the strength of the individual variables that were included in the composite behavior belief, subjective norm belief, PBC belief, and external control means used in this study may help health educators make informed decisions when prioritizing content in future interventions.

Implications

The findings from this study identified opportunities for health educators to strengthen health education and promotion interventions when they seek to influence PCP practice behaviors in the context of assessing the cognition of their older patients during the AWV. By addressing the behavior, subjective norm, and PBC beliefs of the PCPs, health educators may positively influence PCP intentions to engage in the desired practice behavior that is associated with several positive health outcomes. For example, PCPs who assessed the cognitive health of their older patients were afforded opportunities to address modifiable risk factors known to mitigate or reduce the risk of developing ADRDs (AA, 2025). In addition, providers who routinely assessed their patients' cognition during the AWV may identify treatable conditions responsible for cognitive changes. Finally, PCPs who suspected that their patients' cognitive changes were due to ADRDs could support their diagnosis, identifying the underlying cause at the earliest stages. This would not only support autonomy, but would allow time for patients' care planning, access to treatment or clinical trials, and access to community resources (AA, 2025).

Conclusion

The findings from this quantitative study, which applied the theory of planned behavior (TPB), identified behavior beliefs as the strongest predictor of PCP intentions to conduct brief cognitive assessments during the AWV. However, these beliefs were not acting alone given that PBC and subjective norm beliefs were also statistically significant. These findings may inform the development of future health education and promotion efforts that support PCPs practice behaviors associated with early detection of ADRDs. Modifications to existing interventions, and/or their corresponding evaluations, may also be informed by this research, especially when 1) the content addressed behavior, subjective norm, and/or control beliefs, and 2) intentions were deemed an appropriate proxy when assessing PCP behavior change (Ajzen, 1991; 2002; 2019). In this scenario, Ajzen (2019) explained, TPB interventions should support PCPs in developing a detailed implementation plan as this would strengthen their implementation intentions.

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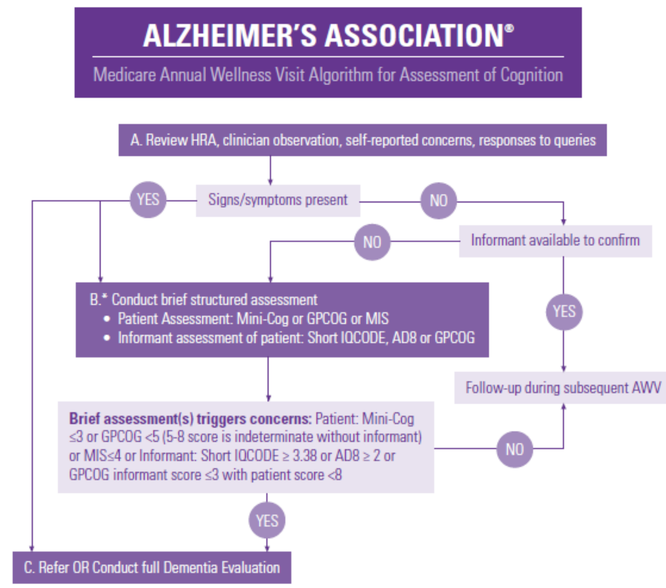
Appendix A: Alzheimer's Association Medicare Wellness Visit Algorithm for Assessment of Cognition



* No one tool is recognized as the best brief assessment to determine if a full dementia evaluation is needed. Some providers repeat patient assessment with an alternate tool (e.g., SLUMS, or MoCA) to confirm initial findings before referral or initiation of full dementia evaluation.

AD8 = Eight-item Informant Interview to Differentiate Aging and Dementia; **AWV** = Annual Wellness Visit; **GPCOG** = General Practitioner Assessment of Cognition; **HRA** = Health Risk Assessment; **MIS** = Memory Impairment Screen; **MMSE** = Mini Mental Status Exam; **MoCA** = Montreal Cognitive Assessment; **SLUMS** = St. Louis University Mental Status Exam; **Short IQCODE** = Short Informant Questionnaire on Cognitive Decline in the Elderly

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Appendix B: Copy and Use Permission Statement from Francis et. Al (2004)

Appendix C: Sample Survey by Francis et. Al (2004)

Constructing Theory of Planned Behaviour Questionnaires: Manual for Researchers

12.2 Example, Questionnaire

Note that this questionnaire has TWO sections. Section 1 asks about demographic information; Section 2 measures the predictor variables and intentions.

SECTION 1

About your BACKGROUND

A	How long have you been qualified?	Years
	How many sessions (1/2 days) do you work per week?	
B	How many GPs work at your practice?	
C	How many practice nurses work at your practice?	
D	Are you Male ☐ Or Female ☐	
E	Are you a GP ☐ Or a Practice Nurse ☐	

If you are a GP please go to Question G. If you are a Practice Nurse please answer question F

F	If you are a nurse do you provide care for people with Type 2 diabetes?	Yes	No
G	What is your approximate practice list size?		

SECTION 2

Each question in this section refers to MEASURING THE BLOOD PRESSURE (BP) of your patients with Type 2 diabetes

1	If I measure their BP, I will feel that I am doing something positive for the patient	Unlikely	1	2	3	4	5	6	7	Likely
2	It causes a lot of worry and concern for a diabetes patient if they are found to have high BP	Unlikely	1	2	3	4	5	6	7	Likely
3	If I measure BP, I will detect any problems at an early stage.	Unlikely	1	2	3	4	5	6	7	Likely
4	If I measure BP, I've got to see patients more often	Unlikely	1	2	3	4	5	6	7	Likely
5	The blood pressure machine I use is not very accurate	Unlikely	1	2	3	4	5	6	7	Likely
6	When I am measuring BP in the consultation I feel rushed	Unlikely	1	2	3	4	5	6	7	Likely
7	The cuffs on BP machines are uncomfortable for patients	Unlikely	1	2	3	4	5	6	7	Likely

8	Patients come to the consultation inappropriately dressed to have their BP measured	Unlikely	1	2	3	4	5	6	7	Likely
9	Seeing patients more often is	Extremely undesirable	-3	-2	-1	0	+1	+2	+3	Extremely desirable
10	Worry and concern experienced by patients if they are found to have high BP is	Extremely undesirable	-3	-2	-1	0	+1	+2	+3	Extremely desirable
11	Doing something positive for the patient is	Extremely undesirable	-3	-2	-1	0	+1	+2	+3	Extremely desirable
12	For these patients, detecting problems at an early stage is	Extremely undesirable	-3	-2	-1	0	+1	+2	+3	Extremely desirable
13	Diabetologists think I	should not	-3	-2	-1	0	+1	+2	+3	should measure the BP of patients with diabetes.
14	Patients with Type 2 diabetes would	disapprove	-3	-2	-1	0	+1	+2	+3	approve of my measuring their BP.
15	Other GPs	do not	-3	-2	-1	0	+1	+2	+3	do measure the BP of their patients with diabetes.
16	The government would	disapprove	-3	-2	-1	0	+1	+2	+3	approve of my measuring the BP of patients with diabetes.
20	Overall I think that measuring these patients' BP is:	Harmful	1	2	3	4	5	6	7	Beneficial
21		Pleasant	1	2	3	4	5	6	7	Unpleasant
22		The wrong thing to do	1	2	3	4	5	6	7	The right thing to do
23		Good practice	1	2	3	4	5	6	7	Bad practice
24	Doing what other GPs do is important to me	Not at all	1	2	3	4	5	6	7	Extremely
25	Doing what diabetologists think I should do is important to me	Not at all	1	2	3	4	5	6	7	Extremely
26	The government's approval of my clinical practice is important to me	Not at all	1	2	3	4	5	6	7	Extremely
27	The approval of my patients with Type 2 diabetes is important to me	Not at all	1	2	3	4	5	6	7	Extremely
28	I am	Less likely	-3	-2	-1	0	+1	+2	+3	More likely to measure patients' BP if the machine that I use is accurate.

29	I am	Less likely	-3	-2	-1	0	+1	+2	+3	More likely
		to measure patients' BP if the cuffs on the machines are uncomfortable.									
30	I am	Less likely	-3	-2	-1	0	+1	+2	+3	More likely
		to measure patients' BP if I feel rushed in the consultation.									
31	I am	Less likely	-3	-2	-1	0	+1	+2	+3	More likely
		to measure patients' BP if they come to the consultation inappropriately dressed to have their BP measured.									
32	People who are important to me think that I should NOT measure the BP of patients with Type 2 diabetes	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
33	I expect to measure the BP of my patients with diabetes in each consultation	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
34	I feel under social pressure to measure the BP of these patients	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
35	I am confident that I can measure the BP of these patients in the consultation if I want to.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
36	Whether I measure the BP of these patients in the consultation is entirely up to me	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
37	For me to measure the BP of these patients in the consultation is	easy	1	2	3	4	5	6	7	difficult
38	I want to measure the BP of my patients with diabetes in each consultation	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
39	It is expected of me that I measure the BP of these patients	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
40	I intend to measure the BP of my patients with diabetes in each consultation	Strongly disagree	1	2	3	4	5	6	7	Strongly agree

41	Out of the next 10 patients you see with a diagnosis of Type 2 diabetes, for how many would expect to measure BP?	0	1	2	3	4	5	6	7	8	9	10

<u>THANK YOU FOR YOUR PARTICIPATION</u>

Appendix D: Example of Scoring Key for Questionnaire by Francis et. Al (2004)

12.3 Example, scoring key for questionnaire

After constructing your questionnaire, it is important to construct a scoring key such as the one below. This guides various stages of data analysis.

<u>Question Numbers</u>	<u>Response format</u>	<u>Items requiring reverse scoring</u>	<u>Items requiring internal consistency analysis</u>	<u>Items requiring multiplication</u>	<u>Construct measured</u>
1 to 4	1 to 7			1 x 11; 2 x 10;	Behavioural Beliefs
9 to 12	-3 to +3			3 x 12; 4 x 9	Outcome Evaluations
13 to 16	-3 to +3			13 x 25; 14 x 27; 15 x 24; 16 x 26	Normative Beliefs
24 to 27	1 to 7				Motivation to Comply
5 to 8	1 to 7			5 x 28; 6 x 30;	Control Belief Strength
28 to 31	-3 to +3			7 x 29; 8 x 31	Control Belief Power
20 to 23	1 to 7	21 and 23	20 to 23 (after recoding)		Attitudes, direct measure
32, 34, 39	1 to 7	32	32 (after recoding), 34 and 39		Subjective Norms, direct measure
35 to 37	1 to 7	37	35, 36 and 37 (after recoding)		Perceived Behavioural Control, direct measure
33, 38, 40	1 to 7	33	33, 38, 40		Generalised intention
41	0 to 10				Intention statement

Appendix E: Questionnaire Draft for Pilot Study

Study Title: Impact of primary are care providers' beliefs on intentions to conduct dementia screenings
Questionnaire for Study
Modified from the TPB questionnaire developed by Francis et al. (2004)
Note that this questionnaire has TWO sections. Section 1 asks about demographic information; Section 2 measures the predictor variables and intentions.

SECTION 1

About your BACKGROUND

A Are you a/an *circle* MD DO PA NP Other (list): ________________________

B Do you consider yourself a primary care provider (PCP)? *circle* YES NO

If yes, approximately how long have you been a practicing PCP? ______ years _____ months

C What is the type of medical practice where you work: *select one*

______ Private practice/family medicine setting

______ Family outpatient clinic setting (includes outpatient clinics and/or other Federally Qualified Health Centers [FQHCs]. Does not include urgent care, emergency room, or inpatient settings.)

______ Other describe: ____

D Approximately how many patients do you see in a month? ____________

E In your practice, do you provide care for patients who are > 65 years of age who are on Medicare or Medicaid? *circle* YES NO

If yes, approximately how many patients do you see who are >65 years of age who are on Medicare or Medicaid in a month? ____________

F In the private practice or family outpatient clinic where you work, approximately how many providers are employed as PCPs (include MD, DO, PA, and NPs) ?

______ full time ______ part time ______ prn (count each provider only once)

H Have you participated in training specific to the early detection and diagnosis of Alzheimer's and other dementia? *circle* YES NO

If yes, how long ago did you attend that training? ______ years _____ months

I Have you participated in training specific to using one or more screening tools used to assess cognition? *circle* YES NO

If yes, how long ago did you attend that training? ______ years _____ months

J Do you have a direct family connection (spouse, partner, grandparent, parent, sibling, aunt, uncle, cousin) to a person you are close to who is living with Alzheimer's or another dementia? *circle* YES NO

K Do you have a direct family connection (spouse, partner, grandparent, parent, sibling, aunt, uncle, cousin) to a person you were close to who has passed away after living with Alzheimer's or another dementia? *circle* YES NO

SECTION 2

Each question in this section refers to assessing cognition of your patients who are >65 years of age during their Annual Wellness Visit (AWV)

1	If I assess patients for cognition during the AWV, I will feel that I am doing something positive for the patient	Unlikely	1	2	3	4	5	6	7	Likely
2	It causes a lot of worry and concern for older patients if they are found to have signs of dementia	Unlikely	1	2	3	4	5	6	7	Likely
3	If I assess for cognitive decline, I will detect any problems at an early stage	Unlikely	1	2	3	4	5	6	7	Likely
4	If I detect dementia symptoms, I have to see those patients more often	Unlikely	1	2	3	4	5	6	7	Likely
5	The tools used to assess cognition are not very accurate	Unlikely	1	2	3	4	5	6	7	Likely
6	When I assess cognition during the AWV, I feel rushed	Unlikely	1	2	3	4	5	6	7	Likely
7	The tools used for assessing cognition are difficult for to use	Unlikely	1	2	3	4	5	6	7	Likely
8	Patients who come to the AWV consultation are unprepared or reluctant to participate in brief cognitive assessments.	Unlikely	1	2	3	4	5	6	7	Likely
9	Seeing my patients more often is	Extremely undesirable	-3	-2	-1	0	1	2	3	Extremely desirable
10	Worry and concern experienced by my patients if they are found to have dementia symptoms is	Extremely undesirable	-3	-2	-1	0	1	2	3	Extremely desirable
11	Doing something positive for my patients is	Extremely undesirable	-3	-2	-1	0	1	2	3	Extremely desirable
12	For these patients, detecting problems at an early stage is	Extremely undesirable	-3	-2	-1	0	1	2	3	Extremely desirable

13	Neurologists think I	Should Not	-3	-2	-1	0	1	2	3	Should
		Routinely assess patients' cognition during the AWV								
14	My patients would	Disapprove	-3	-2	-1	0	1	2	3	Approve
		Of my routinely assessing their cognition during the AWV								
15	Other PCPs	Do not	-3	-2	-1	0	1	2	3	Do
		Routinely assess patients' cognition during the AWV								
16	The government would	Disapprove	-3	-2	-1	0	1	2	3	Approve
		Of me routinely assessing patients' cognition during the AWV								
17	The United States Preventative Services Task Force (USPSTF) would	Disapprove	-3	-2	-1	0	1	2	3	Approve
		Of me routinely assessing patients' cognition during the AWV								
18	Overall, I think that routinely assessing patients' cognition during the AWV is	Harmful	1	2	3	4	5	6	7	Beneficial
19		Pleasant	1	2	3	4	5	6	7	Unpleasant
20		The wrong thing to do	1	2	3	4	5	6	7	The right thing to do
21		Good practice	1	2	3	4	5	6	7	Bad practice
22	Doing what other PCPs do is important to me	Not at all	1	2	3	4	5	6	7	Extremely
25	Doing what neurologists think I should do is important to me	Not at all	1	2	3	4	5	6	7	Extremely
26	The government's approval of my clinical practice is important to me	Not at all	1	2	3	4	5	6	7	Extremely

27	The approval of my patients is important to me	Not at all	1	2	3	4	5	6	7	Extremely
28	I am	Less likely	-3	-2	-1	0	1	2	3	More likely
	To routinely assess patients' cognition during the AWV if I have accurate screening tools									
	I have at least one accurate cognitive screening tool that I have been trained to use	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
29	I am	Less likely	-3	-2	-1	0	1	2	3	More likely
	To routinely assess cognition during the AWV if the patient expresses concern or describes symptoms associated with subjective cognitive decline									
30	I am	Less likely	-3	-2	-1	0	1	2	3	More likely
	To routinely assess patients' cognition during the AWV if I feel rushed in the consultation									
31	I am	Less likely	-3	-2	-1	0	1	2	3	More likely
	To routinely assess cognition during the AWV if family member expresses concern or describes symptoms associated with subjective cognitive decline									
32	People who are important to me think that I should NOT assess patient cognition unless the patient expresses concern or describes symptoms associated with cognitive decline.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
33	I expect to routinely assess cognition of my older patients during their AWV even if they do NOT mention symptoms that are associated with subjective cognitive decline	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
34	I feel under social pressure to routinely assess patient cognition during the AWV	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
35	I am confident that I can routinely assess patient cognition during the AWV if I want to	Strongly disagree	1	2	3	4	5	6	7	Strongly agree

36	Whether I routinely assess patient cognition during the AWV consultation is up to me	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
37	For me to routinely assess patient cognition during the AWV is	Easy	1	2	3	4	5	6	7	Difficult
38	I want to routinely assess patients' cognition during the AWV	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
39	I am expected to routinely assess patient cognition during the AWV	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
40	I do not have enough time to routinely assess every patient's cognition during the AWV	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
41	I am comfortable discussing dementia and dementia-related symptoms with my patients.	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
42	I intend to routinely assess my patients' cognition during their AWV	Strongly disagree	1	2	3	4	5	6	7	Strongly agree
43	Out of the next ten (10) patients you see for their AWV, how many would you expect to assess for cognition?	0 1	2	3	4	5	6	7	8	9 10

Appendix F: Final Study Questionnaire

Primary care providers' beliefs and intentions to conduct dementia screenings

Consent Form

You are invited to assess an anonymous survey by a Walden University student working toward a doctoral degree.
Study title: Impact of primary care providers' beliefs on intentions to conduct dementia screenings.
Doctoral student name: Debra Antista-Bianchi, MPH, MS
Doctoral student contact information: debra.antista-bianchi@waldenu.edu
Number of volunteers needed: 100
Number of minutes needed for reviewing the questionnaire and completing the assessment form: 15
Volunteers must be a:
Medical Doctor [MD], Doctor of Osteopathic Medicine [DO], Physician Assistant [PA], Nurse Practitioner [NP], or Registered Nurse [RN] working in a primary care setting.
Your role:
You may decline or stop participating at any time you wish.
You may decline to answer specific questions.
Participation involves no more risk than daily life.
Participation involves no payment.
Purpose of the Study:
This quantitative study assesses provider beliefs and their intentions to routinely offer brief cognitive assessments during their patients' Annual Wellness Visit (AWV). The results of this study may be used to inform future health education and promotion programs that support primary care providers.
Privacy:
To protect your privacy, no identifiable information will be collected.
In place of a consent signature, your completion of the survey would indicate that you consent to your responses being analyzed in the study.
Data will be kept secure by using password-protected devices and platforms. Data will be kept for a period of at least 5 years, as required by the university.
Use of your responses:
Your survey responses will be used for academic research purposes only. Once the doctoral student graduates, the study's results will be posted online in Scholarworks (a searchable publication of Walden University research).
Protecting You
If you want to talk privately about your rights as a participant or any negative parts of the study, you can call Walden University's Research Participant Advocate at 612-312-1210 or email IRB@mail.waldenu.edu. Walden University's approval number for this study is IRB 06-20-23-0535618 and it expires on November 19, 2025.
You might wish to retain this consent form for your records. You may ask the doctoral student or Walden University for a copy at any time using the contact info above.

Primary care providers' beliefs and intentions to conduct dementia screenings

Modified from the TPB questionnaire developed by Francis et al. (2004)

Note that this questionnaire has TWO sections. Section 1 asks about demographic information; Section 2 measures the predictor variables and intentions.

SECTION 1
About your BACKGROUND

* 1. Are you a/an

◯ Medical Doctor (MD)

◯ Doctor of Osteopathic Medicine (DO)

◯ Physician Assistant (PA)

◯ Nurse Practitioner (NP)

◯ Registered Nurse (RN)

◯ Other

2. If "other", list

3. Do you consider yourself a primary care provider (PCP)?

◯ Yes

◯ No

4. If yes, approximately how long have you been a practicing PCP? (Include years and months)

5. What is the type of medical practice where you work: select one

◯ Private practice/family medicine setting

◯ Family outpatient clinic setting (includes outpatient clinics and/or other Federally Qualified Health Centers [FQHCs]. Does not include urgent care, emergency room, or inpatient settings.)

◯ Other

6. If "Other", describe

7. Approximately how many patients do you see in a month?

8. In your practice, do you provide care for patients who are > 65 years of age who are on Medicare or Medicaid?

- Yes
- No

9. If yes, approximately how many patients do you see who are >65 years of age who are on Medicare or Medicaid in a month?

10. In the practice where you work, approximately how many providers are employed as PCPs (include MD, DO, PA, and NPs) ?

11. How many are employed full time (estimate):

12. How many are employed part time (estimate):

13. How many are employed PRN (estimate):

14. Have you participated in training specific to the early detection and diagnosis of Alzheimer's and other dementia?

- Yes
- No

15. If yes, approximately how long ago did you attend that training? (List time in years and months.)

16. Have you participated in training specific to using one or more screening tools used to assess cognition?

- Yes
- No

17. If yes, approximately how long ago did you attend that training? (List time in years and months.)

18. Do you have a direct family connection (spouse, partner, grandparent, parent, sibling, aunt, uncle, cousin) to a person you are close to who is living with Alzheimer's or another dementia?

- Yes
- No

19. Do you have a direct family connection (spouse, partner, grandparent, parent, sibling, aunt, uncle, cousin) to a person you were close to who has passed away after living with Alzheimer's or another dementia?

- Yes
- No

SECTION 2

Each question in this section refers to assessing cognition of your patients who are >65 years of age during their Annual Wellness Visit (AWV).

20. If I assess cognition during the AWV, I will feel that I am doing something positive for the patient.

Unlikely Likely

21. It causes a lot of worry and concern for older patients if they are found to have signs of dementia

Unlikely Likely

22. If I assess my patients for cognitive decline, I may detect problems at an early stage

Unlikely Likely

23. If I detect dementia symptoms, I have to see those patients more often

Unlikely Likely

24. The tools used to assess cognition are not very accurate

Strongly disagree | Strongly agree

25. The tools used for assessing cognition are difficult for me to use

Strongly disagree | Strongly agree

26. Patients who come to the AWV consultation are unprepared or reluctant to participate in brief cognitive assessments.

Strongly disagree | Strongly agree

27. Seeing my patients more often is

Extremely undesirable | Extremely desirable

28. Worry and concern experienced by my patients if they are found to have dementia symptoms is

Extremely undesirable | Extremely desirable

29. Doing something positive for my patients is

Extremely undesirable | Extremely desirable

30. For my patients, detecting problems at an early stage is

Extremely undesirable | Extremely desirable

31. Neurologists think I *(should not/ should)* routinely assess patients' cognition during the AWV

Should Not | Should

32. My patients would (disapprove / approve) of my routinely assessing their cognition during the AWV

Disapprove | Approve

33. Other PCPs *(do not / do)* routinely assess patients' cognition during the AWV

Do Not | Do

34. The government would *(disapprove / approve)* of me routinely assessing patients' cognition during the AWV

Disapprove | Approve

35. The United States Preventative Services Task Force (USPSTF) would (disapprove / approve) of me routinely assessing patients' cognition during the AWV

Disapprove | Approve

36. Overall, I think that routinely assessing patients' cognition during the AWV is

Harmful | Beneficial

37. Overall, I think that routinely assessing patients' cognition during the AWV is

The wrong thing to do | The right thing to do

38. Overall, I think that routinely assessing patients' cognition during the AWV is

Bad practice | Good Practice

39. Doing what other PCPs do is important to me

Not at all | Extremely

40. Doing what neurologists think I should do is important to me

Not at all | Extremely

41. The government's approval of my clinical practice is important to me

Not at all — Extremely

42. The approval of my patients is important to me

Not at all — Extremely

43. I am *(less likely / more likely)* to routinely assess patients' cognition during the AWV if I have accurate screening tools

Less likely — More likely

44. I have at least one accurate cognitive screening tool that I have been trained to use

Strongly disagree — Strongly agree

45. I am *(less likely / more likely)* to routinely assess cognition during the AWV if the patient expresses concern or describes symptoms associated with subjective cognitive decline

Less likely — More likely

46. I am *(less likely / more likely)* to routinely assess patients' cognition during the AWV if I feel rushed in the consultation

Less likely — More likely

47. I am *(less likely / more likely)* to routinely assess cognition during the AWV if a family member expresses concern or describes symptoms associated with subjective cognitive decline

Less likely — More likely

48. People who are important to me think that I should NOT assess patient cognition unless the patient expresses concern or describes symptoms associated with cognitive decline.

Strongly disagree — Strongly agree

49. I expect to routinely assess cognition of my older patients during their AWV even if they do NOT mention symptoms that are associated with subjective cognitive decline

Strongly disagree | Strongly agree

50. I feel under social pressure to routinely assess patient cognition during the AWV

Strongly disagree | Strongly agree

51. I am confident that I can routinely assess patient cognition during the AWV if I want to

Strongly disagree | Strongly agree

52. Whether I routinely assess patient cognition during the AWV consultation is up to me

Strongly disagree | Strongly agree

53. For me to routinely assess patient cognition during the AWV is

Easy | Difficult

54. I want to routinely assess patients' cognition during the AWV

Strongly disagree | Strongly agree

55. I am expected to routinely assess patient cognition during the AWV

Strongly disagree | Strongly agree

56. I do not have enough time to routinely assess every patient's cognition during the AWV

Strongly disagree | Strongly agree

57. I am comfortable discussing dementia and dementia-related symptoms with my patients.

Strongly disagree ☆ ☆ ☆ ☆ ☆ ☆ ☆ Strongly agree

58. I intend to routinely assess my patients' cognition during their AWV

Strongly disagree ☆ ☆ ☆ ☆ ☆ ☆ ☆ Strongly agree

59. Out of the next ten (10) patients you see for their AWV, how many would you expect to assess for cognition?

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6
- ◯ 7
- ◯ 8
- ◯ 9
- ◯ 10

Appendix G: Principal Investigator: Permission to Use TPB Questionnaire

From: Jill Francis <[redacted]
Sent: Wednesday, May 17, 2023 9:31 PM
To: Debra Antista-Bianchi [redacted]
Subject: RE: Request Permission to Use the TPB Questionnaire you developed with changes

I am happy to give permission to Debra Antista-Bianchi to use the TPB questionnaire as reported in the Francis et al., 2004 publication.
Could I also point out to the IRB that this manual has over 2000 citations over nearly 20 years and explicitly advises that the sample questionnaire items should be adapted to fit each context and each behaviour under investigation. I feel it is unreasonable to expect me (as the lead author) to provide individual approval for every study that may use this guidance manual for the next 20 years or more. The normal requirements to cite any sources used should be sufficient to ensure research integrity. Please could the IRB change this unusual and unnecessary policy?
With thanks in anticipation,
Jill Francis, PhD

Jill Francis | Professor of Implementation Science
School of Health Sciences | Faculty of Medicine, Dentistry and Health Sciences
[redacted]
E: [redacted]
Member of: https://findanexpert.unimelb.edu.au/group/1780254-mshs-implementation-research-group
|
unimelb.edu.au | facebook.com/unimelb | twitter.com/unimelb

Research Lead, Implementation Science in Cancer
Department of Health Services Research
Peter MacCallum Cancer Centre

[redacted]
The University of Melbourne, Victoria 3010, Australia

Implementation Science Platform Lead, Australian Centre for Accelerating Diabetes Innovations (ACADI), The University of Melbourne, Parkville, Australia

Appendix H: Principal Investigator: Sense Checking and Comprehension

From: Jill Francis <[redacted]
Sent: Monday, May 15, 2023 11:41 PM
To: Debra Antista-Bianchi <[redacted]
Subject: RE: Request Permission to Use the TPB Questionnaire you developed with changes

Dear Debra,
It is not my place to review or approve your questionnaire. You and your supervisory team will need to take responsibility for the content of the questionnaire (eg by piloting the questions with 2 or 3 people for sense checking and comprehensibility).
But these questions look fine to me.
All the best for your data collection, bw, jill

Appendix I: Pilot Study Online Questionnaire

Pilot Study: Assessing Questionnaire for Clarity and Comprehension

Study Title: Impact of primary care providers' beliefs on intentions to conduct dementia screenings

You are invited to assess an anonymous survey by a Walden University student working toward a doctoral degree.

Study title: Impact of primary care providers' beliefs on intentions to conduct dementia screenings.

Doctoral student name: Debra Antista-Bianchi, MPH, MS

Doctoral student contact information: debra.antista-bianchi@waldenu.edu

Number of volunteers needed: _3__

Number of minutes needed for reviewing the questionnaire and completing the assessment form: _20__

Volunteers must be:
Medical Doctor [MD], Doctor of Osteopathic Medicine [DO], Physician Assistant [PA], or Nurse Practitioner [NP] working in a primary care setting.

Your role:
You may decline or stop participating at any time you wish.
You may decline to answer specific questions.
Participation involves no more risk than daily life.
Participation involves no payment.

Purpose of the Pilot Study:
The pilot study is an assessment of the instrument that will be used for primary research. Respondents will review the instrument, and then they will provide feedback regarding the questionnaire, focusing on clarity and comprehension.

The primary research is a quantitative study that assesses provider beliefs and their intentions to routinely offer brief cognitive assessments during their patients' Annual Wellness Visit (AWV). The results of the primary research may be used to inform future health education and promotion programs that support primary care providers.

Privacy:
To protect your privacy, no identifiable information will be collected.

In place of a consent signature, your completion of the survey would indicate that you consent to your responses being analyzed in the study.

Data will be kept secure by using password-protected devices and platforms. Data will be kept for a period of at least 5 years, as required by the university.

Use of your responses:
Your survey responses will be used for academic research purposes only. Once the doctoral student graduates, the study's results will be posted online in Scholarworks (a searchable publication of Walden University research).

Protecting You:
If you want to talk privately about your rights as a participant or any negative parts of the study, you can call Walden University's Research Participant Advocate at 612-312-1210 or email IRB@mail.waldenu.edu. Walden University's approval number for this study is IRB will enter approval number here and it expires on IRB will enter expiration date.

You might wish to retain this consent form for your records. You may ask the doctoral student or Walden University for a copy at any time using the contact info above.

1. Are any items ambiguous or difficult to answer?

○ Yes
○ No

2. If yes, list

3. Does the questionnaire feel too repetitive?

○ Yes
○ No

4. Does it feel too long?

○ Yes
○ No

5. Are there inconsistencies that are problematic for respondents who complete the questionnaire quickly?

○ Yes
○ No

6. If yes, describe: