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Using the Theory of Planned Behavior to Predict Executives' Intentions to Hire Psychologists in Federally Qualified Health Centers

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Using the Theory of Planned Behavior to Predict Executives' Intentions to Hire Psychologists in

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of the requirements for the degree

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by

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Keywords: Psychology workforce development, FQHC, integrated care, Theory of Planned

Behavior

ABSTRACT

Using the Theory of Planned Behavior to Predict Executives' Intentions to Hire Psychologists in

Federally Qualified Health Centers

by

Matthew Tolliver

Health psychologists with training in integrated care are ideal candidates to work in Federally

Qualified Health Centers (FQHCs). However, despite the large documented need for more

behavioral health providers in FQHCs, psychologists are underrepresented in this setting

compared to other behavioral health professions. The purpose of this study was to: 1) examine

the specific beliefs that are most relevant to executives' intentions to hire psychologists, 2)

determine how executives' perceived control over hiring psychologists varies by several

demographic variables, and 3) examine how well the Theory of Planned Behavior (TPB) predicts

executives' intentions to hire psychologists. *Method:* Executives ($N = 222$) from every US

Census defined division of the country completed an online TBP survey assessing demographics

and beliefs about hiring psychologists. Path analysis was used to examine the relationships

between TPB variables. *Results:* Executives ranked psychologists as highly proficient in

integrated care and general clinical skills but less proficient in research and leadership skills.

Compared to other skills, executives ranked research skills as lower in importance for clinical

staff to possess. Longer executive job tenures (but not FQHC budget or rural status) predicted

more perceived control over hiring practices. The standard TPB was a poor fit with the data, but

a modified version explained 78% of the variance in executives' intent to hire psychologists. In

this model, executives' normative beliefs were most predictive of their intent to hire.

Implications: Results point to the importance of internal champions within FQHCs who advocate

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for psychologists as well as the need for early interprofessional education. Opportunities exist

for health service psychologists to promote the value of research to executives and to

differentiate themselves by emphasizing their skills in research and implementation science.

DEDICATION

To my wife Sarah, for her unwavering support and encouragement over the years. To my parents, Janis and Wayne, for always fostering my intellectual curiosity. And to Andrew and Hannah, for keeping me grounded and focused on what matters.

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CHAPTER 1

INTRODUCTION

Federally Qualified Health Centers (FQHCs) provide comprehensive care and serve

patients regardless of their ability to pay, providing a national medical and mental health safety

net (Bureau of Primary Health Care, 2014c). In 2013, FQHCs served over 21 million unique

patients, many of whom live below the poverty line, lack insurance, or are homeless (Bureau of

Primary Health Care, 2014a). Millions of patient visits addressing management of chronic

diseases like obesity and diabetes produce a high demand for behavioral health services within

FQHCs (Bureau of Primary Health Care, 2014b).

As the Affordable Care Act (ACA) continues to shape the healthcare landscape, the

development of medical homes for patients that can meet their medical, mental, and behavioral

health needs has become a priority (Beacham, Kinman, Harris, & Masters, 2012). The emphasis

on medical homes and the understanding that medical problems often have a behavioral

component have led many FQHCs to integrate behavioral health providers into their primary

care clinics (Beacham et al., 2012).

Increasingly, those in professional psychology are calling for psychologists to use their

energies in prevention, assessment, treatment, research, and program evaluation to help reduce

extant health disparities (American Psychological Association, 2013; Strosahl, 2005), and to

transition from an identity as a *mental* health care provider to a health provider (Bray, 2011).

FQHCs provide an opportune setting for psychologists to confront and impact health disparities

directly as well as address patients' mental, behavioral, and physical health. Given the high

demand for mental and behavioral health services by populations that FQHCs serve,

psychologists trained in health psychology and brief interventions are particularly qualified to

work in this setting. However, a recent national survey (Lardiere, Jones, & Perez, 2011) found

that psychologists are underrepresented in FQHCs. Longitudinal data over the last six years

from the Health Resources Service Administration (HRSA) Uniform Data System (UDS)

confirm this finding. The UDS data show that while the number of psychologists in FQHCs is

increasing, the number of psychologists relative to the mental health workforce and overall

workforce in FQHCs has only increased by 0.3% since 2008 (Bureau of Primary Health Care,

2009, 2010, 2011, 2012, 2013, 2014b). While links have been found between organizational

factors such as FQHC size and resources and behavioral health integration (NACHC, 2011), no

studies have examined hiring practices regarding psychologists specifically, or how executives

attitudes may influence hiring practices.

In order to better understand why psychologists are underrepresented in FQHCs, the

present study will conduct a national survey of FQHC executives relating to their perceptions of

the advantages and disadvantages of hiring psychologists. The Theory of Planned Behavior

(TPB; Ajzen, 1991) will be used to predict executives' intention to hire psychologists. Therefore,

the aims of this study are to: 1) examine the specific beliefs that are most relevant to executives'

intentions to hire psychologists, 2) determine how executives' perceived control over hiring

psychologists varies by several demographic variables, and 3) examine how well the TPB

predicts executives' intentions to hire psychologists. The following introduction will review the

literature pertinent to these aims, including a brief overview of the history and current status of

FQHCs, psychologists within FQHCs, and the Theory of Planned Behavior as it applies to this

study.

History and Current Status of FQHCs

In 1964, as a part of the War On Poverty, President Johnson signed the Economic Opportunity Act into law. The law established neighborhood health centers, which were nonprofit community based organizations that received federal funding to provide services to underserved populations (Taylor, 2004). Through the 1970's, the neighborhood health center program expanded to include support for migrant workers, the homeless, and those living in public housing (Taylor, 2004). In 1996, the Health Centers Consolidation Act brought all of these programs together under Section 330 of the Public Health Service Act into one Health Centers Program (Taylor, 2004).

Currently, there are four types of FQHCs: community health centers, migrant health centers, health care for the homeless programs, and public housing primary care programs (Center for Healthcare Research & Transformation, 2013). Regardless of type, all organizations must meet the same requirements to receive federal funding and the designation of FQHC. First, all FQHCs must be non-profit organizations that see all patients, regardless of ability to pay. Second, FQHCs "provide all required primary, preventive, enabling health services and additional health services as appropriate and necessary, either directly or through established written arrangements and referrals" (Bureau of Primary Health Care, 2014c, p. 1). Third, FQHCs serve a medically underserved population or region. Fourth, FQHCs provide a sliding scale payment for uninsured patients. Finally, FQHCs are run by the communities they serve, with a majority of the membership on the board of directors coming from the community (Bureau of Primary Health Care, 2014c).

Leadership in FQHCs

While a community-based board of directors is ultimately in charge of an FQHC, the Chief Executive Officer (CEO) runs the day-to-day operations and is the highest-ranking single member of the organization. The CEO is hired by the board of directors and usually maintains a close working relationship with the board (Bureau of Primary Health Care, 1998). The responsibilities of the CEO set by the Bureau of Primary Health Care are as follows:

> As head of the management team, the Chief Executive should have the authority, responsibility and skills to: communicate with the board and management team; operationalize board policies; manage personnel and systems; allocate resources and operate within available resources; identify and resolve problems; interact with the community and providers and payers in the marketplace; respond to opportunities and; plan for future events. The Chief Executive is accountable to board-established long-term goals and operating plans (Bureau of Primary Health Care, 1998, p. 32).

Since CEOs have broad responsibilities to set policies (such as hiring practices) within organizations, the decision to hire psychologists or integrate other behavioral health providers would likely fall within their jurisdiction. Therefore, understanding CEOs' attitudes as well as perceived barriers or facilitators related to hiring psychologists is important in answering the broader question of why psychologists are underrepresented in FQHCS.

Patient Characteristics and Diagnoses

FQHCs primarily serve underserved populations and regions that would not otherwise be able to access care. In 2013, FQHCs had 86 million patient contacts and served over 21 million unique patients, 93% of whom lived below the 200% poverty line, 35% of whom were uninsured, and over 1 million of whom were homeless (Bureau of Primary Health Care, 2014a).

Of all the patient visits to FQHCs last year, nearly 20% where primarily related to mental health or substance abuse. For example, last year there were nearly 750,000 visits related to alcohol disorders, 2 million visits for tobacco use disorders, and 8.2 million visits for anxiety or depression (Bureau of Primary Health Care, 2014b). In addition to traditional mental health concerns, there is an opportunity for behavioral health providers to work with patients to address management of chronic diseases. Last year FQHCs had 6 million patient visits related to diabetes, nearly 10 million related to hypertension, and 4 million related to overweight and obesity (Bureau of Primary Health Care, 2014b). Psychologists who have the proper training have the opportunity to make a large impact in this health behavior domain.

Training of Psychologists

A foundational part of a psychologist's training occurs during his or her doctoral education. Historically, differences in doctoral psychology training models have centered around the relative emphasis that should be placed on research versus clinical practice (Ready & Santorelli, 2014). The three training models that have emerged in the psychology field include the scientist-practitioner, practitioner scholar, and clinical scientist model. The scientist-practitioner model traces its roots to the 1949 Boulder Conference on Graduate Education in Clinical Psychology (Ready & Santorelli, 2014). This model places equal importance on both science and practice in a psychologist's training, with the philosophy that clinical practice can inform research and vice versa. The practitioner scholar model of training puts more time and emphasis on clinical practice (Ready & Santorelli, 2014), while the clinical scientist model is a more recent addition in the field and places a strong emphasis on research and the integration of science and practice (McFall, 1991).

While psychologists are trained in research and practice, they do not necessarily possess the specialized skills required to work successfully in primary care settings (McDaniels, Hargrove, Belar, Schroeder, & Freeman, 2004). A traditionally trained psychologist without primary care specific skills is unlikely to be successful in a primary care setting (O'Donohue, 2009). Graduate training programs play a vital role in equipping the future psychology workforce with the skills they will need to function in integrated settings.

Increasingly, leaders in professional psychology are realizing that psychologists must adapt to the new realities of the Affordable Care Act (ACA). Ronald Rozensky, who has written extensively on psychology workforce issues wrote that, "The healthcare workforce of the future must be prepared for an evolving patient care system that utilizes an increasingly evidence-based, team-based, integrated care environment based on defined, interprofessional competencies – from prevention to primary to tertiary care – for patients and families across the lifespan" (Rozensky, 2013a, p. 352). Similarly, former APA president James Bray has called for those in professional psychology to shift their professional identity from a mental health provider to a health provider (Bray, 2011). With adequate training, the ACA provides an opportunity to increase the professional psychology workforce (Beacham et al., 2012) in settings such as FQHCs.

While there have been calls for psychologists to integrate into primary care settings for some time (e.g., O'Donohue, 2009; Robinson & Reiter, 2007; Strosahl, 1998), momentum around the issue has built in recent years. For example, the APA published recent reports showing that there are currently close to 30 APA accredited doctoral programs (American Psychological Association Education Directorate, 2014a), over 140 pre-doctoral internship sites (American Psychological Association Education Directorate, 2014b), and over 70 post-doctoral

programs (American Psychological Association Education Directorate, 2014c) that emphasize

integrated care in their training model. Additionally, the APA published new Standards of

Accreditation for doctoral programs in health service psychology (American Psychological

Association, 2014), as well as a set of competencies that psychologists should have when

working in primary care settings (McDaniel et al., 2014).

The outlined competencies that lead to successful work in primary care fall into six

domains including, "science, systems, professionalism, relationship, application, and education"

(McDaniel et al., 2014, p. 409) and emphasize that "the sustained integration of science and

practice is central to psychology's identity" (p. 414). Some of these competencies include an

understanding of the biopsychosocial approach, strong research and evaluations skills, leadership

and administrative skills, and the ability to effectively work in interprofessional teams. Other

unique competencies related to practice management include the ability to conduct brief

interventions, operate in a fast pace environment, maintain a population-based focus, and possess

an understanding of technology as it relates to service delivery (McDaniel et al., 2014).

Psychologists proficient in these competencies have the potential to make a large and positive

impact in FQHCs. Psychologists savvy in population-based care are particularly well suited to

address health disparities common in the populations FQHCs serve. Additionally, psychologists

can help reduce overall healthcare costs by addressing the needs of high utilizers of services,

such as those with chronic illnesses (Strosahl, 1998).

Psychologists Within FQHCs

Despite the significant potential of psychologists to positively impact FQHCs,

psychologists represent just a small fraction of the FQHC workforce. In 2013, FQHCs employed

more than 156,000 staff distributed as follows: 37% non-clinical (e.g., billing, IT), 36% medical

support (e.g., nurses, lab personnel), 12% physicians and mid-level providers (e.g., Nurse Practitioners), 10% dental, vision, or pharmacy, 9% enabling services (e.g., case managers), and 3.6% mental health (Bureau of Primary Health Care, 2014b).

One of the conclusions of the 2010 NACHC report was that psychologists are underrepresented in FQHCs. The report found that psychologists worked in 112 FQHCs and represented only 8.6% of the behavioral health workforce FQHCs that responded to the survey. Alternatively, social workers were found in more than twice as many FQHCs and had the largest representation of any behavioral health profession, making up 31% of the full time equivalents (FTE) in the FQHC behavioral health workforce. Additionally, FQHCs had more than twice as many FTE bachelors' level behavioral health providers than psychologists (Lardiere et al., 2011).

More recent data from the Uniform Data System (UDS) confirm the conclusions of the 2010 NACHC report. The UDS started collecting data on the number of psychologists in FQHCs in 2008. Although the psychologist workforce in FQHCs has increased from 2008 (279 FTE) to 2013 (516 FTE), the percentage of psychologists relative to all FQHC staff has remained unchanged. As of 2013, psychologists represented 9.1% of the mental health staff and 0.3% of the overall staff in FQHCs nationally (Bureau of Primary Health Care, 2014b). Additionally, of all the mental/behavioral health patient visits in FQHCs in 2013, social workers saw 30%, other non-licensed staff saw 29%, and psychologists saw only just over 10% (Bureau of Primary Health Care, 2014b).

FQHCs are an opportune but fully unrealized training setting for future psychologists. Only 13.5% of all FQHCs serve as training sites for psychologists, and only roughly one fifth of those sites have APA accreditation. Comparatively, nearly three times as many FQHC sites serve as training grounds for social workers (Lardiere et al., 2011). The 2010 NACHC report

suggested that if more FQHCs become training sites for psychologists, this would help ease the demand for pre-doctoral psychology internships (Lardiere et al., 2011).

Integrated Care in FQHCs

The National Association of Community Health Centers (NACHC) was founded in 1971 and is dedicated to using research to advocate for community health centers on a state and national level (NACHC, 2014). In 2010, the NACHC surveyed over 1,000 FQHCs to determine to what extent mental and behavioral health services have become integrated into primary care within FQHCs. The survey rated organizations on six levels of integration of medical and behavioral health staff including the degree of co-location of services, communication and collaboration, joint decision making, and access to treatment plans, problem lists, medication lists, and lab work of patients (Lardiere et al., 2011). Of the 420 FQHCs that responded to the survey, over 80% (348) provided some type of behavioral health services. Of the FQHCs that provided behavioral health services, 230 (55% of all FQHCs surveyed) met all six criteria to be considered fully integrated (Lardiere et al., 2011).

In 2011, the NACHC conducted a follow up study with the 230 clinics that were considered fully integrated to examine facilitators and barriers to their integration. The study found that FQHCs that were fully integrated were different on an organizational level in three significant ways than those that were not integrated (NACHC, 2011). First, integrated FHQCs had larger budgets (average of $8.88 million) than those that were not integrated (average $6.65 million). Additionally, integrated FQHCs spent a statistically significantly larger proportion of their budget on behavioral health services (median of 3.9%) compared to non-integrated FQHCs (median of 2.3%). However, nearly 40% of all FQHCs had budgets that were higher than the integrated FQHC average, so money alone does not guarantee integration. Second, integrated

FQHCs had more overall staff (median 97 FTE) than those that were not integrated (median 75 FTE). Again, however, nearly 40% of all FQHCs had a staff larger than the median of integrated organizations, so integration is not just a staffing issue. For example, one integrated site had only 8 FTEs. Third, integrated FQHCs served more patients (average of over 14,000 patients, 38,500 medical visits, and 2,400 behavioral health visits) compared to non-integrated FQHCs (average of roughly 11,700 patients, 31,000 medical visits, and 885 behavioral health visits) (NACHC, 2011). However, high patient volume may be more a product of integration rather than a prerequisite for it.

While a large budget, staff, and patient volume may be a hallmark of many integrated FQHCs, these organizational factors do not tell the whole story. It may be helpful to consider attitudes and beliefs about integrating behavioral health held by leadership in FQHCs in order to understand why some organizations are not integrated despite large amounts of money and staff, while smaller sites have managed to incorporate behavioral health into primary care. The 2011 NACHC study found that a majority of respondents identified supportive attitudes by leadership (nearly 70%) and the presence of an internal integrated care champion (more than 60%) as an important facilitator for implementing integration within their FQHC (NACHC, 2011). While the 2011 NACHC study was helpful in understanding some organizational barriers and facilitators for integration, the study did not address employment of psychologists as members of integrated teams in detail. Given that attitudes of leadership in FQHCs are important in the success of integrating behavioral and medical care, more research is needed that examines the impact of leadership's attitudes and beliefs about hiring psychologists specifically.

The Future for FQHCs

The Affordable Care Act (ACA) has placed an increased emphasis on primary care and has allotted nearly $10 billion to help FQHCs expand (Burke et al., 2013). Due to the impact of the ACA, the NACHC estimated in 2011 that by 2015 FQHCs will serve 40 million patients (Lardiere et al., 2011). Using 2010 data from UDS and the National Survey on Drug Use and Health, a recent study estimated that in order to meet the demand, FQHCs would need to quadruple their behavioral health staff (Burke et al., 2013). This estimate is based on the fact that the authors calculated that in 2010 approximately 2.5 million people were not able to access needed behavioral health services (Burke et al., 2013).

Attitudes Towards Psychologists

Prominent leaders in professional psychology have called for the field to "…evaluate how the clinical practice of psychology is viewed by our professional colleagues throughout the health services sector" (Rozensky, 2013, p. 714). A positive public image is important if professional psychology is to retain autonomy while making substantive contributions through leadership positions in the increasingly interprofessional world the ACA will bring (Rozensky, 2013). Yet few current studies exist that assess attitudes toward psychologists, and no studies have considered how attitudes affect hiring of psychologists. Historically, psychologists' public image has been assessed by popularity measures and by gauging how much people understand what psychologists do (Benjamin, 1986). Despite changes in popularity over the years, professional psychology has a long history of being misunderstood by the general public (Benjamin, 1986).

A worrying number of Americans view psychology as unscientific and unable to address physical health problems (Lilienfeld, 2012). For example, Janda, England, Lovejoy, and Drury

(1998) found that out of several academic disciplines (biology, chemistry, economics, medicine, psychology, physics, and sociology), a random sample of 141 Virginians ranked psychology as the lowest in importance and professional expertise. The study found similar results when surveying 72 college professors representing multiple disciplines. In a different study, Farberman (1997) conducted a national phone survey of 1,200 randomly sampled households as well as eight focus groups from around the country on attitudes towards psychologists and concluded that "…the public has very little understanding of the qualifications and credentials of psychologists and cannot tell one mental health provider from another" (p. 128). A lack of perceived differentiation between psychologists and master's level providers by the public, as well as poor recognition of psychologists by other professionals are among factors that have created a "crisis of identity" for professional psychology (Lancaster & Smith, 2002, p. 49).

Perceptions of the Behavioral Health Workforce by Employers

Professional psychology appears to have an image problem with regards to the general public. However, the extent to which the public's lay perception of psychologists is shared by executives of FQHCs is unknown. A common lament in the literature is that only sparse and incomplete data exist on the state of the professional psychology workforce (Rozensky, 2011; The Annapolis Coalition, 2007). The Annapolis Coalition on the Behavioral Health Workforce recruited 12 expert panels and over 5,000 different individuals to comment on the status of the behavioral health workforce in America, and to make recommendations for the future (The Annapolis Coalition, 2007). The Coalition's report was not specific to psychologists, but defined the behavioral health workforce to include those with and without graduate level training. The report found that up to 40% of the workforce in public settings has a bachelor's degree or less, and "…seldom receives systematic training and support" (p. 7). Employers generally found new

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recruits lacking, concluding "…recent graduates of professional training programs are unprepared for the realities of practice in real-world settings" (p. 12). The report was also critical of graduate training programs stating "…the specter of education and training programs that lack relevance to the needs of the American population and to current prevention and treatment approaches raises considerable alarm" (p. 12). Additional criticisms were that the behavioral health workforce lacked a focus on lifelong learning and struggled to bring evidence-based practices to real world settings (The Annapolis Coalition, 2007). Because of how broadly the Coalition defined the behavioral health workforce in its report, the extent to which employers' criticisms apply to doctoral psychologists cannot be known. Additional studies are needed that measure employers' perceptions of psychologists specifically. Knowing how employers perceive the advantages and disadvantages of hiring psychologists has direct implications for the ability to grow and train the psychology workforce, two things that are especially needed in underserved areas.

Theories Linking Attitude and Behavior

It is helpful to have a conceptual framework to understand factors that influence executives' hiring practices in FQHCs. Two popular and evidence-based theories from social psychology that help explain and predict behavioral intentions are the Theory of Reasoned Action (Fishbein & Ajzen, 1972) and its more recent adaptation, the Theory of Planned Behavior (Ajzen, 1985; Ajzen, 1991). An overview of each theory is described below along with how the Theory of Planned behavior is relevant to the present study.

Theory of Reasoned Action. According to the Theory of Reasoned Action (TRA, see Figure 1), a person's attitude and subjective norms (the social pressures a person perceives to perform or not perform a behavior) predict their behavioral intentions, which in turn predict their

behavior. Attitudes about a behavior are the products of beliefs (good and bad) about engaging in the behavior and the relative importance one places on each belief. Subjective norms are the products of the attitudes of others about the behave or and the weight one places on each of those attitudes (Ajzen, 2012). The TRA is useful for predicting behavioral intention when engaging in the behavior in question is under voluntary control of a person (e.g., dieting). However, the theory would not necessarily be predictive of behaviors that are mindless or impulsive (Ajzen, 2012). One of the major limitations of the TRA is that despite our intentions, many behaviors are not under our complete control. For example, one could intend to go to the movies tonight, but be prevented from doing so if the movie is sold out (Ajzen, 1985). The Theory of Planned Behavior (TPB) remedies this limitation by including a third construct that predicts behavioral intention, perceived behavior control (Ajzen, 1991).
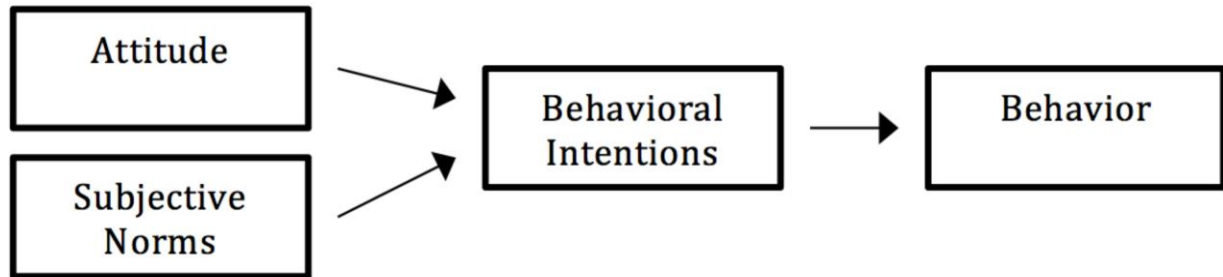
Figure 1. Theory of reasoned action. Adapted from "From intentions to actions: A theory of planned behavior" by I. Ajzen, in J. Kuhl & J. Beckmann (Eds.) *Action-control: From cognition to behavior*. Heidelberg: Springer.

Theory of Planned Behavior. At its core, the TPB (see Figure 2) is a model that seeks to predict and explain behavioral intentions. In this model, behavioral intentions are assumed to be the best predictor of an individual's attempt to perform a behavior. The TPB is a mainstream

theory in social psychology that has been researched for decades (Ajzen, 2011) and has a solid

base of empirical support. A meta-analysis of 185 studies relating to the TPB supported the

predictive power of the model and found that it accounted for 27-39% of the variance of

behavioral intention (Armitage & Conner, 2001). A seminal journal article (Ajzen, 1991)

detailing the foundations of the TPB has been cited over 27,500 times as of 2014, according to

Google Scholar.
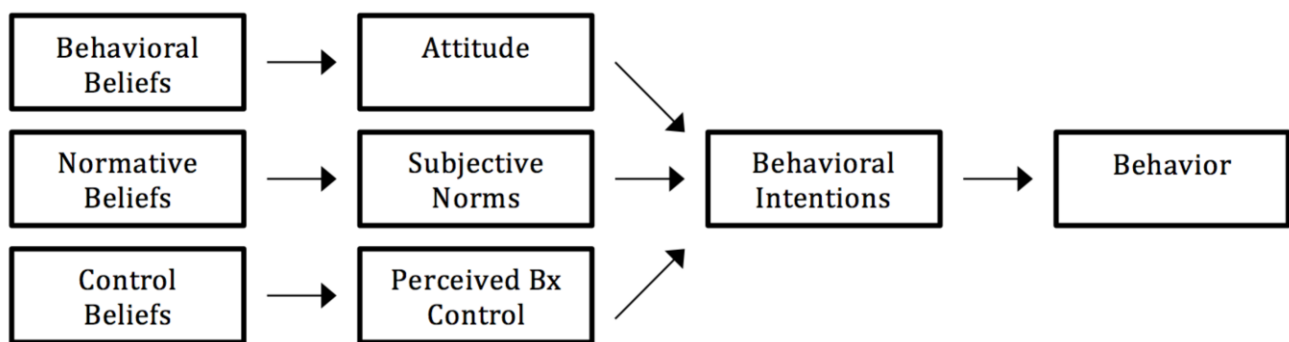
Figure 2. Theory of planned behavior. Adapted from "From intentions to actions: A theory of

planned behavior" by I. Ajzen, in J. Kuhl & J. Beckmann (Eds.) *Action-control: From cognition*

to behavior. Heidelberg: Springer.

The TPB has been used in many different fields to predict goal directed behavior. Much

of the early work with the TPB centered around using the theory to predict a variety of health

related behaviors (Godin & Kok, 1996). The TPB is now routinely applied in a variety of fields

including the business and technology sector (Hunsinger & Smith, 2005). In just the past few

years the TPB has been used to predict managers' intentions to hire women in science,

engineering, and technology fields (Braun & Turner, 2014) and to predict employers' intentions

to hire workers with disabilities in a variety of job sectors (Fraser, Ajzen, Johnson, Hebert, &

Chan, 2011; Fraser et al., 2010; Hernandez et al., 2012; Jasper & Waldhart, 2013). The current study aims to capitalize on the theoretical and methodological advances pioneered in applying the TPB to hiring practices by studying the theory's utility in predicting executives' intentions to hire psychologists in FQHCs.

In the TPB, behavior intention is an indication of "how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior" (Ajzen, 1991, p. 181). In other words, it signifies how "ready" they are to perform a behavior. Behavior intention predicts following through with the behavior. If someone has a strong intention to engage in a behavior, they are more likely to engage in it, if the behavior is under their voluntary control. The three predictors of behavior intention - attitudes, subjective norms, and perceived behavioral control - are described below.

Behavioral attitudes. *Behavioral attitudes* "refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question" (Ajzen, 1991, p. 188). For example, an executive at an FQHC may think hiring psychologists is a good idea or a bad idea. Attitudes develop from a person's beliefs about a behavior, termed *behavioral beliefs*. Behavioral beliefs relate to an individual's perception of the consequences of a behavior, such as if it will be enjoyable (or not) or beneficial (or harmful) (Ajzen, 1991). For example, an executive may have a belief that, "Hiring a psychologist would be beneficial to this FQHC because it would allow doctors to see more patients per day." This behavioral belief is likely to contribute to a favorable attitude towards hiring psychologists. In an opposite scenario, the behavioral belief, "Hiring a psychologist would be a burden because psychologists are difficult to work with" will likely contribute to an unfavorable attitude towards hiring. The strength of each behavioral belief as well as the likelihood that a person believes a particular consequence

will take place based on that belief are both factors that affect behavioral beliefs, and ultimately attitudes. For example, an executive may have an overall favorable attitude towards hiring a psychologist if they have a strongly held behavioral belief that "Psychologists' skills are perfectly matched to my organization's needs", even if they also have a less strongly held belief that "Psychologists are difficult to work with".

Subjective norms. *Subjective norms* "refers to the perceived social pressure to perform or not to perform [a] behavior" (Ajzen, 1991, p. 188). For example, an executive in an FQHC might feel social pressure (or not) to hire a psychologist from other executives in the organization, from staff in the organization, or from leadership in other FQHCs. Subjective norms develop from and are predicted by *normative beliefs*, which are beliefs related to how an individual perceives social pressures to perform (or not) a particular behavior (Ajzen, 1991). In other words, to what extent do others encourage and/or participate in the behavior in question, and how motivated is an individual to comply with those norms? An executive who sees similar FQHCs integrating psychologists into their medical practices may feel social pressure to do the same, especially if the executive values staying current with the trends in healthcare.

Perceived behavioral control. *Perceived behavioral control (PBC)* "refers to the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experience as well as anticipated impediments and obstacles" (Ajzen, 1991, p. 188). In other words, PBC is the extent to which an individual feels they are capable of performing the desired behavior. Are they confident they can overcome any challenges to perform the behavior? For example, an executive may feel that it is (or is not) within their control to hire a psychologist. PBC is based on *control beliefs,* which are an individual's beliefs about factors that could be barriers or facilitators to performing a behavior (Ajzen, 1991). While one executive may have

the control belief "I cannot hire a psychologist due to budget constraints" another may have the control belief, "Although there are budget constraints, I believe I can overcome that barrier and hire a psychologist." Another control belief might be, "I cannot hire psychologist because there is a shortage of applicants due to the fact that I work in a rural area."

PBC not only predicts behavioral intentions, but it directly predicts the execution of a behavior as well (Ajzen, 1985). Despite actual barriers to performing a behavior, individuals with higher levels of perceived behavioral control are likely work harder at trying to perform the behavior. In short, the TPB takes into consideration the perception of barriers and facilitators that a person perceives they do (or do not) have control over, which can have an effect on the person's ability to carry out the behavior, regardless of their intentions (Ajzen, 1985).

Implications for workforce development initiatives. Using a hierarchical regression to find the relative contribution of attitudes, subjective norms, and perceived behavioral control to executives' hiring intentions allows researchers to inform future intervention efforts by identifying the most salient predictor of hiring intentions. For example, if executives have favorable attitudes towards psychologists but perceived external barriers prevent them from hiring, then professional psychology workforce development efforts might target eliminating these barriers in FQHCs. Alternatively, if executives perceive that they could hire psychologists if they wanted to, but they have negative attitudes towards hiring psychologists, then public relations campaigns aimed at educating executives about psychologists' value might be a better use of resources.

Factors impacting perceived behavioral control. Based on the literature and the results of a preliminary study examining health center executives' perceptions of advantages and disadvantages of hiring psychologists, six factors are suspected to influence executives' level of

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perceived behavioral control: FQHC budget, presence of integrated primary care, FQHC patient volume, FQHC rural status, existing presence of psychologists on staff, and the number of years the executive has worked in healthcare administration. The ways in which each factor may relate to perceived behavioral control is described below:

FQHC budget and patient volume. The 2011 NACHC report that surveyed FQHCs nationally found that FQHCs with larger budgets and larger patient volumes were more likely to have integrated primary care (NACHC, 2011). Although the report was not specific to psychologists, it is reasonable to hypothesize that some of the same factors that allowed for integrated services could also be facilitators for hiring psychologists. For example, executives may perceive more control over being able to hire psychologists if their budget allows it and if their patient volume indicates a demand for psychological services.

Integrated care. Some leaders in professional psychology believe that the future of the psychology workforce lies in integrated care (Rozensky, 2011). If an FQHC has already integrated behavioral health into their FQHC, then this means a large organizational barrier to hiring psychologists has already been overcome since the infrastructure is already in place to hire. Therefore, executives working in integrated FQHCs may perceive more control over hiring psychologists.

Rural status. A recent study examining the relationship between rural status and the level of co-located physicians and psychologists found that as rurality increases, co-location (and therefore opportunities for integration) between these two professions decreases dramatically (Miller, Petterson, Burke, Phillips, & Green, 2014). Additionally, as rurality increases, the proportion of psychologists relative to the population decreases. For example, in the most urban areas the study found that there were 29 psychologists for every 100,000 people. However, in

the most rural areas, the rate of psychologists per 100,000 dropped to only 4 (Miller et al., 2014).

Executives in rural FQHCs may find that there are few psychologists to be hired, which may impact control beliefs due to difficulties recruiting and/or retaining staff.

Existing psychologists on staff. An important predictor of the whether an executive perceives they have control over hiring psychologists may be to consider if they have hired psychologists in the past. If psychologists currently work at an organization, this may indicate that organizational barriers have been overcome that could pave the way for additional hiring.

Years worked as healthcare administrator. Executives who have more experience in healthcare administration may perceive they have more control over a number of decisions, including hiring psychologists. Leading an organization is a demanding job requiring particular knowledge and skills (e.g., strong understanding of the internal workings of the organization). New executives may feel less in control because they are still getting used to their role and their understanding of how they can make an impact in their organization (Porter, Lorsch, & Norhria, 2004).

Limitations of the Theory of Planned Behavior. Despite widespread use of the TPB, some have criticized it on conceptual and validity grounds (e.g., Sniehotta, Presseau, & Araújo-Soares, 2014). For example, some have argued that four concepts is not enough to explain planned human behavior fully and that the TPB does not properly take into account the role of emotions or unconscious behavior (Sniehotta et al., 2014). Ivan Azjen, the creator of the TPB, has provided a point-by-point rebuttal to many of the criticisms raised by Sniehotta (see Ajzen, 2014). In the context of the predicting hiring intentions of executives in FQHCs, the TPB has an additional limitation. While the theory does predict hiring intentions, intentions do not *always*

lead to behaviors. External factors unrelated to executives' intentions could prevent them from

hiring psychologists, such as action by the board of directors in an FQHC.

Proposed Model to Predict Executives' Intentions to Hire Psychologists

Figure 3 shows an overview of how the TPB is proposed to predict executive' intentions

to hire psychologists. Solid lines around each variable represent standard TPB constructs while

variables with dotted lines represent proposed additions to the theory specific to hiring
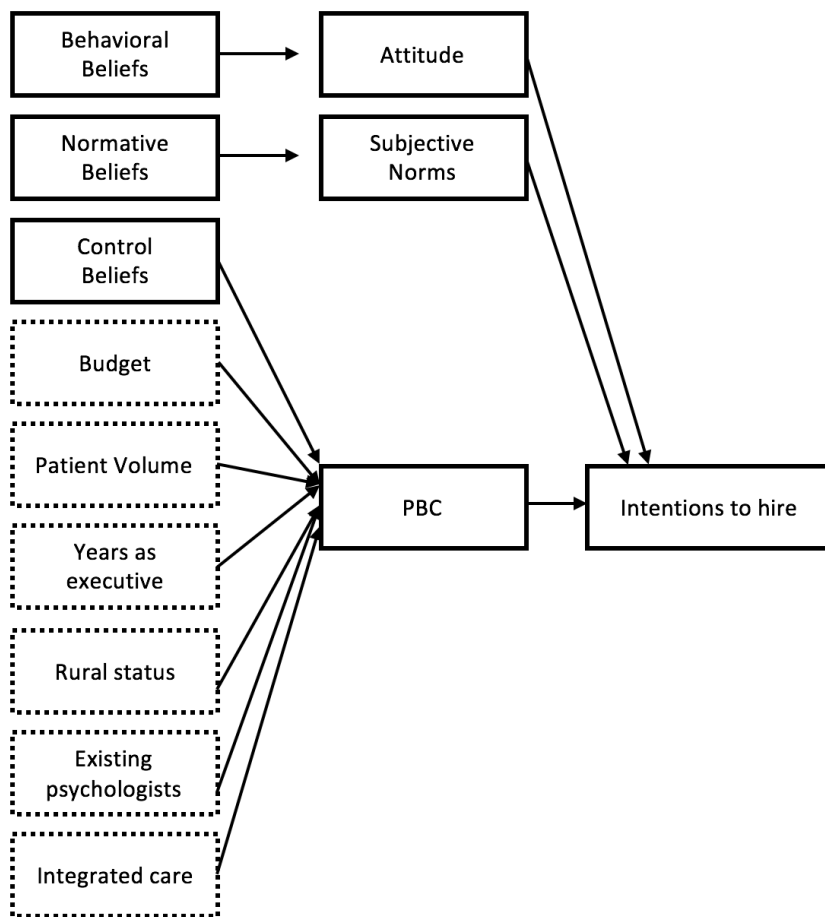
psychologists.

Figure 3. Model of factors predicting executives' intentions to hire psychologists in FQHCs.

Solid lines around each variable represent standard TPB constructs while variables with dotted

lines represent proposed additions to the theory specific to hiring psychologists.

Summary and Aims

FQHCs provide mental and medical health care to underserved populations across the United States (Bureau of Primary Health Care, 2014c). These organizations are increasingly integrating behavioral health providers into their primary care clinics in an attempt to become medical homes for their patients (Beacham et al., 2012). Health care psychologists are uniquely trained to serve in FQHCs by using brief evidence-based interventions to address mental and behavioral health concerns. The American Psychological Association has published competencies for work in primary care settings as well as standards of accreditation for training programs with a focus on primary care psychology (American Psychological Association, 2013). Yet few psychologists work in FQHCs relative to other mental health professionals (Bureau of Primary Health Care, 2014b). Other studies have examined organizational factors that are related to whether an FQHC is fully integrated (NACHC, 2011), but no studies have examined how executives' perceptions of those organizational factors, as well as their attitudes about hiring psychologists, affect their intentions to hire. Executives' hiring intentions are important because they have a great deal of power within FQHCs (Bureau of Primary Health Care, 1998). If an executive has a strong intention to hire a psychologist, then they may put forth more effort and therefore overcome more barriers than an executive that has a weaker intention to hire. The Theory of Planned Behavior provides an organizational framework to understand and assess executives' intentions to hire psychologists. The present study surveyed executives working in FQHCs across the United States, and had three main aims. The first aim was to examine executives' specific behavioral beliefs, normative beliefs, and control beliefs to better understand their views about hiring psychologists. This includes examining: a) the skills executives value in behavioral health staff, b) the skills executives believe psychologists are most and least proficient

at, c) specific sources of potential social pressure executives may perceive, and d) specific

barriers that may affect an executives' perceived ability to hire a psychologist. The second aim of

the study was to determine how executives' perceived behavioral control varies by FQHC

budget, patient volume, integrated care status, rural status, the presence of staff psychologists,

and the number of years worked by the executive. The third and final aim of the study was to use

path analysis to examine how well the TPB predicts executives' intentions to hire psychologists.

Hypotheses

TPB Correlations

1. Executives' behavioral beliefs about hiring psychologists will be significantly and positively correlated to their attitudes about hiring psychologists.

2. Executives' normative beliefs about hiring psychologists will be significantly and positively correlated to their subjective norms.

3. Executives' control beliefs about hiring psychologists will be significantly and positively correlated to their perceived behavioral control towards hiring psychologists.

4. Executives' attitudes toward hiring psychologists will be significantly and positively correlated with their behavioral intentions to hire psychologists.

5. Executives' subjective norms will be significantly and positively correlated with their behavioral intentions to hire psychologists

6. Executives' perceived behavioral control will be significantly and positively correlated with their behavioral intentions to hire psychologists

Testing Indirect Determinants in the TPB Model

7. Executives' behavioral beliefs will statistically significantly predict executives' attitudes towards hiring psychologists, with more favorable behavioral beliefs predicting more favorable attitudes.

8. Executives' normative beliefs will statistically significantly predict executives' subjective norms towards hiring psychologists, with higher endorsement of normative beliefs predicting higher levels of perceived social pressure (subjective norms) to hire psychologists.

9. Executives' control beliefs will statistically significantly predict executives' levels of perceived behavioral control towards hiring psychologists, with less endorsed barriers predicting more higher levels of perceived behavioral control.

Testing Direct Determinants in the TPB Model

10. In a path analysis, executives' attitudes will statistically significantly predict executives' intentions to hire psychologists, with more favorable attitudes towards psychologists predicting higher intentions to hire.

11. In a path analysis, executives' subjective norms will statistically significantly predict executives' intentions to hire psychologists, with higher levels of perceived social pressure predicting higher intentions to hire.

12. In a path analysis, executives' perceived behavioral control will statistically significantly predict executives' intentions to hire psychologists, with higher levels of perceived control predicting higher intentions to hire.

Impact of External Variables on Perceived Behavioral Control

13. Executives who work in FQHCs with higher budgets will be more likely to have higher levels of perceived behavioral control (i.e., perceive less barriers to hiring psychologists).

14. Executives who work in FQHCs with higher patient volumes will be more likely to have higher levels of perceived behavioral control.

15. Executives who work in FQHCs that integrate behavioral health providers into primary care will be more likely to have higher levels of perceived behavioral control.

16. Executives who work in FQHCs located in more rural areas will be more likely to have lower levels of perceived behavioral control (i.e., perceive more barriers to hiring psychologists).

17. Executives who work in FQHCs who have at least one psychologist on staff will be more likely to have higher levels of perceived behavioral control.

18. Executives who have worked in healthcare administration for a greater number of years will have higher levels of perceived behavioral control.

CHAPTER 2

METHODS

Preliminary Study

Francis et al. (2004) recommends that when conducting TPB research, a preliminary

study take place with a small portion of the population of interest. During this preliminary study,

qualitative methods are often used to elicit the most common behavioral, normative, and control

beliefs related to the behavior of interest. The most common beliefs are then used to create the

TPB survey. This method of survey development helps contribute to survey content validity.

A preliminary study was conducted which targeted executives in Appalachian health

centers. Research assistants (RAs) contacted four-community mental health and four integrated

primary care organizations in east Tennessee, southwest Virginia, and western North Carolina by

phone or e-mail and provided potential interviewees with an informed consent document

describing the study. All eight organizations agreed to participate. Data were collected via

audio recorded face-to-face or phone interviews with organizational leadership (e.g., Chief

Operating Officers, Clinical Directors, Division Directors) who had responsibility for shaping

hiring practices within the organization. Interviews were semi-structured in nature and lasted

between 30 and 60 minutes (for method see Altschuld & White, 2010). The content of each

interview centered on the interviewees' role within the organization, organizational hiring

practices, clinical staff characteristics, and perceptions of advantages and disadvantages of hiring

psychologists. Interviews were analyzed using a grounded theory methodology. The behavioral

and control beliefs found in the preliminary study are summarized below:

Behavioral beliefs from preliminary study.

- ability to fulfill multiple roles simultaneously (e.g., program oversight and direct care)

- strong diagnostic interpretations

- strong assessment competencies

- ability to run a training program, and

- ability to excel in behavioral medicine

- program development and evaluation skills

- focus on evidence-based practice

- ability to independently bill for services

- strong clinical and research experience due to extended training

- ability to conceptualize cases quickly and manage time with patients efficiently

- training in supervision

- cost offset

- the ability to diagnose and manage complex mental and behavioral health cases

   Control beliefs from preliminary study. Barriers to hiring psychologists included:

- lack of open positions for psychologists

- noncompetitive salaries

- reimbursement rates do not cover salaries

- mismatch between clinical skills possessed by psychologists and needs or organization

- difficulty hiring due to geographic area

- not enough money in the budget

- skills overlap with less educated providers

   Facilitators to hiring psychologists included:

- presence of integrated primary care

- match between psychologists' skills and needs of organization

Normative beliefs were not assessed directly in the preliminary study. In the TPB survey, normative beliefs regarding management within the FQHC, attitudes of physicians in the FQHC, and the hiring practices of other FQHCs were taken into consideration.

Measures

Theory of Planned Behavior Survey. This 81-item measure (Appendix A) was designed to directly assess participants' attitudes, subjective norms, and perceived behavioral control related to hiring psychologists in their FQHC. The measure also assessed participants' behavioral beliefs, normative beliefs, and control beliefs related to hiring psychologists. The survey was developed following recommendations from a manual dedicated to creating questionnaires based on the TPB (Francis et al., 2004). Scoring criteria for the survey can be found in Appendix B.

Survey development. Francis et al. (2004) recommends that each TPB belief construct be measured using a minimum of three items, but more than three items can improve validity. Items were chosen for inclusion in the TPB survey based on common themes that emerged during the qualitative preliminary regional study (detailed at the beginning of the methods section) of employers' perceptions about the advantages and disadvantages of hiring psychologists in community mental health centers, FQHCs, and other integrated care clinics. In that study, researchers conducted hour-long interviews with leadership in health care organizations and analyzed that data using a grounded theory approach. After the survey was developed it was piloted via a series of cognitive interviews with an executive of a large FQHC system and leadership within a state primary care organization. Cognitive interviewing (Willis, 2004) is an established method in survey development where a researcher interviews a member of the population the survey is intended to target. During the interview, the researcher talks about each

survey item with the participant to gain information about how the participant perceives and understands the question. Through this method valuable information is gained about initial survey impressions, ways to more clearly word survey items, and feedback about the content of items. After modifications were made to the TPB survey via cognitive interviews, the survey was piloted on several members of the general population, including two psychologists.

Personal Demographics Questionnaire. The personal demographics questionnaire (Appendix A) is a 6-item measure that asked about participants' gender, highest degree earned, field of study, tenure at organization, involvement in hiring decisions, and current job title.

Organizational Demographics Questionnaire. The organizational demographics questionnaire (Appendix A) is a 5-item measure that assessed the number of behavioral health employees at the participant's organization, patient volume, organization budget, clinic geographical location, and urban/rural status.

Procedures

Collection of executives' contact information. One goal of this study was to survey as many FQHC executives as possible in order to understand the factors that influence their ability and desire to hire psychologists. In an effort to obtain a nationally representative sample of data, FQHC e-mail addresses were requested from both HRSA and the Bureau of Primary Care, since FQHCs have yearly data reporting requirements with these agencies. These requests were denied, as were requests to the National Association of Community Health Centers to assist in survey dissemination. This led to the assembly of a group of undergraduate research assistants (RAs) who were trained to request executives' e-mail addresses from individual FQHCs. RAs cold called hundreds of FQHCs as well as contacted state primary care associations (PCAs) in order to obtain FQHC executives' e-mails. RAs were most focused on collecting CEO e-mail

addresses, but also collected other executives' e-mails when they were able. In order to know which organizations to call, RAs worked from an official master list of all FQHCs (http://bphc.hrsa.gov/uds/datacenter.aspx?q=d&year=2013&state=CO#glist) published by the Bureau of Primary Care. E-mails were also sent to state primary care association directors, requesting listservs for their FQHC CEOs. During the course of several months, RAs collected the e-mail addresses of 798 FQHC executives (728 from CEOs, 70 from other executives). However, 66 of these e-mail addresses were non-viable, resulting in a total of 732 e-mail addresses (667 CEOs, 65 other executives) collected via cold calling and PCA outreach.

At the same time RAs began gathering e-mail addresses, a Freedom of Information Act (FOYA) request was submitted to HRSA, requesting every FQHC CEO e-mail address in the United States. After several months, HRSA sent an Excel file containing 1279 names and e-mail addresses of executives from every FQHC in the United States. However, instead of containing only CEO contacts, there were a mix of CEOs and other FQHC leadership. The HRSA list was cross-referenced with the list developed by RAs, revealing only 111 overlapping contacts. Twenty-eight contacts from the HRSA list were non-viable, meaning that the HRSA list added 1067 unique contacts to the survey distribution list, for an overall total of 1799 possible participants. Therefore, it is reasonable to conclude that leadership from all, or nearly all, FQHCs in the United States were represented in the final survey distribution list.

Incentives to survey participation. In order to maximize response rates in the present study, a short written endorsement of the study by a well-respected and well-known executive in the FQHC field was included in the initial e-mail inviting participants to take the survey. The e-mail also highlighted the topical salience of the study and described the survey as a way that executives could make their opinions known on important and timely issues related to behavioral

health hiring practices. Participants who completed the survey were put in a drawing for one of

two $100 checks. We thought that executives would value data even more than a small cash

prize, so we additionally offered to supply pre-publication data comparing their state's survey

responses with national averages.

Survey distribution. The finalized study survey was distributed in late September 2015

via Qualtrics, a web-based survey system. Three reminder e-mails prompting participants to

complete the survey were sent to the group of participants who had not yet finished the survey.

These reminder e-mails were sent one week, three weeks, and approximately two months after

the initial survey was sent. The survey was closed in mid-December 2015. Qualtrics data were

imported into SPSS for cleaning and analyses.

Participants

Executives (*N*=1799) in FQHCs in every US state were invited to participate in the study

survey. Of those invited, 380 people (21.1%) started the survey and 222 (12.4%) completed it.

Of those that finished the survey, 19 were removed from the final data set due to large amounts

of missing data and 5 were removed because they indicated on survey question 86 that they did

not have a role in hiring decisions at their organization. This resulted in a total of 199

participants for the study.

Data Analysis Plan

First, all data were imported into SPSS, cleaned, and coded appropriately (e.g., reverse

coded when needed). Second, descriptive statistics, including means and standard deviations,

were calculated and examined for survey items and each TPB construct. Third, TPB composite

variables were calculated from combining survey questions according to scoring guidelines in

Appendix C and Cronbach's alpha was calculated for each TPB composite scale. Fourth,

regression analysis was used to determine if any of the demographic characteristics hypothesized to predict PBC in fact did so when controlling for other demographic factors. Fifth, TPB variables were screened for missing data, normality, linearity, collinearity, and relative variances between variables. Sixth, Pearson correlations were used to test relationships between constructs in the TPB model (including retained demographic variables). Seventh, path analyses was used to examine the utility of using the TPB to predict executives' intentions to hire psychologists by determining path loadings between all of the the TPB constructs in accordance with guidelines set forth by Kline (2011).

Appropriate model fit statistics were examined and modifications were made to the original model as indicated. Fit statistics considered included the model chi square, Root Mean Square Error of Approximation (RMSEA; values above .1 indicate poor fit), Goodness-of-fit Index (GFI; values above .9 indicate good fit), Comparative Fit Index (CFI; values above .9 indicate good fit), the Root Mean Residual Square (RMR; values close to zero indicate good fit), and the Standardized Root Mean Residual Square Residual (SRMR; values less than or equal to .08 indicate good fit). This resulted in 3 TPB models. Finally, power analyses were conducted on each model, including considering relevant heuristics (Boomsma, 1985), and methods that relied on RMSEA (MacCallum, Browne, & Sugawara, 1996) and GFI (MacCallum & Hong, 1997).

CHAPTER 3

RESULTS

Descriptive Statistics

The first aim of this study was to examine the descriptive statistics for executives'

behavioral, normative, and control beliefs in order to better understand executives' views about

hiring psychologists. Participant and organizational demographics are considered first to give an

appropriate context for interpreting the results.

Participant Demographics. The majority of study participants were female (66%; Table

1) and had earned a master's degree as their highest level of education (60%). Fifteen percent

had earned a doctorate, and 22% held a bachelor's degree. Most participants' field of study was

business or administration (51%), followed by behavioral health (18%; e.g., psychology, social

work), and the medical field (12%; e.g., MD, nursing, PA). Participants' experience as a

manager in a healthcare setting ranged from 1 to over 42 years, although the average was 16

years. All participants were at least partially involved in making hiring decisions. Twenty-three

percent were solely responsible for hiring, while around 76% were part of a management team

who made these decisions. Participants represented a variety of job titles, although CEOs were

the most common (53%). Other positions included Chief Operations Officer (12%), Chief

Financial Officer (10%), Director/VP of Behavioral Health (9%) Medical Director (6%), Chief

Quality/Compliance Officer (4%), and Human Resources Director (3%).

Organizational Demographics. The US Census breaks the United States into nine

divisions, which combine to make four major regions. Organizations represented in the study

came from every US Census defined region and division (U.S. Census Bureau, n.d.) in the

country (Table 2). Most organizations were from the South (39%), followed by the West (23%),

Table 1. Personal Demographics Descriptive Statistics

Q#		N	%
82	**Gender**		
	Female	132	66.3
	Male	66	33.2
	Other	0	0
	Missing	1	.50
83	**Highest degree earned**		
	Doctorate	30	15.1
	Masters	119	59.8
	Bachelors	44	22.1
	Some college or less	4	2.0
	Missing	2	1.0
84	**Field of study**		
	Business or Administration	102	51.3
	Behavioral Health Field (Psychology, Social Work, Marriage and Family Therapy)	35	17.6
	Medical Field (MD, Nursing, PA)	24	12.1
	Public Health	12	6.0
	Education	6	3.0
	Other	18	9.0
	Missing	2	1.0
85	**Years worked as a manager in a health care setting**	(*M* = 16.01)	(*SD* = 10.44)
	1-5	41	20.6
	6-10	36	18.1
	11-15	29	14.6
	21-25	20	10.1
	26-30	19	9.5
	31+	18	9.0
	Missing	1	.50
86	**How are you involved in making hiring decisions in your organization?**		
	I am solely responsible for making hiring decisions	46	23.1
	I am part of a management team responsible for making hiring decisions	152	76.4
	I am not involved in hiring decisions	0	0
	Missing	1	.50
87	**Choose the option below that best reflects your job title**		
	Chief Executive Officer/Executive Director	106	53.3
	Chief Operations Officer	23	11.6
	Chief Financial Officer	19	9.5
	Director/VP of Behavioral Health	18	9.0
	Medical Director	11	5.5
	Chief Quality/Compliance Officer	7	3.5
	Human Resources Director	6	3.0
	Other	4	2.0

Table 2. Organizational Demographics Descriptive Statistics

Q#		N	%	Mean	SD	Range
88	**How many of each of the following Full Time Equivalents are hired or contracted by your organization?**					
a	Doctoral Psychologists			1.35	5.26	0-46
	0	115	57.8			
	.1-1.0	34	17.1			
	1.1-3.0	17	8.5			
	3.1+	11	5.5			
	Missing	22	11.1			
b	Psychiatrists			1.10	2.85	0-25
	0	83	41.7			
	.1-1.0	58	29.1			
	1.1-3.0	31	15.6			
	3.1+	9	4.5			
	Missing	18	9.0			
c	Licensed Clinical Social Workers			4.33	9.33	0-80
	0	34	17.1			
	.1-1.0	44	22.1			
	1.1-3.0	54	27.1			
	3.1-9.9	40	20.1			
	10+	17	8.5			
	Missing	10	5.0			
d	Other Licensed Mental Health Providers			2.93	8.00	0-80
	0	76	38.2			
	.1-1.0	41	20.6			
	1.1-3.0	31	15.6			
	3.1-9.9	14	7.0			
	10+	14	7.0			
	Missing	23	11.6			
e	Non-Licensed Mental Health Providers			3.56	14.50	0-150
	0	102	51.3			
	.1-1.0	13	6.5			
	1.1-3.0	18	9.0			
	3.1-9.9	14	7.0			
	10+	11	5.5			
	Missing	41	20.6			
f	Psychiatric Nurse Practitioners			1.12	2.54	0-17
	0	97	48.7			
	.1-1.0	45	22.6			
	1.1-3.0	17	8.5			
	3.1-9.9	10	5.0			
	10+	4	2.0			
	Missing	26	13.1			

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Table 2, cont.

Q#		N	%	Mean	SD	Range
89	**What is the approximate number of patient encounters per month by your organization?**			6441.31	11083.15	32-80000
90	**What is your organization's approximate annual budget?**			18934205.8	59448499.6	200000-750 Million
	Five million or less	54	27.6			
	Five to ten million	43	21.9			
	Ten to fifteen million	26	13.3			
	Fifteen to twenty million	18	9.2			
	Twenty to twenty five million	10	5.1			
	Twenty five to thirty million	6	3.1			
	Thirty million or more	17	8.7			
	Missing	22	11.2			
91	**Responses by US Census Defined Region and Division**					
	Region 1 (Northeast)	**30**	**15.1**			
	Division 1 (New England)	17	8.5			
	Division 2 (Mid-Atlantic)	13	6.5			
	Region 2 (Midwest)	**43**	**21.6**			
	Division 3 (East North Central)	24	12.1			
	Division 4 (West North Central	19	9.5			
	Region 3 (South)	**77**	**38.7**			
	Division 5 (South Atlantic)	38	18.1			
	Division 6 (East South Central)	16	8			
	Division 7 (West South Central)	25	12.6			
	Region 4 (West)	**46**	**23.1**			
	Division 8 (Mountain)	22	11.1			
	Division 9 (Pacific)	24	12.1			
	Missing	3	1.51			
92	**Rural status of organization**					
	Urban	85	42.7			
	Suburban	18	9.0			
	Rural	91	45.7			
	Missing	5	2.51			

Midwest (22%), and Northeast (15%). Forty-five percent of FQHCs at least partially operated in rural areas, 43% at least partially operated in urban areas, and 9% at least partially operated in suburban areas.

Participants were asked the approximate number of patient encounters per month in the organization. Unfortunately, the accuracy and therefore reliability of these data is questionable and should be interpreted with caution. For example, the number of monthly patient encounters ranged from 32 (very unlikely) to 80,000, with an average of around 6,400. Participants were also asked about their organization's annual budget. Annual budget estimates ranged from $200,000 to $750 million. About 28% executives worked in organizations with annual budgets of $5 million or less while about 22% had budgets of $5-10 million.

Nearly 60% of FQHCs did not have a single psychologist, compared to 17% without any social workers, and 42% without a psychiatrist. The number of psychologists per organization ranged from 0 to 46, and most organizations that did employ psychologists had only one. Fewer than 6% of FQHCs had more than three psychologists on staff. Comparatively, organizations averaged 4.3 LCSWs, 2.9 other licensed mental health providers, and 3.6 non-licensed mental health providers.

Behavioral beliefs. Part of addressing the first aim of this study was to examine the skills executives value in behavioral health staff they hire and to understand the skills executives perceive psychologists are the most and least proficient at. In order to address these points, participants were surveyed about the strength of their behavioral beliefs as well as their outcome evaluations of each belief by evaluating a list of 21 skills (see Tables 3 and 4) that may be important for behavioral health staff in FQHCs. The content of these skills were determined by qualitative and cognitive interviews in the preliminary study.

Table 3. Behavioral Beliefs – Psychologists' Proficiency, Descriptive Statistics

Q #	Question	Mean	SD	Proficiency (%)			
				Not at all	Slight	Mod-erate	High
6	Ability to establish rapport with patients	**3.91**	.39	1	0.5	4.5	94
21	Ability to understand how biological, psychological, and social factors impact a patient's health	**3.86**	.46	1	1.5	8	89.4
16	Ability to diagnose and manage complex mental and behavioral health problems	**3.84**	.50	1	2.5	8	88.4
15	Ability to quickly assess patients and determine next steps	**3.81**	.50	1	2	11.6	85.4
8	Ability to consult with other clinical staff as needed	**3.80**	.52	1.5	1	13.6	83.9
1	Knowledge of evidence-based treatments	**3.78**	.53	1.5	1	15.1	82.4
2	Ability to conduct assessments (e.g., personality, cognitive, forensic, disability)	**3.78**	.58	2	2	11.6	84.4
4	Ability to work on multidisciplinary treatment teams	**3.73**	.58	1.5	2.5	17.1	78.9
12	Ability for services to be reimbursable under insurance	**3.70**	.66	2.5	3.5	15.1	78.9
20	Ability to provide evidence based interventions within a primary care setting	**3.67**	.60	1	3.5	23.1	72.4
19	Ability to provide brief interventions within a primary care setting	**3.61**	.66	2	4	24.6	69.3
3	Ability to locate and use up-to-date clinical research	**3.50**	.72	2.5	5.5	31.2	60.8
9	Ability to provide advanced clinical training to other clinical staff	**3.12**	.83	5	14.1	44.7	36.2
13	Ability to develop new treatment programs	**3.12**	.76	2.5	15.6	49.2	32.7
7	Ability to supervise other clinical staff	**3.06**	.85	6	14.6	46.7	32.7
10	Ability to assume leadership roles within the organization	**2.99**	.83	5	19.6	46.2	29.1
17	Ability to effectively manage chronic medical conditions	**2.96**	.97	8	24.6	30.7	36.7
14	Ability to use research skills to assess organization/administrative needs	**2.68**	.93	10.6	32.2	36.2	21.1
18	Ability to conduct statistical analysis of data	**2.66**	.97	13.1	30.2	34.7	22.1
5	Ability to procure additional resources for patients (e.g., subsidized housing, Medicaid)	**2.64**	.85	7	39.2	36.7	17.1
11	Ability to procure external funds (e.g., grants)	**2.22**	.97	25.6	39.2	22.6	12.6

Note. *N*=199; Q1-42 were measured on a 4-point Likert scale from 1 (Not at all) to 4 (High)

Table 4. Behavioral Beliefs – Importance, Descriptive Statistics

Q #	Question	Mean	SD	Importance (%)			
				Not at all	Slight	Mod-erate	High
27	Ability to establish rapport with patients	**3.98**	.12	0	0	1.5	98.5
25	Ability to work on multidisciplinary treatment teams	**3.92**	.29	0	0.5	7	92.5
42	Ability to understand how biological, psychological, and social factors impact a patient's health	**3.91**	.30	0	0.5	7.5	92
22	Knowledge of evidence-based treatments	**3.90**	.33	1	7.5	91.5	1
36	Ability to quickly assess patients and determine next steps	**3.89**	.32	0	0.5	9.5	89.9
29	Ability to consult with other clinical staff as needed	**3.88**	.36	0	1	10.1	88.9
40	Ability to provide brief interventions within a primary care setting	**3.83**	.37	0	0	16.6	83.4
33	Ability for services to be reimbursable under insurance	**3.79**	.49	0.5	2	15.1	82.4
41	Ability to provide evidence based interventions within a primary care setting	**3.76**	.51	0.5	2	18.6	78.9
23	Ability to conduct assessments (e.g., personality, cognitive, forensic, disability)	**3.69**	.58	0.5	4.5	20.6	74.4
37	Ability to diagnose and manage complex mental and behavioral health problems	**3.68**	.60	0.5	5.5	19.1	74.9
24	Ability to locate and use up-to-date clinical research	**3.50**	.69	1	8	30.7	60.3
38	Ability to effectively manage chronic medical conditions	**3.39**	.84	3.5	12.6	25.1	58.8
34	Ability to develop new treatment programs	**3.18**	.72	2	12.1	51.8	34.2
26	Ability to procure additional resources for patients (e.g., subsidized housing, Medicaid)	**3.17**	.87	3.5	19.6	33.2	43.7
28	Ability to supervise other clinical staff	**3.12**	.80	4	14.6	46.7	34.7
31	Ability to assume leadership roles within the organization	**3.04**	.79	2.5	21.6	45.2	30.7
30	Ability to provide advanced clinical training to other clinical staff	**3.03**	.78	3.5	18.1	50.3	28.1
35	Ability to use research skills to assess organization/administrative needs	**2.76**	.93	9.5	29.1	36.7	24.6
39	Ability to conduct statistical analysis of data	**2.64**	.95	12.6	32.2	34.2	21.1
32	Ability to procure external funds (e.g., grants)	**2.44**	1.07	21.1	36.2	19.1	23.6

Note. *N*=199; Q1-42 were measured on a 4-point Likert scale from 1 (Not at all) to 4 (High)

Participants in the current study were asked to rate on a 4-point Likert scale (1=not at all, 4=high) how proficient they thought psychologists were at each skill, and how important they felt each skill was for behavioral health staff to possess in their organization. The skills can be divided into 4 broad categories: 1) general clinical skills that would be important for any clinician to possess (e.g., building rapport), 2) skills specific to work in integrated care (e.g., using brief interventions in primary care), 3) research or program development skills (e.g., conducting statistical analyses), and 4) leadership skills (e.g., supervising other staff). In the following sections, descriptive statistics for each of the four broad skill categories are examined first, to provide a general overview of how executives rated proficiency and importance by skill type. Next, individual skills are examined more closely by considering the highest and lowest rated skills in both the proficiency and importance categories. Finally, differences in proficiency and importance means between individual skills will be examined. This is important because if there are large discrepancies in means, this may indicate a mismatch between psychologists' perceived skills and the skills valued by executives.

Descriptive statistics of skill categories. In order to establish means for the four general skill categories, scores from each item that made up a particular category were averaged (Table 5). Question 5 (ability to procure additional resources for patient) and question 12 (ability for services to be reimbursable under insurance) were not included in the general skills categories because the content of these questions did not fit well into any of the four skill categories created. Scores are still interpreted on a 4-point Likert scale from 1 (not at all) to 4 (high). Executives rated psychologists highly and equally proficient in general clinical skills ($M = 3.71$, $SD = .38$) and skills specific to work in integrated care ($M = 3.71$, $SD = .47$). Leadership skills were ranked lower ($M = 3.06$, $SD = .70$), in the moderately proficient range.

Table 5. Descriptive Statistics for Executives' Perceptions of Skill Importance and Proficiency, Categorized by Skill Type

Q#	Skill Type	Proficiency		Importance	
		M	*SD*	**M**	*SD*
	Clinical – General	3.71	.38	3.78	.22
1	Knowledge of evidence-based treatments				
2	Ability to conduct assessments (e.g., personality, cognitive, forensic, disability)				
6	Ability to establish rapport with patients				
8	Ability to consult with other clinical staff as needed				
16	Ability to diagnose and manage complex mental and behavioral health problems				
17	Ability to effectively manage chronic medical conditions				
21	Ability to understand how biological, psychological, and social factors impact a patient's health				
	Clinical – Integrated Care Specific	3.71	.47	3.85	.24
4	Ability to work on multidisciplinary treatment teams				
15	Ability to quickly assess patients and determine next steps				
19	Ability to provide brief interventions within a primary care setting				
20	Ability to provide evidence based interventions within a primary care setting				
	Leadership	3.06	.70	3.06	.64
7	Ability to supervise other clinical staff				
9	Ability to provide advanced clinical training to other clinical staff				
10	Ability to assume leadership roles within the organization				
	Research/Program Development	2.83	.63	2.91	.6
3	Ability to locate and use up-to-date clinical research				
11	Ability to procure external funds (e.g., grants)				
13	Ability to develop new treatment programs				
14	Ability to use research skills to assess organization/administrative needs				
18	Ability to conduct statistical analysis of data				

Note. Q5 and Q12 not included. 4-point Likert scale from 1 (Not at all) to 4 (High).

Proficiency in research and program development skills were ranked lowest (*M* = 2.83, *SD* = .63), in the slightly to moderately proficient range. Regarding the relative importance of the four domains overall, executives rated integrated care clinical skills as the most important (*M* = 3.85, *SD* = .24), followed closely by general clinical skills (*M* = 3.78, *SD* = .22). Comparatively, leadership (*M* = 3.06, *SD* = .70) and research/program development skills (*M* = 2.83, *SD* = .63) were rated as less important.

Highest and lowest rated behavioral beliefs. Overall, psychologists averaged in the

moderate to high proficiency range for 15 out of the 21 skills. Executives rated psychologists as

most proficient in the ability to establish rapport with patients (*M* = 3.91, *SD* = .39), understand

how biological, psychological, and social factors impact a patient's health (*M* = 3.86, *SD* = .46),

and diagnose and manage complex mental and behavioral health problems (*M* = 3.84, *SD* = .50).

Executives rated 19 out of the 21 skills as moderately to highly important for behavioral health

staff to possess at their organization. Skills with the highest relative importance rating included

the ability to establish rapport (*M* = 3.98, *SD* = .12), work on multidisciplinary teams (*M* = 3.92,

SD = .29), and understand how biological, psychological, and social factors impact a patient's

health (*M* = 3.91, *SD* = .30).

Difference between proficiency and importance ratings. When considering the four skill

categories (Table 5), integrated care specific clinical skills showed the largest mean difference (-

.14) between how executives rated psychologists' skill proficiency compared to organizational

skill importance. When considering individual items (Table 6), the largest mean differences

were for the ability to procure additional resources for patients (e.g., Medicaid; mean difference

= -.53), effectively manage chronic medical conditions (-.43), procure external funds (e.g.,

grants; -.22), provide brief interventions in primary care (-.22), and work on multidisciplinary

treatment teams (-.19). In each case, items had higher importance ratings than proficiency

ratings.

Normative beliefs. In the present study, participants were surveyed about the extent they

perceived social pressures from the management team, primary care providers, and other FQHCs

to hire psychologists (Table 7).

Table 6. Differences Between Executives' Perceptions of Importance and Proficiency Across Skills

Q #		Proficiency (M)	Importance (M)	Difference
16	Ability to diagnose and manage complex mental and behavioral health problems	3.84	3.68	**0.16**
2	Ability to conduct assessments (e.g., personality, cognitive, forensic, disability)	3.78	3.69	**0.09**
9	Ability to provide advanced clinical training to other clinical staff	3.12	3.03	**0.09**
18	Ability to conduct statistical analysis of data	2.66	2.64	**0.02**
3	Ability to locate and use up-to-date clinical research	3.50	3.50	**0**
21	Ability to understand how biological, psychological, and social factors impact a patient's health	3.86	3.91	**-0.05**
10	Ability to assume leadership roles within the organization	2.99	3.04	**-0.05**
7	Ability to supervise other clinical staff	3.06	3.12	**-0.06**
13	Ability to develop new treatment programs	3.12	3.18	**-0.06**
6	Ability to establish rapport with patients	3.91	3.98	**-0.07**
15	Ability to quickly assess patients and determine next steps	3.81	3.89	**-0.08**
14	Ability to use research skills to assess organization/administrative needs	2.68	2.76	**-0.08**
8	Ability to consult with other clinical staff as needed	3.80	3.88	**-0.08**
20	Ability to provide evidence based interventions within a primary care setting	3.67	3.76	**-0.09**
12	Ability for services to be reimbursable under insurance	3.70	3.79	**-0.09**
1	Knowledge of evidence-based treatments	3.78	3.90	**-0.12**
4	Ability to work on multidisciplinary treatment teams	3.73	3.92	**-0.19**
19	Ability to provide brief interventions within a primary care setting	3.61	3.83	**-0.22**
11	Ability to procure external funds (e.g., grants)	2.22	2.44	**-0.22**
17	Ability to effectively manage chronic medical conditions	2.96	3.39	**-0.43**
5	Ability to procure additional resources for patients (e.g., subsidized housing, Medicaid)	2.64	3.17	**-0.53**

Note. *N*=199; Q1-42 were measured on a 4-point Likert scale from 1 (Not at all) to 4 (High).

Table 7. Normative Beliefs Descriptive Statistics

Q#		Mean	*SD*	Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
							Percentages			
58	Other FQHCs hire psychologists.	**4.71**	**1.42**	2.5	5	6.5	33.7	18.6	22.1	11.1
57	Primary care providers in my organization believe I should hire psychologists.	**3.94**	**1.74**	7.5	19.6	7.5	33.7	8.5	13.6	9.5
56	The management team in my organization believe I should hire psychologists.	**3.78**	**1.86**	11.1	22.1	8.5	27.1	6	14.6	10.1
59	When making hiring decisions, I take into account the views/opinions of the management team in my organization.	**6.25**	**.79**	0.5	0	0	4	7.5	46.7	41.2
60	When making hiring decisions, I take into account the views/opinions of primary care providers in my organization.	**6.05**	**.93**	0	0.5	0.5	7	13.1	44.2	34.7
61	When making hiring decisions, I take into account the views/opinions of my peers in other organizations.	**5.19**	**1.37**	1.5	5	3.5	17.1	22.1	37.2	13.1

Note. Questions 56-61 were measured on a 7-point Likert scale from 1 (Strongly Disagree) to 7 (Strongly Agree).

Questions were tailored to address the strength of their normative beliefs as well as their motivation to comply. Questions were rated on a 7-point Likert scale from 1 (Strongly Disagree) to 7 (Strongly Agree). Overall, most executives were either neutral (27%) or disagreed to some extent (42%) that that their management team thought they should hire psychologists ($M = 3.78$, $SD = 1.86$). Participants were slightly more neutral in whether they believed their primary care providers (PCPs) endorsed hiring psychologists, although 20% disagreed and 8% strongly disagreed ($M = 3.94$, $SD = 1.74$). Most executives were either neutral or agreed to some extent that other FQHCs hire psychologists ($M = 4.71$, $SD = 1.42$). Most executives agreed or strongly agreed that when making hiring decisions, they take into account the opinions of their management team ($M = 6.25$, $SD = .93$), PCPs ($M = 6.05$, $SD = .93$), and their peers in other FQHCs ($M = 5.19$, $SD = 1.37$).

Control beliefs. Participants were surveyed about factors that could affect their ability to hire a psychologist (e.g., budget constraints; Tables 8 & 9). Questions were tailored to address the strength of their control beliefs as well as the power of those beliefs to influence their hiring practices towards psychologists. As was true for the behavioral and normative beliefs, control beliefs were determined by qualitative and cognitive interviews in the preliminary study.

Strength of control beliefs. Questions about strength of control beliefs (62-71; Table 8) were rated on a 7-point Likert scale from 1 (Strongly Disagree) to 7 (Strongly Agree). These questions can be thought of as gauging to what extent executives perceive specific barriers/facilitators to hiring psychologists in their organization. These barriers/facilitators can be grouped into three general categories: 1) financial (e.g., not enough money to hire a psychologist) 2) recruitment (e.g., jobs in organization not attractive to psychologists), and 3) those related to the role a psychologist would play and their fit within an organization.

Table 8. Control Beliefs, Strength of Belief – Means, Standard Deviations, and Percentages

Q#	Question	Mean	SD	[a]StDis	[b]Dis	[c]SoDis	[d]Und	[e]SoAg	Agree	[f]StAgr
Financial Barriers/Facilitators										
63	Psychologists expect more salary growth than my organization can provide.	**4.76**	**1.38**	0.5	6.5	7	32.2	21.1	20.6	11.6
64	Psychologists' reimbursement rates cover their salaries.	**3.52**	**1.49**	10.6	17.1	15.1	37.2	10.6	6	3.5
71	My organization does not have enough money to hire psychologists.	**3.88**	**1.80**	9.5	20.6	10.6	20.6	18.1	11.6	9
Recruitment Barriers/Facilitators										
62	The jobs available within my organization would be attractive to psychologists.	**4.85**	**1.50**	3.5	6	6	21.6	22.1	30.7	10.1
66	I would have difficulty attracting psychologists to my organization because the culture, activities and services they are accustomed to are limited in my geographic area.	**3.70**	**1.73**	8.5	21.6	19.1	18.1	14.1	11.6	7
69	A psychologist would find this area desirable to live in (e.g., safe, affordable, sense of community, family friendly).	**5.44**	**1.41**	1	3.5	7	10.6	18.6	35.2	24.1
Role/Fit Barriers/Facilitators										
65	There is a mismatch between the clinical skills possessed by psychologists and the needs of my organization.	**3.65**	**1.37**	4	22.1	13.6	36.7	14.6	7	2
67	A psychologist would have limited opportunities to interact with other doctoral psychologists within this organization.	**4.85**	**1.91**	5.5	15.1	5	9	15.6	28.1	21.6
68	This organization has (or would have) an expectation for psychologists to fill administrative roles in addition to clinical practice.	**3.86**	**1.61**	5	23.6	13.1	19.1	19.1	18.1	2
70	A psychologist would have an opportunity to work as part of an integrated team in a primary care setting in my organization.	**6.30**	**1.02**	1	1	0	3	7	35.7	52.3

Note. Questions 62-71 were measured on a 7-point Likert scale from 1 (Strongly Disagree) to 7 (Strongly Agree)
[a]Strongly Disagree, [b]Disagree, [c]Somewhat Disagree, [d]Undecided, [e]Somewhat Agree, [f]Strongly Agree

Table 9. Control Beliefs, Power to Influence Hiring – Means, Standard Deviations, and Percentages

Q#	Question	Mean	*SD*	[a]VNI	[b]NI	[c]SNI	[d]Und	[e]SPI	[f]PI	[g]VPI
Financial Barriers/Facilitators										
73	Psychologists expected more salary growth than my organization could provide.	**3.20**	**1.26**	7	26.6	21.6	33.2	6	4.5	0.5
74	Psychologists' reimbursement rates covered their salaries.	**4.29**	**1.65**	6.5	9.5	9.5	34.2	10.6	20.1	9
81	My organization did not have enough money to hire psychologists.	**2.95**	**1.37**	15.6	27.1	18.1	28.6	6.5	2	1.5
Recruitment Barriers/Facilitators										
72	The jobs available within my organization were attractive to psychologists.	**5.28**	**1.18**	0	3	1	24.1	20.6	37.2	13.6
79	A psychologist would find this area desirable to live in (e.g., safe, affordable, sense of community, family friendly).	**5.16**	**1.43**	1	4.5	5	21.1	22.6	25.1	20.1
76	I had difficulty attracting psychologists to my organization because the activities and services they are accustomed to were limited in my geographic area.	**3.36**	**1.21**	5.5	21.1	22.1	38.2	9	2.5	1
Role/Fit Barriers/Facilitators										
75	There was a mismatch between the clinical skills possessed by psychologists and the needs of my organization.	**3.31**	**1.31**	8	22.1	18.6	38.2	6	5.5	1
77	A psychologist had limited opportunities to interact with other psychologists within this organization.	**3.11**	**1.23**	4.5	29.6	31.7	23.6	5	2.5	2.5
78	This organization had an expectation for psychologists to fill administrative roles in addition to clinical practice.	**3.87**	**1.12**	1	9.5	22.1	46.2	11.6	7.5	1.5
80	My organization provided an opportunity for psychologists to work as part of an integrated team in a primary care setting.	**5.59**	**1.27**	0	1.5	2	21.1	17.1	26.6	31.2

Note. Questions 72-81 were measured on a 7-point Likert scale from 1 (Very Negative Impact) to 7 (Very Positive Impact)
[a]Very Negative Impact, [b]Negative Impact, [c]Somewhat Negative Impact, [d]Undecided, [e]Somewhat Positive Impact, [f]Positive Impact [g] Very Positive Impact

Control beliefs – financial. Over half (53%) of executives thought that psychologists expect more salary growth than their organization could provide (32% undecided), and only 20% thought that psychologists reimbursement rates covered their salaries (37% undecided). Nearly 40% of executives somewhat agreed, agreed, or strongly agreed that their organization did not have enough money to hire psychologists (21% undecided).

Control beliefs – recruitment. The majority (63%) of executives agreed to some extent (somewhat agreed, agreed, or strongly agreed) that the jobs in their organization would be attractive to psychologists (21% undecided). The vast majority (78%) of respondents thought that psychologists would find their area desirable to live in (11% undecided). However, about one third of executives felt that they would have difficulty attracting psychologists to their organization because the culture, activities, and services psychologist are accustomed to are limited in their geographic area (18% undecided).

Control beliefs – role and fit. Nearly one quarter of participants thought that there was a mismatch to some extent between the clinical skills possessed by psychologists and the needs of their organization (37% undecided). Furthermore, 65% of participants rated to some extent that a psychologist would have limited opportunities to interact with other psychologists in their organization (9% undecided). Nearly equal percentages of executives agreed to some extent (39%) and disagreed to some extent (42%) that their organization would have an expectation for psychologists to fill administrative roles in addition to clinical practice (19% undecided). Finally, almost all (95%) of participants agreed that a psychologist would have an opportunity to work as part of an integrated team in a primary care setting (3% undecided).

Power of control beliefs to impact hiring. Questions about the power of control beliefs to impact hiring practices (72-81; Table 9) were rated on a 7-point Likert scale from 1 (Very

Negative Impact) to 7 (Very Positive Impact). Questions 72-81 are nearly identical to questions

62-71, which asked about strength of control beliefs. However, executives were asked to rate

what impact the question would have on hiring practices, *assuming it was true* for their

organization. The three general categories (i.e., financial, recruitment, and role/fit) can still be

applied to these questions.

Control beliefs – financial. Not having enough money to hire psychologists was rated as

having the most negative impact on ability to hire psychologists ($M = 2.95$, $SD = 1.37$). As one

might expect, psychologists expecting more salary growth than the organization could provide

was also rated negatively, averaging scores in the negative impact to somewhat negative impact

range ($M = 3.20$, $SD = 1.37$). Interestingly, psychologists' reimbursement rates covering their

salaries only averaged ratings in the undecided to somewhat positive impact range ($M = 4.29$, SD

$= 1.65$). In fact, a quarter of respondents rated this item as having a somewhat negative,

negative, or very negative impact on their ability to hire a psychologist.

Control beliefs – recruitment. Having jobs available in an executives' organization that

were attractive to psychologists averaged the second highest positive impact rating for all items

($M = 5.28$, $SD = 1.18$). Over 70% of participants agreed that this would have some level of

positive impact (24% undecided). Having a desirable area for a psychologist to live in also

averaged positive impact ratings ($M = 5.16$, $SD = 1.43$). Having difficulty attracting

psychologists due to geographic region averaged ratings between somewhat negative impact and

undecided ($M = 3.36$, $SD = 1.21$).

Control beliefs – role and fit. The opportunity for psychologists to work in an integrated

primary care setting averaged the highest positive impact rating for all items ($M = 5.59$, $SD =$

1.27). The lack of opportunity for psychologists to interact with other psychologists at the

organization was rated to have the second most negative impact on ability to hire a psychologist ($M = 3.11$, $SD = 1.23$). Having a mismatch between psychologists' skills and the needs of the organization also averaged negative impact ratings ($M = 3.31$, $SD = 1.31$). Most executives (46%) were undecided about what impact psychologists being expected to fill administrative roles would have on their ability to hire ($M = 3.87$, $SD = 1.12$).

Direct Measures of Attitudes, Subjective Norms, and Perceived Behavioral Control. Executives were asked directly about whether hiring psychologists in their organization was a good or bad idea, beneficial or unbeneficial, important or unimportant, and advantageous or disadvantageous (Table 10). These items were rated on a scale from 1 (most negative belief) to 7 (most positive belief). Average scores for these items fell between 5.47 and 5.62, representing an overall positive attitude toward hiring psychologists.

Table 10. Direct Measures of Attitudes, Subjective Norms, Perceived Behavioral Control, and Intent Descriptive Statistics

Q#		Mean	SD
Direct Measures of Attitudes			
Overall, I think that hiring doctoral psychologists in my organization is ____.			
43	A Bad Idea vs. Good Idea	5.61	1.59
44	Unbeneficial vs. Beneficial	5.62	1.62
45	Unimportant vs. Important	5.47	1.61
46	Disadvantageous vs. Advantageous	5.60	1.51

Note. Questions 43-46 were measured on a 7-point scale with 1 reflecting the most negative and 7 the most positive belief.

Executives were also asked three questions which directly tapped into their subjective

norms (Table 11). Scores on these items were rated on a scale from 1 (strongly disagree) to 7

(strongly agree). Nearly half of respondents somewhat agreed, agreed, or strongly agreed that

most of the people whose opinions they valued (e.g., members of their clinical teams) thought

that they should hire psychologists in their organization ($M = 4.58$, $SD = 1.75$). However,

overall, participants did not experience high levels of social pressure to hire psychologists ($M =$

2.86, $SD = 1.65$), or feel that it was expected of them that they hire psychologists ($M = 3.02$, SD

$= 1.85$).

Three questions asked executives about their perceived behavioral control around hiring

psychologists (Table 11). Scores on these items were rated on a scale from 1 (strongly disagree)

to 7 (strongly agree). Most executives (62%) were confident that they could hire psychologists if

they wanted to, although 14% were undecided and nearly a quarter were not confident ($M =$

4.78, $SD = 1.82$). However, executives were split on whether they thought hiring a psychologist

was entirely up to them. Around 44% agreed to some extent that the decision was entirely up to

them, while 42% disagreed to some extent (undecided 13%, $M = 3.94$, $SD = 1.91$). It is possible

that at times, factors such as budget and availability of psychologists make the decision to hire

psychologists beyond the control of an executive. Overall, about half of respondents somewhat

agreed, agreed, strongly agreed that the decision to hire was beyond their control, while about

42% somewhat disagreed, disagreed, or strongly disagreed ($M = 3.94$, $SD = 1.91$).

Finally, three questions asked executives about their intent to hire psychologists in their

organization (Table 11). Scores on these items were also rated on a scale from 1 (strongly

disagree) to 7 (strongly agree).

Table 11. Direct Measures of Subjective Norms, Perceived Behavioral Control, and Intent Descriptive Statistics

Q#		Mean	SD	[a]StDis	[b]Dis	[c]SoDis	[d]Und	[e]SoAg	Agree	[f]StAgr
							Percent			
Direct Measures of Subjective Norms										
47	Most people whose opinions I value (e.g., members of my clinical team, my peers in other organizations, etc.) think that I should hire psychologists in my organization.	**4.58**	**1.75**	6.6	9.2	6.6	27.6	13.8	20.4	15.8
48	I feel social pressure (e.g., from members of my clinical team, my peers in other organizations, etc.) to hire psychologists in my organization.	**2.86**	**1.65**	23	30.6	7.7	25	5.1	5.1	3.6
49	It is expected of me that I hire psychologists in my organization.	**3.02**	**1.85**	22.4	30.6	8.7	19.4	3.6	8.2	7.1
Direct Measures of Perceived Behavioral Control										
50	I am confident that I could hire psychologists in my organization if I wanted to.	**4.78**	**1.82**	6.1	10.2	7.7	13.8	19.4	23.5	19.4
51	The decision to hire doctoral psychologists is beyond my control (e.g., due to budget, availability of psychologists, etc.).	**3.47**	**2.0**	23	17.9	9.7	15.3	14.8	11.7	7.7
52	Whether I hire doctoral psychologists is entirely up to me.	**3.94**	**1.91**	11.7	19.9	10.7	13.3	18.4	16.8	9.2
Direct Measures of Intent										
53	I intend to hire psychologists for this organization.	**4.06**	**1.80**	8.7	16.3	9.7	32.1	4.6	18.9	9.7
54	I want to hire psychologists for this organization.	**4.49**	**1.76**	6.1	13.8	3.6	29.1	10.2	25.5	11.7
55	I expect to hire psychologists for this organization.	**4.06**	**1.82**	9.2	15.8	10.7	29.6	6.1	17.9	10.7

Note. Questions 47-55 were measured on a 7-point Likert scale from 1 (Strongly Disagree) to 7 (Strongly Agree)
[a]Strongly Disagree, [b]Disagree, [c]Somewhat Disagree, [d]Undecided, [e]Somewhat Agree, [f]Strongly Agree

About one third of executives agreed to some extent that they intended to hire psychologists, about one third were undecided, and about one third disagreed to some extent ($M = 4.06$, $SD = 1.80$). Participants responded in a similar fashion when asked if they *expected* to hire psychologists ($M = 4.06$, $SD = 1.82$). Nearly half of executives endorsed wanting to hire a psychologist, while about a quarter did not want to hire one. A noteworthy percentage (29%) of executives were undecided on this issue.

TPB composite measures

Questions from the TPB survey were combined in accordance with scoring guidelines in Appendix C to form 7 composite variables: behavioral beliefs, normative beliefs, control beliefs, attitudes, subjective norms, perceived behavioral control, and intent. Descriptive statistics for these composite variables are found in Table 12. Since these variables were derived in different ways, the means cannot be compared across variables. Overall, higher scores within each variable equate to beliefs that are more favorable towards hiring psychologists.

Reliability

Cronbach's alpha is a widely used measure of survey reliability and internal consistency. Values of Cronbach's alpha range from 0 to 1, with higher values representing more internal consistency. Values .70 or above considered to be in the acceptable range (Tavakil & Dennick, 2011). Cronbach's alpha values were calculated for questions on each TPB composite variable. Each composite variables' meaning is derived from the product of the two subscales which make it up. Since Cronbach's alpha assumes unidimensionality, it would make sense to compute the Cronbach's alpha value on the products of the combined subscales and not on the original questions which make each subscale.

Table 12. Demographic Factors Predicting Perceived Behavioral Control

Model	Unstandardized Coefficients		Standardized Coefficients	
	B	Std. Error	Beta	R^2
(Constant)	3.294	.262		.211***
Psychologists on staff	.937	.212	.333***	
Years as executive	.037	.010	.278***	
Suburban location	.237	.346	.051	
Rural location	-.075	.211	-.028	
$5-10 million budget	.387	.255	.124	
$10-15 million budget	.183	.294	.048	
$15-20 million budget	.320	.352	.069	
$20-25 million budget	.406	.442	.067	
$25-30 million budget	.369	.590	.046	
$30 or more million budget	.079	.374	.017	

Note. Dependent Variable: PBC; Constant = urban organizations without psychologists on staff with an annual budget of $5 million or less. ***$p<.001$

For example, instead of calculating Cronbach's alpha on questions 1-21 and 22-42 for each subscale of behavioral beliefs, Cronbach's alpha was obtained by examining the internal consistency of the products of Q1*Q22, Q2*Q23, Q3*Q24, and so on. Values for each TPB composite variable are shown in Table 12. Cronbach's alpha values were in the acceptable range for behavioral beliefs (.850), normative beliefs (.785), attitudes (.980), subjective norms (.823), and intent (.954).

Cronbach's alpha for control beliefs was initially low (.563). This was likely due to the fact that on both control belief subscales (strength of control beliefs, and power of beliefs to

influence hiring) some items were positively phrased (e.g., "the jobs within my organization are attractive to psychologists") and negatively phrased (e.g., "there is a mismatch between the clinical skills possessed by psychologists and the needs of my organization). The strengths of belief subscale could have been reverse scored to account for the differently phrased items since the scale was from strongly disagree to strongly agree. However, the scale on the power of beliefs to influence hiring subscale was rated from strong negative impact to strong positive impact, which made it impossible to reverse score. Since the control beliefs composite variable relied on summing the products of each subscale (e.g., Q62*72 + Q63*73 + …), it would have produced uninterpretable results to only reverse code one subscale. Therefore, after reviewing the Cronbach's alpha SPSS output, the decision was made to remove the positively worded items (Qs 62, 64, 68, 69, 70, 72, 74, 78, 79, 80) from the analysis. The removal of these questions still left 5 questions per control belief subscale, which is more than the three per subscale recommended by Francis et al. (2004). After removing the positively worded questions, the Cronbach's alpha value for the control beliefs scale rose to .780.

The perceived behavioral control composite scale (consisting of three questions) also had a low Cronbach's alpha value (.471). Low values can be due to, "a low number of questions, poor inter-relatedness between items or heterogeneous constructs" (Tavakil & Dennick, 2011, p. 54). However, the guide for constructing TPB questionnaires (Francis et al., 2004) on which this survey is based, suggested that internal consistency estimates may not be appropriate for scales in which a participant could logically hold both positive and negative beliefs about the same behavior. For example, on the perceived behavioral control scale, it is logical that an executive might both rate highly that the decision to hire a psychologist is entirely up to them (indicating higher PBC) *and* also rate that the decision to hire a psychologist is beyond their control due to

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external factors like the budget (indicating lower PBC). However, Francis et al. (2004)

recommends asking how confident a participant is that they can perform a behavior, whether

performing the behavior is up to them, and "whether factors beyond their control could

determine their behavior (p.21). Since each of these factors is important in determining overall

PBC, the mean of these questions may be an appropriate indicator of PBC, even if the

Cronbach's alpha value is low.

Factors Associated with Executives' PBC Related to Hiring

The second aim of this study was to determine how executives' PBC varied by several

personal and organizational demographic factors. Six factors were hypothesized to impact PBC:

presence of integrated primary care at the organization, budget, patient volume, rural status,

presence of psychologists, and the years of experience of the executive. The patient volume

variable had large amounts of missing data as well as concerns about the reliability and accuracy

of data which were present. Therefore, patient volume was excluded from analysis. The

integrated care variable was also removed from analysis because all but 4 executives endorsed

having integrated services at their organization. Since these variables were excluded, the

hypotheses related to them (H14 & H15) could not be tested. Correlations were examined among

the remaining 4 demographic variables and PBC. Annual budget was significantly and positively

correlated ($r(160) = .18$, p<.05) with PBC, supporting H14. However, rural status was not

significantly correlated with PBC, therefore H17 was not supported. The presence of

psychologists at an organization ($r(172) = .35$, p<.001) and the number of years participants had

worked as an executive ($r(193) = .28$, p<.001) were both significantly and positively correlated

with PBC, supporting H18 and H19, respectively.

The remaining 4 demographic variables were entered into a regression with PBC as the dependent variable (Table 13). In this way, we could determine the effects of each variable while controlling for the others. Rural status and organizational annual budget were dummy coded since these were categorical variables. Only the presence of psychologists at the organization and years of experience as an executive statistically significantly predicted PBC. Therefore, these variables were retained for inclusion in the path analysis. It was surprising that organizational budget did not predict PBC, however, the same results were obtained regardless of whether a continuous or categorical measure of annual budget was added to the regression. Regarding FQHC rural status, there was a nearly equal representation between those based in rural areas (N=80) and those based in urban (N=78) areas. However, a higher percentage of rurally based FQHCs did not have any psychologists on staff (79%) compared to urban-based FQHCs (50%).

Path Analysis Data Screening

In preparation for addressing the study's third aim via path analysis, study data were screened for missing data, outliers, normality, linearity, collinearity, and relative variances between variables in accordance with recommendations by Kline (2011). Each of these factors is considered below. The portions of the study survey designed to assess TPB constructs had very little missing data (Table 14) because most questions required an answer to proceed in the Qualtrics survey. There was no more than one missing response per variable in this portion of the survey. Questions addressing personal demographics also had low rates of missing data, with zero to two missing responses per question. Questions regarding organizational demographics had substantially more missing data. Question 88, which listed several types of behavioral health staff and asked executives how many of each type worked in their organization, was particularly problematic.

Table 13. Descriptive Statistics, Univariate Normality Checks, and Cronbach's Alpha for TPB Composite Variables

Construct	Mean	*SD*	Min/Max	Skew	Skew SE	Kurtosis	Kurtosis SE	Cronbach's Alpha
Indirect Measures								
Behavioral beliefs	106.88	30.28	20/168	-.248	.174	-.319	.346	.850
Normative beliefs	2.50	26.29	-57/63	.217	.174	-.402	.346	.785
Control beliefs	-18.29	22.90	-81/39	-.226	.173	-.276	.344	.780
Direct Measures								
Attitudes	5.57	1.54	1/7	-.881	.174	-.020	.346	.980
[a]Attitudes*20	111.30	30.82	20/140					
Subjective Norms	3.50	1.51	1/7	.364	.174	-.488	.346	.823
[a]Subjective			20/140					
Norms*20	69.97	30.24						
Perceived			1.67/7	.003	.174	-.777	.346	.471
Behavioral Control	4.42	1.32						
[a]PBC*20	88.33	26.38	33.33/140					
Intent	4.18	1.72	1/7	-.074	.174	-.854	.346	.954
[a]**Intent*20**	83.61	34.33	20/140					
Years as executive	15.88	.74	1/42	.428	.174	-.775	.346	N/A
[a]**Years as executive*3**	47.63	31.18	3/126					

Note. [a] Variables were multiplied by a constant to correct for ill-scaled variances. The *staff psychologists* variable was not included because it is categorical.

Table 14. Missing Data

Qs#	# Missing
43-46	1
56	1
58	1
61	1
63	1
72-81	1
82	1
83-84	2
85-86	1
88a	22
88b	18
88c	10
88e	41
88f	26
89	11
90	23
91	3
92	5

Three respondents had missing data which prevented the calculation of their composite scores. These cases were removed before the path analysis via listwise deletion, leaving 196 participants. Kline (2011) recommends removing outliers in the data with z scores greater than +/- 3. The frequency distributions of z scores in each composite variable were examined and no significant outliers were found.

A curve estimation was performed on all the composite variable relationships in the model and it was determined that all relationships were sufficiently linear to be tested using a covariance based path analysis algorithm (e.g., AMOS). Univariate normality checks (skew, kurtosis; Table 12) on each composite variable indicated that the data were sufficiently normally distributed to conduct path analysis, according to guidelines offered by Kline (2011). Additionally, all composite variable collinearity values were within acceptable ranges.

In path analysis, "if the ratio of the largest to smallest variance is greater than 10," the variances are considered ill scaled (Kline, 2011, p. 67). Due to differences in scaling and how composite variables were calculated, the variables of behavioral beliefs, normative beliefs, control beliefs, and intent had variances that were significantly larger than the direct variables (i.e., attitude, subjective norms, and perceived behavioral control). Therefore, the direct variances were rescaled by multiplying the scores by a constant (20). This changed the direct variables mean and variance, but not their correlation with the indirect variables.

Correlations Between TPB Variables

Table 15 reports the correlations between all TPB composite variables as well as the two demographic variables. Each indirect measure (behavioral, normative, and control beliefs) was statistically and positively correlated with their respective direct measure (attitudes, subjective norms, and PBC), supporting H1-H3. Each direct measure was also statistically and positively correlated with executives' intent to hire psychologists, supporting H4-H6.

Path Analysis

The third aim of this study was to use path analysis to predict how well the TPB predicts executives' intentions to hire psychologists. Path analysis (PA) is a type of structural equation modeling that estimates the magnitude and significance of hypothesized connections between observed variables in a model (Kline, 2011). PA consists of 4 steps including: 1) model specification, 2) model identification, 3) model estimation, and 4) re-specifying the model if appropriate. All PA steps were followed in accordance with Kline (2011).

Table 15. Correlations for Analysis of a Recursive Path Model Predicting Executives' Intention to Hire Psychologists

Variable	1	2	3	4	5	6	7	8	9
1. Behavioral beliefs	1	.175*	.085	.233**	.238**	-.091	.131	-.109	.066
2. Normative Beliefs		1	.194**	.699**	.764**	.240**	.831**	-.142*	.430**
3. Control Beliefs			1	.151*	.284**	.175*	.127	-.079	.148
4. Attitudes				1	.667**	.066	.749**	-.119	.343**
5. Subjective Norms					1	.071	.680**	-.137	.302**
6. Perceived Behavioral Control						1	.335**	.275**	.353**
7. Intent							1	-.095	.450**
8. Years Service								1	.009
9. Psychologists on staff									1

Note. *Correlation is significant at the 0.05 level (2-tailed); **. Correlation is significant at the 0.01 level (2-tailed).

Specification. In the specification stage, hypotheses are represented in structural form via a path diagram. Having a strong theoretical rationale for proposed casual relationships in the model is important, as errors at this stage can propagate and influence all later stages of analyses (Kline, 2011). Figure 4 shows the proposed path diagram predicting executives' intent to hire psychologists. Behavioral, normative, and control beliefs, as well as psychologists on staff and years of experience as an executive are exogenous variables (their causes are not represented in the model). Attitudes, subjective norms, PBC, and intent are endogenous variables, and as such, each has a disturbance (e.g., d1), which represents unexplained variance. These disturbance terms are treated as latent variables and, "can be seen as a 'proxy' or composite variable that represents all unmeasured causes of the corresponding endogenous variable" (Kline, 2011, p. 103). Single headed arrows in the diagram represent proposed direct effects while double headed arrows represent covariances (unstandardized) or correlations (standardized) between variables. The model in Figure 4 is considered recursive because it does not contain any feedback loops.

Identification. In order for model to be considered *identified,* its degrees of freedom must be at least zero, and all latent variables must be scaled. Model degrees of freedom are determined by subtracting the number of estimated parameters in the model by the number of observations. The number of observations is determined by the formula $v(v+1)/2$, where v is the number of observed variables (Kline, 2011). The model in Figure 4 has 18 degrees of freedom (54 observations – 36 estimated parameters), meaning it is over-identified (*df*>0). The path coefficients of the direct effects of disturbances were fixed to 1.0. Because the nature of the model is recursive, it automatically meets the requirements for being considered identified (Kline, 2011).

Figure 4. Model 1: Standardized estimates. A recursive path model predicting intent to hire psychologists, including relevant demographic variables.

Estimation. Path analysis was conducted using maximum likelihood estimation in the statistical software AMOS (v.23). The original proposed TPB model was examined as well as two additional models that sought to increase explanatory power and fit. While unstandardized and standardized effects are reported in the following tables and figures, only standardized effects will be discussed in text, so that effects can be compared across the model.

Model 1. Model 1 (Figures 4 & 5) represents the standard TPB with relevant demographic variables added to predict PBC. These demographic variables were chosen because of their correlation with PBC and because they statistically significantly predicted PBC in a regression of all measured demographic variables. However, there was a disadvantage of including the variable "Psychologists on staff" in the model. Because this variable had missing data, AMOS required that means and intercepts be estimated, and did not include modification indices or correlation residuals in the output. Therefore, there was little direction for how to improve model fit by examining AMOS outputs.

All direct effects in Model 1 were statistically significant (Table 16). Overall, the model explained 61% of the variance in executives' intent to hire psychologists. Control beliefs, whether or not an organization had a psychologist on staff (referred to as *psychologists on staff* from here on), and the number of years participants had worked as an executive in healthcare administration (referred to as *years executive* from here on) explained 22% of the variance in PBC. Out of those three variables, whether or not a psychologist was on staff had the strongest direct effect on PBC (.33), while control beliefs had the weakest direct effect (.15). Normative beliefs had a strong direct effect (.76) on subjective norms, explaining 58% of the variance in that variable.
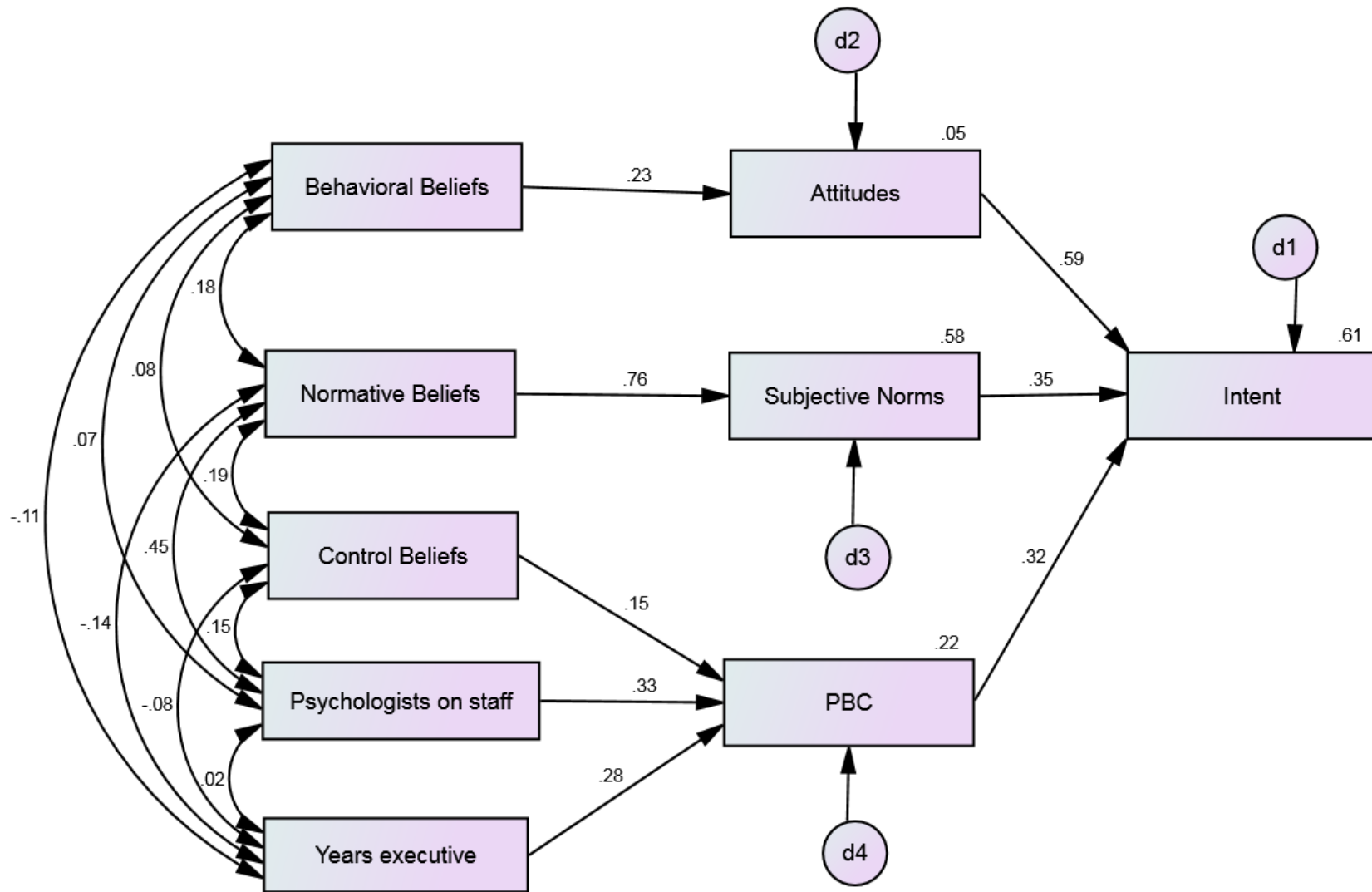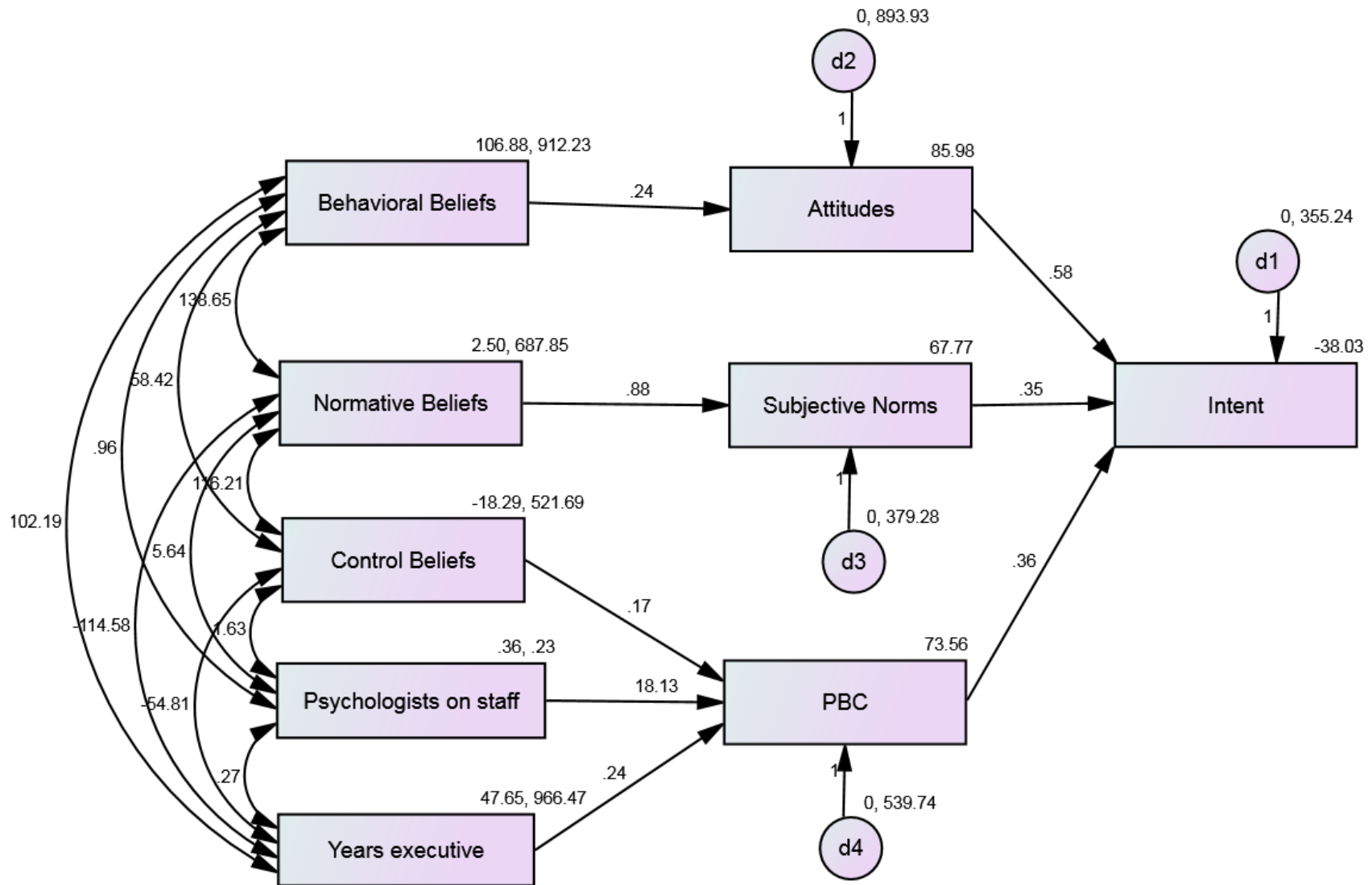
Figure 5. Model 1: Unstandardized estimates. A recursive path model predicting intent to hire psychologists, including relevant demographic variables.

Table 16. Maximum Likelihood Estimates for a Recursive Path Model (Model 1) Predicting Executives' Intention to Hire Psychologists

Parameter	Unstd	SE	Std
	Model 1		
	Direct Effects		
Behavioral beliefs → Attitudes	0.24***	0.07	0.23
Normative beliefs → Subjective Norms	0.88***	0.05	0.76
Control beliefs → PBC	0.17*	0.07	0.15
Attitudes→ Intent	0.58***	0.04	0.59
Subjective Norms→ Intent	0.35***	0.05	0.35
PBC→ Intent	0.36***	0.05	0.32
Years executive → PBC	0.24***	0.05	0.28
Staff psychologists → PBC	18.13***	3.66	0.33
	Disturbance variances		
Intent	355.24***	90.53	.301
Attitudes	893.93***	38.41	.941
Subjective Norms	39.72***	55.32	.434
PBC	539.74***	35.98	.776

Note. Standardized estimates for disturbance variances are proportions of unexplained variance. *p<.05, ***p<.001. The fact that the unstandardized disturbance variances are statistically significant is not practically significant since these are expected to differ from zero.

While the effect of behavioral beliefs on attitudes was .23, it only explained 5% of the variance in attitudes. Attitudes had the strongest direct effect (.59) on intent, with subjective norms (.35) and PBC (.32) having similar direct effects.

In order for AMOS to calculate indirect and total effect standard errors and significance levels, a bootstrapping procedure must be used. However, this requires that no variable in the model have missing data. Since Model 1 had missing data, these values could not be calculated.

The indirect effects of *years executive*, *psychologists on staff*, control beliefs, and behavioral

beliefs on intent were each below .15. However, the indirect effect of normative beliefs on intent

was higher, at .31. In Model 1, no variable had both direct and indirect effects on another

variable, therefore total effects are the same as either the direct or indirect effects already

reviewed.

Kline (2011) recommends using several statistics and indices to determine model fit

including model chi square, RMSEA, GFI, CFI, RMR, and SRMR. The model chi square is a

"badness of fit" model test statistic that tests how discrepant the model is with the data (Kline,

2011). Higher and statistically significant chi square values correspond with more model-data

discrepancy. The model chi square for Model 1 (*df*=18) was 241.10 (p<.001), indicating a poor

fit (Table 17).

RMSEA is an approximate fit parsimony-adjusted index, meaning that it is a continuous

measure of fit that corrects for model complexity. A value of 0 indicates the best model-data

correspondence and values decrease as *df* and sample size increase (Kline, 2011). Values greater

than .10 indicate a poor model fit. AMOS reports a 95% confidence interval (CI) for RMESA. If

the lower bound of the CI is less than or equal to .05, then the hypothesis that the model closely

fits the data (the close fit hypothesis) is supported. If the upper bound of the CI is less than or

equal to .10, then the hypothesis that the model poorly fits the data (the poor fit hypothesis) is

rejected (Kline, 2011). RMSEA for Model 1 was .282 (95% CI = .252, .314), meaning that both

the close fit hypothesis was rejected and the poor fit hypothesis was supported.

Table 17. Values of Fit Statistic for Three Recursive Path Models

Index	Model		
	1	**2**	**3**
$X^2{}_M$	241.10	27.20	5.06
df_M	18	10	4
p	.000	.002	.281
RMSEA (90% CI)	.282 (.252-.314)	.094 (.052-.137)	.037 (.000-.120)
GFI	.801	.967	.992
CFI	.656	.975	.998
RMR	186.53	34.37	13.35
SRMR	N/A	.04	.02

The GFI and CFI are two additional measures of model fit that have values that range from 0 (extremely poor fit) to 1 (best fit). The GFI is an absolute fit index, meaning that its value represents the percentage of variance in the covariance matrix that is explained by the model (Kline, 2011). The CFI is an incremental (or comparative) fit index, which indicates, "the relative improvement in fit of the researcher's model compared with a statistical baseline model" (Kline, 2011, p. 196). Acceptable values for both the GFI and CFI and greater than or equal to .90. The GFI (.801) and CFI (.656) were both lower than the acceptable range in Model 1, indicating again that the model was a poor fit for the data.

The RMR and SRMR are both statistics based on residuals. The RMR is based on covariance residuals, with smaller differences between the observed and predicted covariances indicating better model-data fit (Kline, 2011). Therefore, an RMR of 0 indicates perfect fit and values close to zero indicate an acceptable fit. The RMR for Model 1 (186.53) was high, indicating poor fit. Finally, the SRMR is a standardized version of the RMR which is based on

correlation residuals (Kline, 2011). Acceptable values for the SRMR are less than or equal to .08. The SRMR could not be calculated for Model 1 due to missing data.

   Model 2. In Model 2 (Figures 6 & 7), the *psychologists on staff* variable was removed and paths were added between normative beliefs and attitudes, PBC, and intent. While *psychologists on staff* significantly predicted PBC, the fact that this variable had missing data was problematic, making it impossible to use all of the AMOS functions (e.g., modification indices) that would help determine how the model could be re-specified to improve fit and increase explanatory power. Therefore, in Model 2, *psychologists on staff* was removed and the model was re-specified based on theoretical rationale, AMOS modification indices, and by examining correlation residuals (Table 18). As was pointed out when discussing SRMR, large correlation residuals can indicate poor model fit. Fit can be improved by re-specifying the model focusing on the relationships between variables with large correlation residuals (i.e., above .10). However, this process should also be guided by strong theoretical rationale.

   Some of the largest residuals were found between normative beliefs and endogenous variables such as PBC, attitudes, and intent. Although not a part of the original TPB model, it makes theoretical sense that executives' normative beliefs (e.g., believing that PCPs and the management team want an executive to hire a psychologist) may have direct effects on their PBC, attitudes, and intent. Higher normative beliefs could directly relate to attitudes because if others in the organization are urging an executive to hire a psychologist, an executive may feel fewer institutional barriers to hiring (PBC), have more favorable views of hiring psychologists (attitudes) and therefore have higher intent to hire a psychologist.

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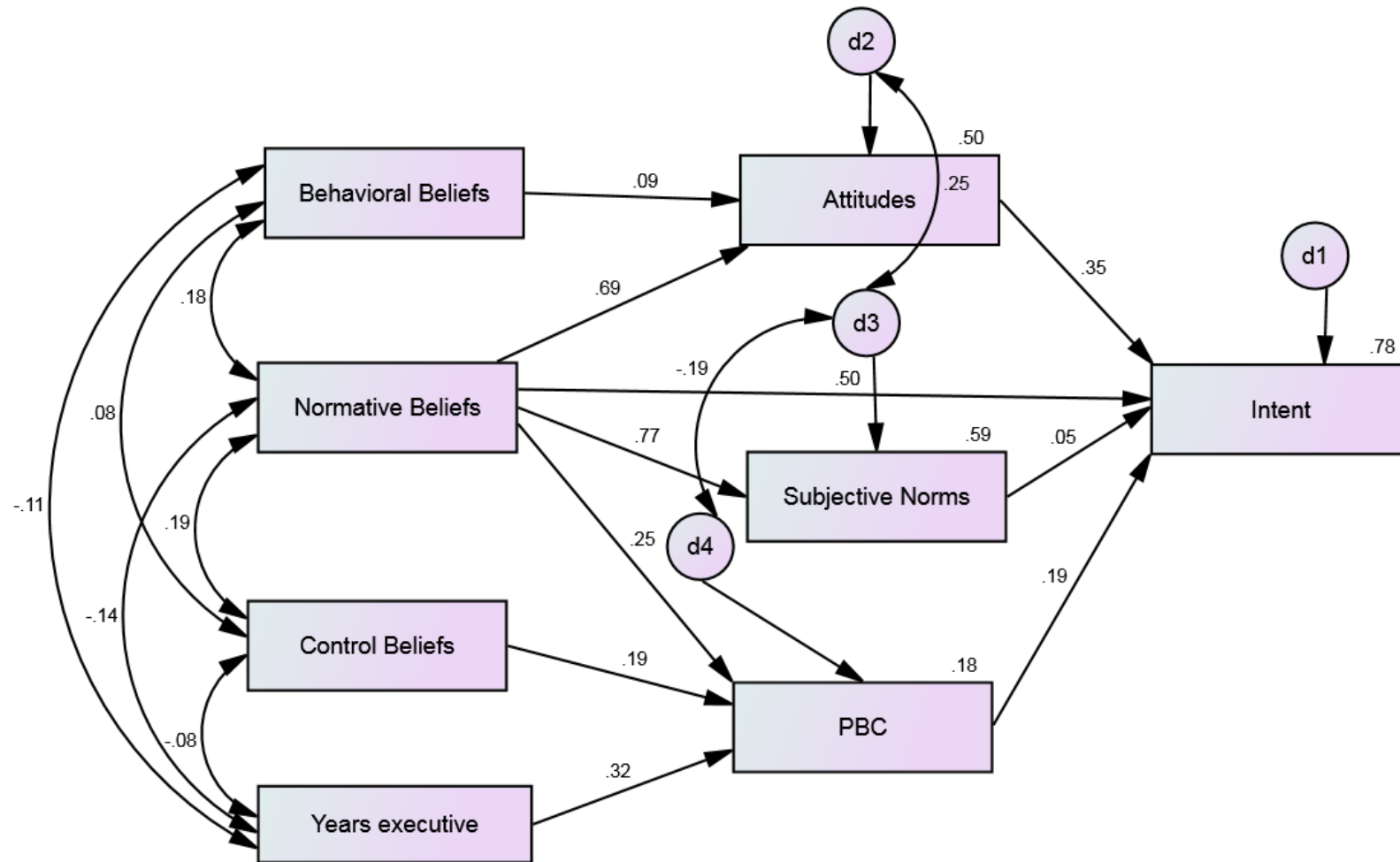
Figure 6. Model 2: Standardized estimates. A recursive path model predicting intent to hire psychologists. Model 1 was modified to create Model 2 based on AMOS modification indices and by examining residuals.
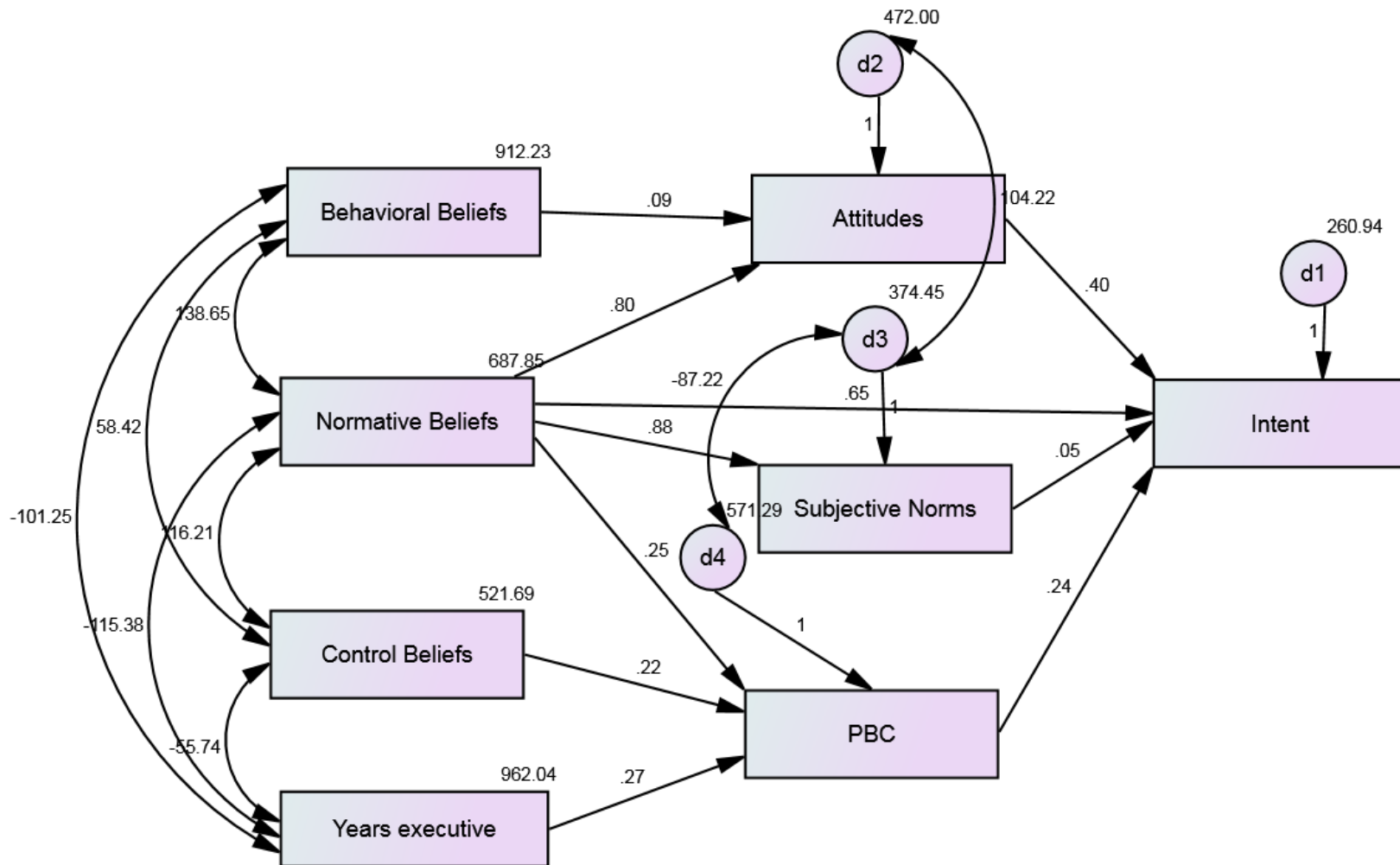
Figure 7. Model 2: Unstandardized estimates. A recursive path model predicting intent to hire psychologists. Model 1 was modified to create Model 2 based on AMOS modification indices and by examining residuals.

Table 18. Correlation Residuals for a Recursive Path Model (Model 1, without psychologists on staff) Predicting Executives' Intention to Hire Psychologists

Variable	1	2	3	4	5	6	7	8
Correlation residuals (standardized covariance residuals)								
1. Years executive	0.00							
2. Normative beliefs	0.00	0.00						
3. Control beliefs	0.00	0.00	0.00					
4. Behavioral beliefs	0.00	0.00	0.00	0.00				
5. PBC	0.00	**3.40**	0.00	**-1.06**	0.00			
6. Subjective Norms	**-0.39**	0.00	**1.87**	**1.44**	**1.01**	0.00		
7. Attitudes	**-1.30**	**9.19**	**1.83**	0.00	**.97**	**8.88**	0.00	
8. Intent	**-1.98**	**8.80**	**.34**	**-.45**	**.90**	**5.30**	**2.97**	**3.12**

Overall, Model 2 (Figures 6 and 7; Table 19) explained 78% of the variance in intent to hire psychologists, an improvement over Model 1 (61%). The direct effect from behavioral beliefs to attitudes and from subjective norms to intent were not statistically significant. All other direct effects were significant. *Years executive*, control beliefs, and normative beliefs explained 18% of the variance in PBC (a reduction in 4% explained variance since *psychologists on staff* was removed). *Years executive* had a stronger direct effect on PBC (.32) than normative beliefs (.25) or control beliefs did (.19). Normative beliefs had a strong direct effect (.77) on subjective norms and explained 59% of the variance in that variable. The addition of a direct effect of normative beliefs on attitudes (.69), resulted in a non-significant direct effect of behavioral beliefs on attitudes (.09). However, the percent of explained variance in attitudes increased from 5% in Model 1 to 50% in Model 2.

Table 19. Maximum Likelihood Estimates for a Recursive Path Model (Model 2) Predicting Executives' Intention to Hire Psychologists

Parameter	Unstd	SE	Std
	Model 2		
	Direct Effects		
Behavioral beliefs → Attitudes	0.09	0.05	0.09
Normative beliefs → Subjective Norms	0.88**	0.05	0.77
Normative beliefs → Attitudes	0.80***	0.06	0.69
Normative beliefs → PBC	0.25***	0.07	0.25
Normative beliefs → Intent	0.66***	0.08	0.50
Control beliefs → PBC	0.22***	0.08	0.19
Attitudes → Intent	0.40***	0.06	0.35
Subjective Norms → Intent	0.05	0.06	0.05
PBC → Intent	0.24***	0.05	0.19
Years executive → PBC	0.27***	0.06	0.32
	Indirect Effects		
Behavioral beliefs → Intent	.04	0.02	.03
Normative beliefs → Intent	.42*	0.06	.32
Control beliefs → Intent	.05*	0.02	.04
Years executive → Intent	.07*	0.02	.06
	Total Effects		
Normative beliefs → Intent	1.08*	.06	.82
	Disturbance variances		
Intent	260.94***	26.43	.221
Attitudes	472.00***	47.80	.497
Subjective Norms	374.45***	37.84	.410
PBC	571.29***	57.86	.821

Note. Standardized estimates for disturbance variances are proportions of unexplained variance. *p<.05, **p<.01***p<.001

Normative beliefs had the strongest direct effect on intent (.50), followed by attitudes (.35) and PBC (.19). The addition of the direct effect from normative beliefs to intent resulted in a non-significant direct effect of subjective norms on intent (.05).

A bootstrapping procedure was used to calculate indirect and total effect standard errors and significant levels. All of the indirect effects in Model 2 (Table 19) were statistically significant except for the effects of behavioral beliefs on intent. The indirect effects of normative beliefs on intent to hire psychologists was strongest (.32), followed by the small indirect effects of *years executive* (.06) and control beliefs (.04) on intent. The total effects of normative beliefs on intent was .82 and was statistically significant.

Overall, Model 2 fit the data better than Model 1, although fit statistics still revealed areas of concern (Table 17). The model chi square was 27.20 (*df*=10, *p*=.002), indicating an improved but still poor fit. RMSEA (.094) was on the upper range of acceptable. The RMSEA close fit hypothesis was rejected since the lower bound of the 95% CI was greater than .05 and the RMSEA poor fit hypothesis was supported since the upper bound of the CI was greater than .10. Considering approximate fit indices, GFI (.967), CFI (.975), and SRMR (.04) fell within acceptable ranges.

Model 3. Correlation residuals (Table 20), modification indices, and direct effects from Model 2 were examined to improve model fit and explanatory power. Behavioral beliefs and subjective norms were dropped from the model because their direct effects were not significant. Model fit does not necessarily speak to the theoretical correctness of the model (Kline, 2011). Therefore, although several correlation residuals were above .10, there was no theoretical rationale to re-specify the model with additional direct or indirect effects. Figures 8 and 9 show the path diagrams for Model 3.

Table 20. Correlation Residuals for a Recursive Path Model (Model 2) Predicting Executives'
Intention to Hire Psychologists

Variable	1	2	3	4	5	6	7	8
Correlation residuals (standardized covariance residuals)								
1. Years executive	.000							
2. Normative beliefs	.000	.000						
3. Control beliefs	.000	.000	.000					
4. Behavioral beliefs	.000	.000	.000	.000				
5. PBC	.096	.000	**-.514**	**-1.610**	-.096			
6. Subjective Norms	**-.387**	.000	**1.876**	**1.442**	-.043	.053		
7. Attitudes	**-.169**	.000	**.153**	**.343**	**-1.381**	**.246**	.044	
8. Intent	**-.417**	.000	**-.916**	**-.567**	**-.488**	.082	**-.181**	**-.122**

Overall, Model 3 explained 78% percent of the variance in executives' intent to hire psychologists. All direct effects in Model 3 were statistically significant. The amount of explained variance in endogenous variables and the path loadings between variables were very similar to Model 2 (Table 21). *Years executive* still had the strongest direct effect on PBC (.32) followed by normative beliefs (.26) and control beliefs (.15). Normative beliefs had a strong direct effect on attitudes (.70), explaining 49% of the variance in that variable. Normative beliefs also had the strongest direct effect on intent (.53), followed by attitudes (.37) and PBC (.18). All three indirect effects were statistically significant. Normative beliefs had the strongest indirect effect on intent (.53), while *years intent* (.06) and control beliefs (.03) had small indirect effects. There was a large and statistically significant total effect of normative beliefs on intent (.83).
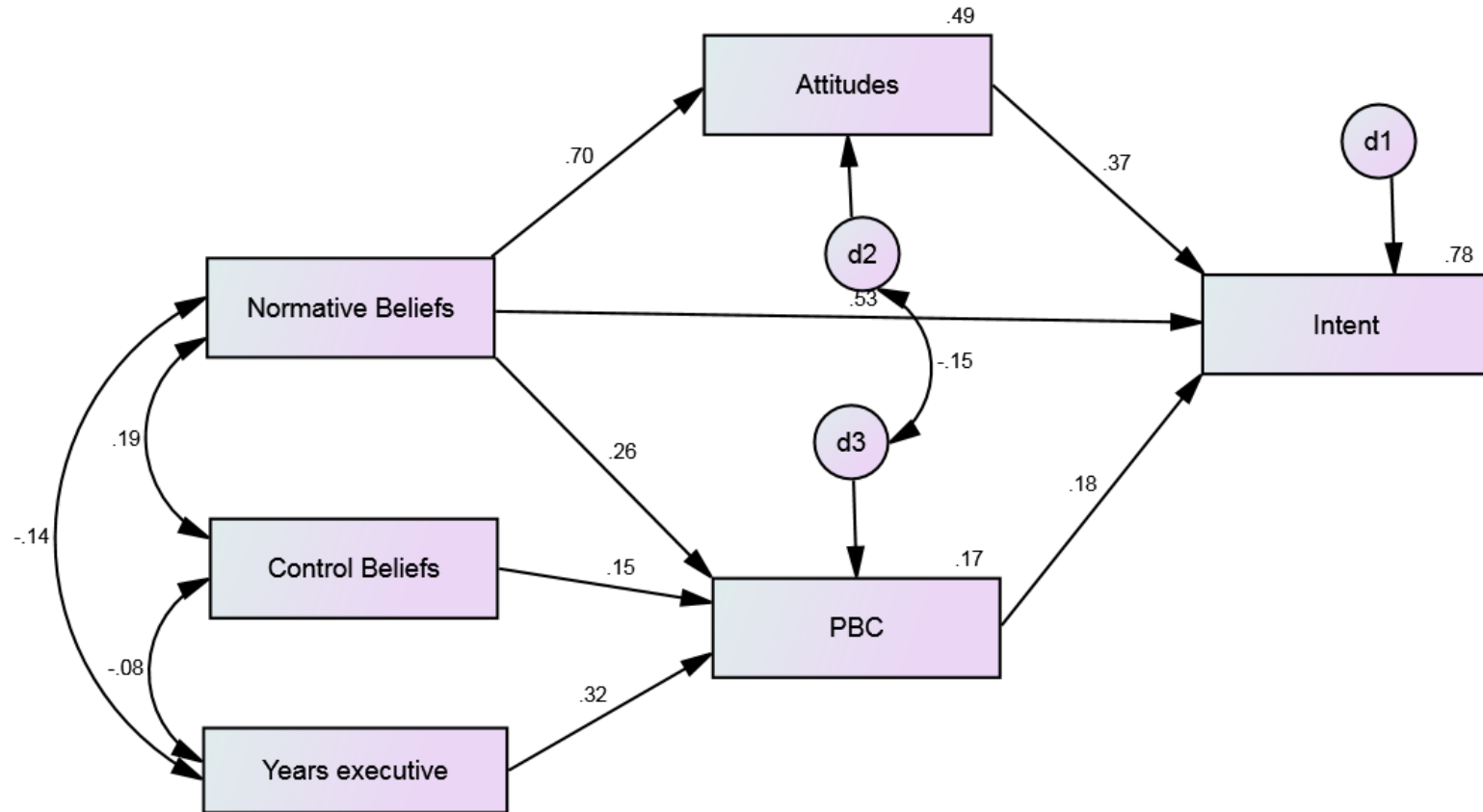
Figure 8. Model 3: Standardized estimates. A recursive path model predicting intent to hire psychologists. Model 2 was modified to create Model 3 based on AMOS modification indices and by examining residuals.
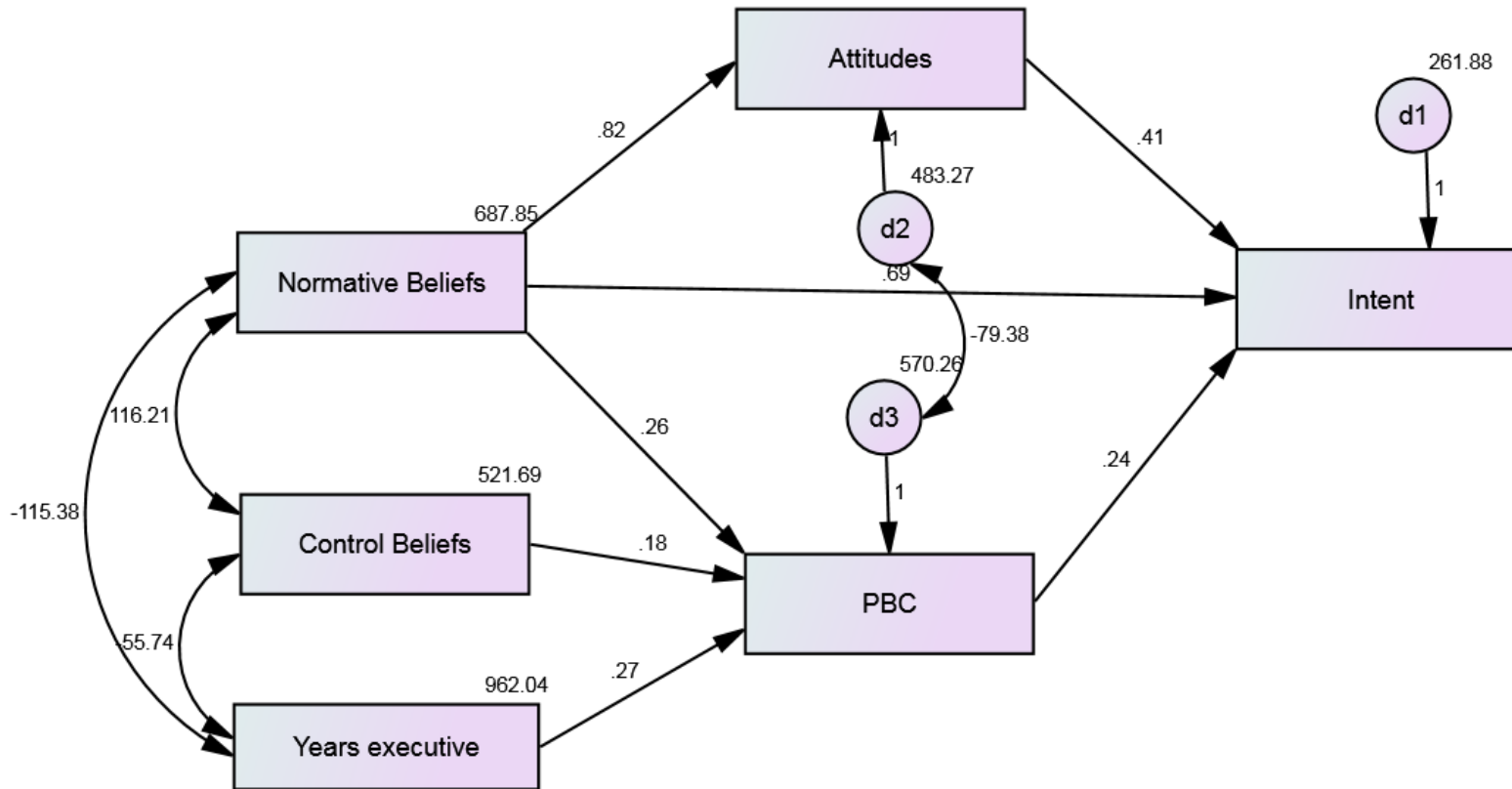
Figure 9. Model 3: Unstandardized estimates. A recursive path model predicting intent to hire psychologists. Model 2 was modified to create Model 3 based on AMOS modification indices and by examining residuals.

Table 21. Maximum Likelihood Estimates for a Recursive Path Model (Model 3) Predicting Executives' Intention to Hire Psychologists

Parameter	Model 3		
	Unstd	SE	Std
	Direct Effects		
Control beliefs → PBC	0.18*	0.08	0.15
Attitudes→ Intent	0.41***	0.05	0.37
Normative beliefs → Attitudes	0.82***	0.06	0.70
Normative beliefs → PBC	0.26***	0.07	0.26
Normative beliefs → Intent	0.69**	0.06	0.53
PBC→ Intent	0.24***	0.05	0.18
Years executive → PBC	0.27***	0.06	0.32
	Indirect Effects		
Control beliefs → Intent	.04*	.02	.03
Normative beliefs → Intent	.69*	.06	.53
Years executive → Intent	.06*	.02	.06
	Total Effects		
Normative beliefs → Intent	1.09*	.06	.83
	Disturbance variances		
Intent	261.88***	26.52	.222
Attitudes	483.27***	48.94	.509
PBC	570.26***	57.75	.819

Note. Standardized estimates for disturbance variances are proportions of unexplained variance. *p<.05, ***p<.001

Overall, fit statistics indicated that there was a good fit between Model 3 and the data (Table 17). The model chi square (5.06, *df*=4) was not significant, indicating an acceptable fit. RMSEA (.037) also indicated a strong model-data fit. The lower bound of the RMSEA CI was 0, meaning the RMSEA close fit hypothesis was supported. The upper bound of the CI was .12,

meaning that the poor fit hypothesis could not be rejected. GFI (.992), CFI (.998), and SRMR (.02) were all in excellent ranges.

Model 3 still had four correlation residuals that were above .10 (Table 22), suggesting that the model does not fully explain the relationships between intent and control beliefs, attitudes and control beliefs, *years executive* and attitudes, and *years executive* and intent. However, as with Model 2 residuals, there was not sufficient theoretical rationale to specify links between these variables.

Table 22. *Correlation Residuals and Standardized Residuals for a Recursive Path Model (Model 3) Predicting Executives' Intention to Hire Psychologists*

Variable	1	2	3	4	5	6
Correlation residuals (standardized covariance residuals)						
1. Years executive	.000					
2. Control beliefs	.000	.000				
3. Normative beliefs	.000	.000	.000			
4. PBC	.050	-.041	.000	.015		
5. Attitudes	**-.270**	**.214**	.000	-.053	.000	
6. Intent	**-.447**	**-.804**	.000	-.015	-.008	-.005

Power analysis. Currently, there is not complete agreement on the best way to evaluate power for structural equation models. It is possible to treat each endogenous variable as a dependent variable and calculate the power of a simultaneous regression based on the exogenous variables that have direct effects on it. In this way, power would be calculated for each endogenous variable in the model based on the number of predictors, R^2, and sample size. Power for each regression based on endogenous variables as dependent variables was determined using

the on-line calculator developed by Soper (2016). Results showed that across all models, each

individual regression had ample power (all were at or above 90%; Table 23).

However, considering individual regressions does not consider the power of the model as

a whole. Several methods have been proposed to evaluate power for the entire model, including

rules of thumb such as a minimum of 100-200 cases (Boomsma, 1985) or 10 cases per variable

(Nunnally, 1967). Despite the dated references, these heuristics are still used. More recently

developed methods for power analysis are based on RMSEA (MacCallum et al., 1996), GFI

(MacCallum & Hong, 1997), or Monte Carlo simulations (Wolf, Harrington, Clark, & Miller,

2013). Table 23 summarizes the results of the power analyses, which were calculated using each

method described above, excluding Monte Carlo simulations. On-line calculators developed by

Gnambs (2013) based on MacCallum et al. (1996) and MacCallum and Hong (1997) were used

to calculate power based on RMSEA and GFI, respectively.

MacCallum et al. (1996) created a method of power analysis that is based on model

degrees of freedom, alpha, sample size, and the RMESA close fit hypothesis. In the close fit

hypothesis, the null hypothesis (H_O) is that there is a close model fit (most of the time indicated

by RMSEA values less than or equal to .05) and the alternative hypothesis (H_1) is that there is

not a close model fit (generally agreed upon RMSEA values equal to or above .08 or .10).

Setting H_1 at .08 resulted in low power levels across models (between 18-42%). Increasing the

threshold of H_1 to .10 (a more relaxed but still acceptable limit) resulted in power levels between

34-79%. All other factors constant, power analysis based on RMSEA results in higher values for

models with more degrees of freedom (MacCallum et al., 1996). This held true for the present

study, where Model 1 (*df*=18) had the highest power estimates, while Model 3 (*df=4)* had the

lowest.

Table 23. Power Analysis

Endogenous Variable	Power		
	Model 1 (%)	Model 2 (%)	Model 3 (%)
Attitudes	89.81	100	100
Subjective Norms	100	100	--
PBC	99.99	99.99	99.99
Intent	100	100	100
RMSEA close fit test (McCallum et al., 1996); H_0=.05, H_1=.08/.10	42	29	18
RMSEA close fit test (McCallum et al., 1996); H_0=.05, H_1=.10	79	59	34
GFI (McCallum et al., 1997) H_0=.95, H_1=.90	86	88	80
df_M	18	10	4

Note. Alpha =.05

Alternatively, MacCallum and Hong (1997) proposed a method of calculating power based on the GFI close fit hypothesis, model degrees of freedom, alpha, sample size, and the number of variables in the model. Unlike the RMSEA method, the GFI method does not favor models with more degrees of freedom. Since acceptable GFI values range from 1.00 (perfect model fit) to .90, H_0 was set at .95 while H_0 was set at .90 (as recommended per MacCallum and Hong). Using this method, Model 1 had 86% power, Model 2 had 88% power, and Model 3 had 80% power.

Summary of Study Hypotheses and Results

All TPB constructs were significantly and positively related to each other in expected ways (Table 15), supporting H1-H6. H7-H12 concern the TPB variables' predictive power in a path analysis, and whether these hypotheses are supported or rejected depends on which model is considered. If considering Model 1, then H7-H12 are supported because each variable significantly predicts what it is hypothesized to predict. However, Model 1 had a poor fit with the data. If considering Model 2, H7 (behavioral beliefs → attitudes) and H11 (subjective norms → intent) are rejected because these direct effects were not statistically significant. In model 3, H7, H8, H11 could not be tested because variables relating to these hypotheses were not included in the model. However, in Model 3, H9, H10, and H12 were supported. H13-H18 related to demographic variables. H13 (higher budgets related to higher PBC) was supported through correlation analysis, but this variable was not significantly related to PBC when controlling for other demographic variables in regression analysis. H14 (higher patient volumes related to higher PBC) could not best tested because of unreliable and missing data. H15 (integrated care related to higher PBC) could not be tested because only 4 participants came from organizations without integrated care. H16 (working in more rural areas related to lower PBC) was not supported. H17 (presence of staff psychologists related to higher PBC) and H18 (increased executive years of experience related to higher PBC) were both supported.

CHAPTER 4

DISCUSSION

FQHCs are an integral part of the healthcare system in the United States, providing care

for tens of millions of low income and underserved patients (Bureau of Primary Health Care,

2014a). There is a large documented need for more behavioral health providers in FQHCs to

address substantial mental and behavioral health concerns and to assist FQHCs in becoming

medical homes for their patients (Auxier, Hirsh, & Warman, 2013). Health psychologists with

training in integrated care are ideal candidates to work in FQHCs. However, nearly a decade of

data show that psychologists are underrepresented in this setting, compared to other behavioral

health professions (Bureau of Primary Health Care, 2009, 2010, 2011, 2012, 2013, 2014b;

Lardiere et al., 2011). More than four years ago Ronald Rosensky posed the question, "How is

the clinical practice of psychology seen by our professional colleagues who work throughout the

health services sector?" (Rozensky, 2012, p. 9). This national study sought to answer that

question and was the first of its kind to examine FQHC executives' attitudes and beliefs around

hiring psychologists.

Summary of Study Aims and Central Findings

The first aim of this study was to examine executives' specific behavioral beliefs,

normative beliefs, and control beliefs to better understand their views about hiring psychologists.

Results showed that executives valued integrated care specific skills the most in the staff they

hired and rated psychologists as most proficient in both general and integrated care specific

skills. They rated psychologists as least proficient in research and program development skills.

The study also found that executives take into account the opinions of their PCPs, management

teams, and other FQHCs when making hiring decisions, but do not (as a group) rate high levels

of social pressure from these groups to hire psychologists. Overall, most executives indicated that a psychologist would have an opportunity to work as part of an integrated team in primary care if hired at their organization.

The second aim of the study was to determine how executives' perceived behavioral control varied by FQHC budget, patient volume, integrated care status, rural status, the presence of staff psychologists, and executive job tenure. The presence of staff psychologists and longer executive tenures predicted higher levels of executives' PBC. Other demographic variables were either not predictive of PBC or were removed due to missing data.

The third aim of the study was to use path analysis to examine how well the TPB predicted executives' intentions to hire psychologists. Results showed that the standard TPB model was a poor fit with the data. However, after modifications including removing behavioral beliefs and subjective norms, and adding paths between normative beliefs and attitudes, PBC, and intent, the model fit the data well. The final model explained 78% of the variance in executives' intent to hire psychologists, with path coefficients statistically significant and in the predicted direction. Normative beliefs by far was the strongest predictor of intent, followed by attitudes, and then PBC.

The following discussion highlights the implications of the main study results in detail. Rather than being structured sequentially according to study aims, the discussion is laid out according to relevant relationships between TPB variables. After briefly considering the survey response rate, the impact of normative beliefs and its relationship to other TPB variables is discussed, as it was the strongest predictor of executives' intent to hire psychologists.

Response Rate

Surveying executives has traditionally yielded low response rates in studies. For example, a 2006 meta-analysis of 231 studies surveying executives over a 10-year period found that the modal response rate was below 20% (mean was 34%), with rates declining each year that was analyzed (Cycyota & Harrison, 2006). Often techniques designed to increase response rates when surveying the general population do not work as well with executives (Falconer & Hodgett, 1999). The top reasons that executives do not answer surveys include time constraints, a multitude of survey requests which need to be prioritized, and feeling like the survey does not apply to them or their organization (Falconer & Hodgett, 1999). One study found that researchers have the most success when they use established social networks and ensure the survey is a topic important to participants (Cycyota & Harrison, 2006). In this study approximately 21% of eligible participants started the survey and around 12% completed it, making it consistent with response rates found in other studies of executives.

Normative Beliefs and Subjective Norms

The effects of subjective norms and normative beliefs on executives' intention to hire psychologists. In this study, executives' subjective norms (e.g., "I feel social pressure to hire a psychologist") explained little of their intent to hire psychologists. However, executives' normative beliefs proved to be more relevant. Normative beliefs refer to how an individual perceives specific social pressures to perform a behavior (Ajzen, 1991), and in this case those sources of social pressure were from executives' peers at other FQHCs, PCPs in their organization, and their management team. In a traditional TPB model, normative beliefs are expected to predict intent indirectly through subjective norms. However, the final path analysis model that fit the data best included a direct effect between normative beliefs and intent, and

indirect effects on intent through attitudes and perceived behavioral control. In fact, in Model 3, normative beliefs had the strongest direct and indirect effects on executives' intent to hire psychologists of all variables. These normative beliefs strongly predicted executives' attitudes about psychologists (much more than behavioral beliefs) and also helped explain differences in executives' perceived behavioral control.

While these effects were not hypothesized nor a part of the traditional TPB model, they do make theoretical sense. For example, the more executives take into account the opinions of those around them and the more those people want an executive to hire a psychologist, the more an executive intends to hire a psychologist. Additionally, in this scenario, executives would have more favorable attitudes about hiring psychologists in general, and would feel more in control over the hiring process.

Braun and Turner (2014) most closely resembles the present study in terms of methodology and focus on executives' hiring intentions, although it used hierarchical regression analysis rather than path analysis. That study examined predictors of managers' intentions to hire women in science, engineering, and technology professions and also found that subjective norms were not predictive of intent to hire. While some researchers have found subjective norms to significantly predict intent, many have removed subjective norms entirely from the model because they found it to be a weak predictor (Armitage & Conner, 2001). This is consistent with the results found in the present study. Next, additional implications of executives' normative beliefs are considered by looking more closely at the descriptive statistics of this variable.

Normative beliefs, interprofessional education, and organizational champions. Results of this study showed that when making hiring decisions, most executives significantly consider the views and opinions of peers in other FQHCs, the PCPs in their own organization,

and members of their management team. These data show that changing the opinions of key stakeholders in an organization may influence executives' hiring practices. In this study, most executives thought that their management teams and PCPs were either neutral or against hiring psychologists. Therefore, it is important to find ways to foster and promote positive attitudes about hiring psychologists among PCPs and FQHC management, as well as increase visibility of FQHCs that do hire psychologists. Two potential ways to achieve these goals include increasing FQHC staff attendance at integrated care conferences (e.g., Collaborative Family Healthcare Association) and FQHC integrated care training events (e.g., such as those hosted by Cherokee Health Systems). Attendance at these types of events has the potential to change executives' perceptions about the number of FQHCs hiring psychologists and come to see integrated care as increasingly standard practice. A longer term (but potentially more impactful) way of promoting pro-psychology attitudes is through early interprofessional education (IPE).

     Interprofessional education. IPE is a promising method for future PCPs to gain early exposure to psychologists, develop positive attitudes about them, and see them as integral team members in primary care. PCPs who have had IPE may be more likely to hold pro-psychology attitudes, which may influence executives' normative beliefs and attitudes around hiring psychologists. IPE programs (e.g., Cubic, Mance, Turgesen, & Lamanna, 2012) focus on developing a set of shared interprofessional values and understanding how each profession can contribute to a team. Research has shown that IPE is capable of fostering positive attitudes towards team based care (Lapkin, Levett-Jones, & Gilligan, 2013) as well as improving interprofessional knowledge and skills both in the classroom (Bishop, Phillips, Lee, Sicat, & Rybarczyk, 2015) and in primary care (Garcia-Huidobro, Skewes, Barros, Pizarro, & Gawinski, 2013). Many IPE programs (e.g., Wellmon, Gilin, Knauss, & Inman Linn, 2012) are either one

day events or a combined total of 10 hours or less of training, sometimes spaced out over months or years. More research is needed to understand if IPE has a dose effect and how it is related to providers' future hiring decisions and attitudes about psychologists.

 Psychology champions. The fact that many executives highly value the opinions of their PCPs and management team also points to the importance of internal organizational champions who advocate for psychologists to be hired in an organization. The importance of these champions in organizational change is increasingly discussed in the healthcare field. Shaw et al. (2012) examined the role of champions in primary care and cited six core behaviors that champions engage in including, "1) actively and enthusiastically promoting a new innovation, 2) making connections between different people in the organization, 3) mobilizing resources, 4) navigating the sociopolitical environment inside the organization, 5) building support for the innovation by expressing a compelling vision and boosting organizational members' skills and confidence, and 6) ensuring that the innovation is implemented in the face of organizational inertia or resistance" (p. 676). Future studies of executives' hiring practices may wish to evaluate the extent to which PCPs and management staff engage in any of the six champion behaviors related to hiring psychologists. It is reasonable to hypothesize that FQHC employees who act as internal champions for hiring psychologists help shape executives' normative beliefs, and in turn, their attitudes, perceived behavioral control, and intent to hire psychologists.

Behavioral Beliefs and Attitudes

 Behavioral beliefs not predictive of attitudes about hiring psychologists. Behavioral beliefs relate to how executives perceive the consequences of hiring psychologists (e.g., gain a team member with specific skills) and develop into more general attitudes about whether hiring psychologists is a good idea or not. Although behavioral beliefs were significantly and positively

correlated with attitudes, in Model 2 behavioral beliefs did not significantly predict attitudes, and were therefore dropped in Model 3. Even before being dropped from the analyses, behavioral beliefs explained only 5% of the variance in attitudes. However, the statistically non-significant link between behavioral beliefs and attitudes is meaningful. It suggests that executives' perceptions (informed or misinformed) about psychologists' skillset and competencies are not predictive of their overt, more general attitudes about hiring psychologists. Results show that executives' attitudes about hiring psychologists may be based more on external factors, like other employees' attitudes about hiring psychologists and the social pressure executives feel because of those attitudes. Unlike behavioral beliefs, general attitudes (e.g., "hiring psychologists in this organization in a good idea) were strongly predictive of intent to hire. This finding is consistent with the traditional TPB model and with literature reviews of the TPB (e.g., Armitage & Conner, 2001).

The links (or lack thereof) between behavioral beliefs, attitudes, and intent to hire psychologists have implications for how best to promote the field of psychology to executives (specifically) and healthcare organizations (generally). The APA is the main organization that promotes psychology in the United States. It created the Public Education Campaign (PEC) in 1996 to promote and educate the public about psychology after research earlier in the decade showed that the general public did not understand what psychologists do (American Psychological Association, 2016b). The PEC's current campaign has four objectives including: "[1] Encourage access to psychological services; [2] increase understanding of psychology as a behavioral science; [3] demonstrate the value of the psychology profession in a variety of settings, including research, clinical and organizational; and [4] raise awareness of psychology as a science, technology, engineering and mathematics (STEM) discipline" (American

Psychological Association, 2016b, p. 1). Within the PEC, there are initiatives aimed at

promoting psychology as a science to the general public, advocating for healthy workplace

environments, and partnering with the YMCA to promote the mind-body connection. However,

no initiatives aimed at promoting psychology to executives or health care organizations in

general could be found.

While the goals and efforts of the PEC are extremely valuable and needed, results of the

present study show that education about what psychologists do and the skills they possess may

not be enough to change or shape the attitudes of organizational leadership about hiring

psychologists. The APA should consider an Executive Outreach Campaign which more directly

targets leaders in healthcare administration and focuses on the third PEC objective of

demonstrating the value of psychologists. Since results of the present study showed that

normative beliefs were more predictive of attitudes than behavioral beliefs, an Executive

Outreach Campaign might focus on promoting the value of psychologists to PCPs and

management teams with the understanding that this might increase social pressure on executives

to hire psychologists.

Although behavioral beliefs were ultimately not included in the final model, examining

these beliefs can help psychologists understand how their skillset is perceived. Additionally,

executives' behavioral beliefs have important implications for initiatives aimed at correcting

misperceptions about psychologists' competencies. Therefore, specific implications of

executives' behavioral beliefs are considered next.

Integrated care specific skills: Importance and implications. When surveyed about

their behavioral beliefs, executives clearly ranked integrated care specific skills (e.g., providing

brief evidence based interventions in primary care) as important for their behavioral health

providers to possess. In fact, integrated skills were ranked as important as basic general clinical skills like rapport building. Overall, most executives thought psychologists were well equipped in the area of integrated care skills, ranking them in the moderately to highly proficient range. Still, there is room for improvement since psychologists' proficiency ratings in this area were less than ideal, given the magnitude of how important executives believed these skills were for their organization.

While it is difficult to draw definitive conclusions about the underlying reasons for executives' generally positive behavioral beliefs about integrated care skills, several factors have likely contributed, including integrated care becoming more mainstream in recent years. For example, over the past two decades the field of professional psychology has researched and advocated, both from the top down (e.g., Bray, 2011) and bottom up (e.g., Beacham et al., 2012; McDaniel et al., 2014; Strosahl, 1998, 2005), for psychologists to work in integrated teams in primary care. Additionally, the Affordable Care Act has incentivized patient medical homes and integrated care, and has favored a more team based approach to healthcare delivery (Rozensky, 2012).

Despite the generally encouraging results regarding integrated care skills in this study and the increasing momentum of integrated care nationally, many organizations still struggle to recruit and retain clinical staff who are familiar with and competent in an integrated care model (Hall et al., 2015). For example, a recent study of 19 integrated primary care practices found that new behavioral health and medical providers both had low levels of integrated care knowledge and skills, and both required substantial on the job training before they could function effectively in an integrated care environment. Additionally, leaders in these organizations often "did not know what knowledge, skills or attitudes were essential for new employees" to be successful in

such an environment (Hall et al., 2015, p. S43). Therefore, although executives in the present study rated integrated skills as important, it does not necessarily mean that FQHCs are equipped to train clinicians in these skills if they do not already possess them.

FQHCs value integrated care skills but may often find themselves as the de facto trainers of the integrated model. If FQHC executives learn that health service psychologists possess the requisite integrated care knowledge and skills to function effectively from day one, this may be one factor that differentiates psychologists from other behavioral health providers and may lead to more psychologists being hired. The profession of psychology should commit to high quality integrated care specific training and should consider some type of designation or certificate that makes it easy for employers to understand that a psychologist has undergone such training. Some of these certificate programs already exist (e.g., Blount, 2016), but they are neither ubiquitous nor standardized.

For the field of psychology, this might mean formal didactic training and clinical experiences delivering brief interventions, communicating effectively with other health professionals, and psychopharmacology (for a more complete discussion of primary care competencies see McDaniel et al. (2014)). The problem is that this type of training is not yet the norm for psychology doctoral programs, internships, or post-doctoral fellowships. A 2013 American Psychological Association survey found only 23 pre-doctoral internships that provided intensive training in integrated primary care for adults, and even fewer with a pediatric focus (Grus & Cope, 2013). It is possible that more of these training programs now exist, but if they do, they are still difficult for doctoral students to locate. For example, a recent (January 2016) search of the Association of Psychology Postdoctoral and Internship Centers (APPIC) database for the term "integrated primary care" found only 6 pediatric programs (out of a total of 769

listed programs). Even the APAs own website for "education and training for psychology practice in primary care" contains outdated or incomplete references (see American Psychological Association, 2016a).

While the creation of standards of accreditation for doctoral psychology programs which emphasize psychology as a health service profession (American Psychological Association, 2014) is a start, more specific training competencies are needed that focus on the developmental acquisition of integrated care specific skills at different levels of doctoral training. For example, there are currently no training competencies that specify the types of integrated care specific skills a second year doctoral student would be expected to be proficient in, compared to a third or fourth year student. One promising development in this area is the recent creation of several modules by Division 38 of the APA, that provide resources (e.g., slides, teachers' guide) for teaching doctoral psychology classes on integrated primary care.

Research and program evaluation skills: Room for improvement. In the present study research and program evaluation skills were ranked lowest in importance and lowest in psychologists' proficiency when compared to all other skills listed in the survey. Most executives ranked these skills in the slightly to moderately important range for clinicians in their organization to possess. Additionally, most executives believed that psychologists were only slightly to moderately proficient in these skills.

Executives' low ratings of research skills should be concerning for the field of psychology, especially health service psychologists who are interested in making an impact in integrated care through clinical and research/program evaluation work. Multiple discussions of psychologists' primary care competencies and the contributions that psychologists can make in that setting (e.g., McDaniel et al., 2014; McDaniels et al., 2004; Nash, Cubic, Khatri, & Baird,

2013; Rozensky, 2012) all highlight the importance and value of research and program evaluation skills. In fact, competency in these skills is often one of the key areas that set psychologists apart from other behavioral health providers.

One possible explanation of why executives many not highly value research skills is that they only envision their staff in a direct service clinical role. They may be unfamiliar with a model where behavioral health staff make both clinical and quality improvement/program development contributions. This explanation may be particularly relevant for the executives surveyed in this study, since almost 60% had no psychologists working in their organization. It could be that executives are simply not fully aware of the varied contributions psychologists can offer. If this is the case, it provides the field of psychology with an opportunity to educate executives about how psychologists can work in multiple roles and how psychologists' dual training in science and practice make them a valuable asset (another opportunity for an APA Executive Outreach Program). There are significant quality, financial, and efficiency related advantages to hiring staff who not only excel clinically but who can also think on a quality improvement and systems level. For example, Nash et al. (2013) points out that psychologists could use their research skills to help medical homes meet quality improvement, meaningful technology use, and program evaluation standards and would be uniquely qualified to serve as administrators.

FQHCs can often hire behavioral health providers other than psychologists for substantially less money than hiring psychologists. While psychologists have extensive training and expertise in clinical skills, executives may not think of these skills as substantially different from other providers. Research and evaluation skills are one area where psychologists can show that they bring a unique and valuable perspective to a position. Therefore, it is important for

psychologists to help executives understand the value they bring to an organization that goes above and beyond direct billing for services.

The fact that executives rated psychologists as having relatively low competency in research and program development skills may reflect 1) a lack of understanding of psychologists' training, 2) a low exposure to working closely with psychologists in a professional setting, and/or 3) experience with psychologists who were not very knowledgeable or competent in research skills. The first two explanations point again to the importance of individual psychologists and the field as a whole doing a better job of promoting and marketing psychologists' skills, especially those that could differentiate them from other health professionals. Concerning the third explanation for psychologists' low proficiency ratings, it is important to acknowledge that psychologists' training in research and program evaluation methods does vary depending on their graduate school's model (e.g., scientist-practitioner, practitioner-scholar, etc.). Still, all practicing psychologists should have been taught a foundational level of research skills that will likely give them an advantage when considering program development or quality improvement measures within an FQHC. Psychologists working or planning to work in primary care should have the minimum research knowledge and skills outlined by APA Division 38 (Health Psychology; APA Division 38, 2016).

While general research training is beneficial, psychologists with training and experience in implementation science could make a significant and unique contribution to a primary care clinic. Implementation science is an emerging field which seeks to bridge the gap between basic science and real world practice (see Damschroder et al., 2009; Glasgow et al., 2012). Although there are many evidence based interventions designed to treat mental and behavioral health concerns, most are not adapted for use in primary care. Psychologists who have research skills

relevant to the healthcare setting are able to use their specialized training to evaluating the efficiency and effectiveness of new interventions in primary care. These psychologists would be a significant added value to any FQHC.

Predictors of PBC

Relationship of job tenure to PBC. In Model 3, normative beliefs, control beliefs, and executive job tenure all significantly predicted PBC, with job tenure being the strongest predictor. The present study found that the longer an executive worked in healthcare administration, the greater their amount of perceived behavioral control over hiring psychologists. Executives had worked 16 years, on average, as a manager in a healthcare setting. This is substantially longer than the 10-year average tenure for CEOs across disciplines (Adams, 2014). While the impact of organizational tenure has been an area of extensive research (e.g., Ng & Feldman, 2013), no studies could be located that explicitly examine the relationship between tenure and perceived behavioral control. Previous research has shown that longer tenures are not necessarily associated with desirable outcomes. For example, a 2013 meta-analysis of 350 studies found that, controlling for age, length of tenure was not associated with job performance, and in many cases, longer tenure was associated with lower motivational levels (Ng & Feldman, 2013). Additionally, longer executive tenures have been hypothesized to hinder the success of an organization (Luo, Kanuri, & Andrews, 2013). This study, however, suggests that one potentially positive outcome from a longer executive tenure is that an executive feels more in control of the hiring decisions made (at least in regards to psychologists) in their organization.

Given this information, individuals and organizations that advocate for psychologists in FQHCs may benefit from considering an executive's tenure as they conduct their work. For

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example, it may helpful to anticipate that a newer executive may feel less in control of shaping

hiring policy. Therefore, it would important to partner with a newer executive to build a strong

coalition of support for hiring psychologists in order to reduce their perceived barriers to hiring.

Control beliefs predict PBC. In this study, control beliefs were related to perceived

barriers and facilitators to hiring psychologists. Higher control beliefs (associated with less

barriers) significantly predicted greater perceived control around hiring psychologists. This result

is consistent with Braun and Turner (2014), who also used the Theory of Planned Behavior to

examine executives' hiring practices and found that control beliefs significantly predicted PBC

and explained 15% of the variance of PBC. However, in the present study, control beliefs were

the weakest predictor of PBC. This was unexpected given that the composite variable of control

beliefs represented the combination of several specific barriers to hiring psychologists that were

discovered in the preliminary qualitative study. One possible (and most likely) explanation for

the relatively low path coefficient is that not all participants understood (or payed close attention

to) questions 72-81 which measured the power of a particular control belief to influence hiring

practices. For this set of questions, participants were asked to imagine that particular scenarios

applied to their organization and were asked to rate how much of a positive or negative impact

each scenario would have on their ability to hire a psychologist. A sizable percentage of

participants responded that several negatively worded scenarios would have a positive impact on

their ability to hire a psychologist, and vice versa. For example, 10% of participants answered

that if their organization did not have enough money to hire psychologists, it would have a

slightly positive, positive, or extremely positive impact on their ability to hire a psychologist.

Additionally, 12.5% of participants reported some degree of positive impact on hiring if there

were a mismatch between the clinical skills possessed by a psychologist and the needs of their

organization. It is possible that if these participants did not read the directions for questions 72-81 closely. If that were the case they many have answered using the strongly agree to strongly disagree scale for questions 62-71, instead of the very negative to very positive impact scale, despite explicit directions to the contrary.

An alternative explanation is that the low Cronbach's alpha value for PBC impacted the relationship between the control beliefs and PBC. If the three questions that comprised the PBC variable were not a good representation of an executives' true PBC, then we might expect lower path coefficients from exogenous variables. A final (and less likely) hypothesis is that the specific control beliefs highlighted in the qualitative study were not particularly associated with an executives' overt rating of their PBC.

Demographic variables and PBC. Several variables initially hypothesized to predict PBC either did not significantly predict PBC (e.g., FQHC budget, FQHC rural status) or were not retained in the final model due to missing data (e.g., FQHC patient volume, existing presence of psychologists on staff). Most surprising was that budget did not directly predict PBC. Several studies (e.g., Randell & Jacobi, 2016; The Colorado Health Foundation, 2015) suggest that financial barriers are one of the biggest challenges for integrated care sustainability generally, and for hiring psychologists in FQHCs specifically (Alvarez, Walsh, Valentine, Smith, & Carlson, 2013).

A 2011 NACHC report found that FQHCS with higher budgets were more likely to be integrated and more likely to provide a range of behavioral health services (NACHC, 2011). However, the present study suggests that other factors (e.g., executive tenure and the pressures they perceive to hire) are more predictive of an executive's PBC than their organization's annual budget. Additionally, this study shows that just because an FQHC identifies themselves as

"integrated" does not necessarily mean they have a psychologist on staff. Indeed, while 98% of participants indicated that a psychologist would have an opportunity to work on an integrated team in their organization, only around 40% currently have even one psychologist on staff. While it is vital that systemic financial barriers to integrated care be addressed, it appears that the reasons for underrepresentation of psychologists in FQHCs are not due solely to budget constraints. However, it is likely that money still plays a role via control beliefs such as believing that psychologists' reimbursement rates would not cover their salaries.

Along with financial barriers, psychologist recruitment and retention problems related to an organization's rural status have also been highlighted in the literature (e.g., Jameson & Blank, 2007). Recently, Miller et al. (2014) mapped out the density of psychologists compared to the general population in every US county and found that psychologists tend to cluster in metro areas, leaving many rural areas underserved. However, in the present study, rural status was not significantly predictive of PBC when controlling for other demographic variables. One possible explanation for this finding is that many rurally based FQHCs do not have a psychologist on staff and therefore may be unfamiliar with the difficulty of recruiting and retaining psychologists. Results showed that while nearly equal numbers of self-identified rural and urban FQHCs responded to the survey, nearly 80% of rural FQHCs had no psychologists on staff, while the same was true for only 50% of the urban FQHCs. The implication of this finding is consistent with a hypothesis proposed by Jameson, Blank, and Chambless (2009) that the shortage of psychologists in rural areas may be primarily driven by a lack of demand rather than difficulties with recruitment.

Finally, the presence of psychologists on staff at an FQHC was another variable not retained in the final model. However, this variable was strongest predictor of PBC in Model 1,

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with the presence of psychologists predicting higher levels of PBC. Unfortunately, the variable had to be removed from future models due to missing data. Researchers who are interested in this area of research would likely benefit from including this variable in their model. Given that the presence of at least one psychologist was positively and significantly correlated with intent, normative beliefs, subjective norms, attitudes, and PBC, other researchers may want to consider paths between the presence of psychologists and these variables in their path analysis.

Final Model and Utility of the TPB

The TPB has had an enormous impact on the field and has guided many health science researchers. For example, one of the seminal articles introducing the TPB (Ajzen, 1991) has been cited nearly 40,000 times. However, a recent debate has emerged in the literature about the utility of the theory, with some calling for its retirement (e.g., Sniehotta et al., 2014), while others defend it (e.g., Ajzen, 2015) or call for its expansion (e.g., Conner, 2015). This study began with the assumption that the TPB was a building block to which relevant external variables (e.g., job tenure) could be added. In the end, the unmodified version of the TPB was not a good fit for the data. However, the theory did provide a useful lens to consider the relationships between variables. In addition, the modified version of the theory (Model 3) explained 78% of the variance in executives' intent to hire psychologists. This is substantially higher than the 39% of explained variance that TPB studies report, on average.

Limitations

The results from this study should be interpreted in the context of several relevant limitations. First, despite the multiple strategies employed to encourage executives to participate in the study, the survey had a low response rate (12.4%). It is not known whether executives who chose not to complete the survey are different in some important way than those who

participated. We do know that the vast majority (95%) of participants somewhat agreed, agreed, or strongly agreed that a psychologist would have an opportunity to work as part of an integrated team in a primary care setting in their organization. This high percentage contrasts with a 2011 NACHC report that found that only 55% of the FQHCs that responded to their survey met specific criteria to be considered providing integrated behavioral health care, while 17% had no mental health treatment available (NACHC, 2011). However, just because most executives endorsed the opportunity for psychologists to work in integrated care in their organization does not necessarily mean that integrated services were *already* established or that the organization would meet the NACHC criteria to be considered fully integrated. Still, it is possible that this study oversampled FQHCs with integrated services and that FQHCs without integrated services might perceive more or different barriers to hiring psychologists.

A second limitation of this study is that the composite measure of perceived behavioral control had a low Cronbach's alpha value (.47), indicating low internal consistency between the three items that were combined to form the composite. Therefore, the results related to PBC should be interpreted with caution. However, as was explained in detail in the results section, it may be that an average of the three PBC items is a better measure of PBC than any one item alone. Low alpha values were also initially found for the control belief subscales (before removing items which increased alpha values as detailed in the results section) because of both positively and negatively worded questions which could not be reverse coded. In the future, creating survey subscales that could be reverse coded would solve this problem.

The amount of missing data in some of the demographic variables (e.g., number of psychologists on staff) was a third limitation of the study. Because of the level of missing data, some of the planned analyses were not completed. For example, the variable representing the

presence of psychologists on staff at an organization had to be dropped from the path analysis even though it significantly predicted intent to hire psychologists. Forcing participants to complete each question in Qualtrics before moving on to the next one would have eliminated this problem, but could also have drastically reduced the overall response rate to the study. For example, if an executive did not know the organization's patient volume, they may have given up on the study completely, instead of skipping the question and filling out other relevant information.

Another factor which should be considered is that the content of behavioral and control beliefs selected for this study were partly based on qualitative interviews with a small sample of healthcare executives in the Appalachian region. It is possible that other behavioral or control beliefs are more directly related to executives' attitudes or PBC about hiring psychologists, but were not included in the survey. However, the fact that the behavioral and control beliefs included in the study largely mirror beliefs and concerns highlighted in the literature gives us more confidence in their utility and relevance.

A final limitation was that while the study measured factors that predict executives' intentions to hire psychologists, it did not follow up to determine if executives acted on those intentions. Therefore, in this particular case, we cannot comment to what extent intent predicted the actual hiring of psychologists. However, behavioral intent has been found to be the closest predictor of performing a behavior (Ajzen, 1991), so we could predict that the correlation between intent and hiring psychologists would be high. In addition, the study had a correlational design since no independent variables were being manipulated. Therefore, although the TPB is designed to be a causal model, casual claims cannot be made in this study.

Recommendations for Future Studies

Researchers interested in surveying FQHC executives would likely benefit from connecting with a national organization (such as NACHC) in order to streamline the participant identification and survey distribution process. If the proposed study is in line with the goals of NACHC, researchers can apply to partner with the organization. However, this process should take place in the infancy stages of project development. Researchers will have to determine if the benefits of access to NACHC listservs and endorsements outweigh the potential loss of study independence.

Keeping study surveys as short as possible and relevant to FQHC executives' interests are also critical. By making use of publicly available yearly UDS data distributed by the Bureau of Primary Care, researchers could can gain a great deal of information that they could link to non-anonymous survey responses. In this way, researchers may be able to eliminate many organizational demographic survey questions that are already represented in UDS data. Additionally, gaining study endorsements from well-known organizations or people in the FQHC or integrated care field may also help boost response rates. Finally, researchers may gain participant buy-in for the study if they agree to provide data summaries comparing participants' responses with national or state averages, or committing to provide pre-publication copies of study data to participants. Anecdotally, several participants in the current study communicated a strong interest in pre-publication and comparative data.

Future Directions for Integrated Care and the Field of Psychology

Much has changed since the first seminal articles related to integrated primary care were published (e.g., Strosahl, 1998). After decades of work, the time has come for psychology to move from "guest" status (Hughes-Reid & Lines, n.d.) to full and standard members of primary

care teams. Looking to the next decade, a vision for the future would be: 1) for the public to view primary care as a place where addressing behavioral health concerns is just as relevant and common as addressing medical needs, 2) for psychologists to be strongly associated with primary care in the minds of the public as well as health professionals, and 3) for primary care systems to be designed from the ground up with the full integration of medical and behavioral health services in mind, rather than simply integrating a behavioral health provider in an existing medical clinic.

A vital step in achieving these ideals is to demonstrate the unique value of psychologists to health care executives. The present study helps us more clearly understand how FQHC executives perceive psychologists and the factors that are associated with those perceptions. As a field, we should engage in specific outreach efforts to improve how psychologists are viewed by these executives. However, as a field, it would be foolish to only focus our efforts on changing the minds of executives directly or to think that their attitudes are the only area of concern. In fact, executives' attitudes about psychologists should be seen as a barometer of how the field is perceived and of the value of psychologists in the healthcare marketplace. Most negative attitudes or hesitancies for executives to hire psychologists are a symptom on a larger systemic problem with how behavioral healthcare is valued and reimbursed in America. Psychology as a field must continue to advocate for policy reforms that reduce the barriers to integrated care. For example, the field should advocate for: the ability for behavioral health and medical providers to bill for services on the same day; reimbursement for consultation with other team members, preventative visits, and visits shorter than 15 minutes; an increase in behavioral health reimbursement generally; and the elimination of behavioral health "carve outs" in reimbursement.

As more and more behavioral health providers from a variety of backgrounds begin to operate in primary care, it will become increasingly important for the field of psychology to demonstrate and promote the unique values, skills, and knowledge psychologists possess, not only to healthcare executives but to the public as well. Strong analytical, research, and program evaluation skills are likely to be at the top of the list. In this way, psychologists can continue to shape the healthcare landscape in positive ways, providing high quality clinical services and continuing to be primary health care leaders in the decades to come.

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APPENDICES

APPENDIX A: DISSERTATION SURVEY

Thank you for taking time to complete this survey. We are interested in learning about the types of clinical skills you value in employees in your organization and your views of doctoral psychologists. **Even if your organization does not employ psychologists or behavioral health providers, we would like your input.** We estimate that this survey should take 10-15 minutes to complete. If you provide your e-mail address at the end of the survey, you will receive an advanced copy of our results, an individualized report comparing your state to national averages, and be entered into a drawing for one of two $100 checks. In order to proceed to the next page of the survey, please ensure you have answered each question on this page.

Please rate each of the skills listed on a) how important you consider the skill is for clinicians in your organization, and b) the extent to which you would expect a doctoral psychologist to be proficient in the skill. If you are having trouble scrolling right, consider zooming out by going to "View" and "Zoom" on your browser.

	Psychologists' Proficiency			
Q#	**Not at all**	**Slight**	**Moderate**	**High**
1	Knowledge of evidence-based treatments			
2	Ability to conduct assessments (e.g., personality, cognitive, forensic, disability)			
3	Ability to locate and use up-to-date clinical research			
4	Ability to work on multidisciplinary treatment teams			
5	Ability to procure additional resources for patients (e.g., subsidized housing, Medicaid)			
6	Ability to establish rapport with patients			
7	Ability to supervise other clinical staff			
8	Ability to consult with other clinical staff as needed			
9	Ability to provide advanced clinical training to other clinical staff			
10	Ability to assume leadership roles within the organization			
11	Ability to procure external funds (e.g., grants)			
12	Ability for services to be reimbursable under insurance			
13	Ability to develop new treatment programs			
14	Ability to use research skills to assess organization/administrative needs			
15	Ability to quickly assess patients and determine next steps			
16	Ability to diagnose and manage complex mental and behavioral health problems			
17	Ability to effectively manage chronic medical conditions			
18	Ability to conduct statistical analysis of data			
19	Ability to provide brief interventions within a primary care setting			
20	Ability to provide evidence based interventions within a primary care setting			
21	Ability to understand how biological, psychological, and social factors impact a patient's health			

Importance				
Q#	Not at all	Slight	Moderate	High
22	Knowledge of evidence-based treatments			
23	Ability to conduct assessments (e.g., personality, cognitive, forensic, disability)			
24	Ability to locate and use up-to-date clinical research			
25	Ability to work on multidisciplinary treatment teams			
26	Ability to procure additional resources for patients (e.g., subsidized housing, Medicaid)			
27	Ability to establish rapport with patients			
28	Ability to supervise other clinical staff			
29	Ability to consult with other clinical staff as needed			
30	Ability to provide advanced clinical training to other clinical staff			
31	Ability to assume leadership roles within the organization			
32	Ability to procure external funds (e.g., grants)			
33	Ability for services to be reimbursable under insurance			
34	Ability to develop new treatment programs			
35	Ability to use research skills to assess organization/administrative needs			
36	Ability to quickly assess patients and determine next steps			
37	Ability to diagnose and manage complex mental and behavioral health problems			
38	Ability to effectively manage chronic medical conditions			
39	Ability to conduct statistical analysis of data			
40	Ability to provide brief interventions within a primary care setting			
41	Ability to provide evidence based interventions within a primary care setting			
42	Ability to understand how biological, psychological, and social factors impact a patient's health			

Please take a moment to answer the following questions related to hiring practices within your organization:

Overall, I think that hiring doctoral psychologists in my organization is ____.

Q#		1	2	3	4	5	6	7	
43	A Bad Idea	☐	☐	☐	☐	☐	☐	☐	A Good Idea
44	Unbeneficial	☐	☐	☐	☐	☐	☐	☐	Beneficial
45	Unimportant	☐	☐	☐	☐	☐	☐	☐	Important
46	Disadvantageous	☐	☐	☐	☐	☐	☐	☐	Advantageous

Please answer the following questions pertaining to hiring practices within your organization:

Q#	Strongly Disagree	Disagree	Somewhat Disagree	Neither Disagree or Agree	Somewhat Agree	Agree	Strongly Agree
47	Most people whose opinions I value (e.g., members of my clinical team, my peers in other organizations, etc.) think that I should hire psychologists in my organization.						
48	I feel social pressure (e.g., from members of my clinical team, my peers in other						

	organizations, etc.) to hire psychologists in my organization.
49	It is expected of me that I hire psychologists in my organization.

50	I am confident that I could hire psychologists in my organization if I wanted to.
51	The decision to hire doctoral psychologists is beyond my control (e.g., due to budget, availability of psychologists, etc.).
52	Whether I hire doctoral psychologists is entirely up to me.
53	I intend to hire psychologists for this organization.
54	I want to hire psychologists for this organization.
55	I expect to hire psychologists for this organization.
56	The management team in my organization believe I should hire psychologists.
57	Primary care providers in my organization believe I should hire psychologists.
58	Other FQHCs hire psychologists.
59	When making hiring decisions, I take into account the views/opinions of the management team in my organization.
60	When making hiring decisions, I take into account the views/opinions of primary care providers in my organization.
61	When making hiring decisions, I take into account the views/opinions of my peers in other organizations.

Please answer the following questions regarding your organization and your views of psychologists, even if you do not currently employ any. If you do not employ psychologists then answer the question as if you did. **Please rate how strongly you agree or disagree with the following statements.**

Q#	Strongly Disagree	Disagree	Somewhat Disagree	Neither Disagree or Agree	Somewhat Agree	Agree	Strongly Agree
62	The jobs available within my organization would be attractive to psychologists.						
63	Psychologists expect more salary growth than my organization can provide.						
64	Psychologists' reimbursement rates cover their salaries.						
65	There is a mismatch between the clinical skills possessed by psychologists and the needs of my organization.						
66	I would have difficulty attracting psychologists to my organization because the culture, activities and services they are accustomed to are limited in my geographic area.						
67	A psychologist would have limited opportunities to interact with other doctoral psychologists within this organization.						
68	This organization has (or would have) an expectation for psychologists to fill administrative roles in addition to clinical practice.						
69	A psychologist would find this area desirable to live in (e.g., safe, affordable, sense of community, family friendly).						
70	A psychologist would have an opportunity to work as part of an integrated team in a primary care setting in my organization.						
71	My organization does not have enough money to hire psychologists.						

You just answered how much you agree or disagree with several statements (above). Now we

would like to know how much those statements, if true, impact your ability to hire a psychologist.

For example, let's assume *your organization provided an opportunity for psychologists to work as part of an integrated team in a primary care setting*. If you believe this would have a very positive impact on your ability to hire a psychologist (i.e., you would be much more likely to hire), then you would choose "Very Positive Impact". If you believe this would have a very negative impact on your ability to hire a psychologist (i.e., you would be much less likely to hire), then you would choose "Very Negative Impact".

Assuming each scenario applied to your organization, please rate how much of a positive or negative impact each scenario would have on your ability to hire a psychologist.

Q#	Very Negative Impact	Negative Impact	Somewhat Negative Impact	Undecided	Somewhat Positive Impact	Positive Impact	Very Positive Impact
72	The jobs available within my organization were attractive to psychologists.						
73	Psychologists expected more salary growth than my organization could provide.						
74	Psychologists' reimbursement rates covered their salaries.						
75	There was a mismatch between the clinical skills possessed by psychologists and the needs of my organization.						
76	I had difficulty attracting psychologists to my organization because the activities and services they are accustomed to were limited in my geographic area.						
77	A psychologist had limited opportunities to interact with other psychologists within this organization.						
78	This organization had an expectation for psychologists to fill administrative roles in addition to clinical practice.						
79	A psychologist would find this area desirable to live in (e.g., safe, affordable, sense of community, family friendly).						
80	My organization provided an opportunity for psychologists to work as part of an integrated team in a primary care setting.						
81	My organization did not have enough money to hire psychologists.						

Personal Demographics
Please answer the following questions related to your personal demographics:

82. Gender:
    ☐ Male
    ☐ Female
    ☐ Other (Please specify): _____

83. Highest degree earned:
    ☐ Doctorate
    ☐ Masters
    ☐ Bachelors
    ☐ Associates

☐ High School
☐ Other (Please specify): _____

84. What field of study did you earn your degree in?
☐ Business
☐ Psychology
☐ Medicine
☐ Social Work
☐ Other (Please specify): _____

85. Approximately how many years have you worked as a manager in a health care setting?

_____

86. How are you involved in making hiring decisions in your organization? This could include being involved in hiring directly or setting policy about what types of professionals to hire.
☐ I am solely responsible for making hiring decisions
☐ I am part of a management team responsible for making hiring decisions
☐ I am not involved in hiring decisions

87. Choose the option below that best reflects your job title:
☐ Chief Executive Officer/Executive Director
☐ Chief Operations Officer
☐ Medical Director
☐ Human Resources Director
☐ Other (please specify) _____

Organizational Demographics
Please answer the following questions related to the organization you work for:
 If you do not know exact numbers, please estimate.

88. How many of each of the following Full Time Equivalents are hired or contracted by your organization? If none, please write "0".
☐ Doctoral Psychologists: _____
☐ Psychiatrists: _____
☐ Licensed Clinical Social Workers: _____
☐ Other Licensed Mental Health Providers: _____
☐ Non-Licensed Mental Health Providers: _____
☐ Psychiatric Nurse Practitioners: _____

89. What is the approximate number of patient encounters per month by your organization?
_____

90. What is your organization's approximate annual budget?
_____

91. In which state is your organization located?

_____

92. My organization predominantly serves a _____ area (choose all that apply):
- ☐ Urban
- ☐ Suburban
- ☐ Rural

APPENDIX B: THEORY OF PLANNED BEHAVIOR SURVEY QUESTIONS

Indirect Measures

	Question #
Indirect Measures of Attitudes	
Assesses strength of behavioral belief	1-21
Assesses outcome evaluations	22-42
Indirect Measures of Subjective Norms	
Assesses strength of normative belief	56-58
Assesses motivation to comply	59-61
Indirect Measures of Perceived Behavioral Control	
Assesses strength of control belief	62-71
Assesses power of factors to influence behavior	72-81

Direct Measures

	Question #
Direct Measures of Attitudes	43-46
Direct Measure of Subjective Norms	47-49
Direct Measure of Perceived Behavioral Control	
Self-Efficacy	50
Controllability	51-52
Intent	53-55

Demographics

	Question #
Personal Demographics	82-87
Organizational Demographics	88-93

Scoring Directions for TPB Survey:

From: Francis et al. (2004)

Intention

- Calculate the mean of all three intention scores

Direct Measures:

Attitudes

- Recode the items that have negatively worded endpoints on the right, so that higher

  numbers then always reflect a positive attitude to the target behavior (e.g. for *'pleasant –*

  unpleasant', an answer of 6 becomes score of 2; a score of 4 remains a 4).

Subjective Norms

- Recode the items that have negatively worded endpoints on the right, so that high scores

  then consistently reflect greater social pressure to do the target behavior.

Perceived Behavioral Control

- Recode the items that have negative endpoints on the right, so that high scores then

  consistently reflect a greater level of control over the target behavior.

- Calculate the mean of the item scores to give an overall perceived behavioral control

  score.

Indirect measurements:

Indirect Measure of Attitude

- For each behavioral belief, the belief score on the unlikely-likely scale is multiplied by the relevant evaluation score on the extremely bad/extremely good scale. The resulting products across are summed all the beliefs to create an overall attitude score:

- Formula: A = (a x e) + (b x f) + (c x g) + (d x h)

  - Where A = total attitude score a, b, c and d are scores for each of four behavioral beliefs e, f, g and h are scores for outcome evaluations relating to each behavioral belief

  - Using this method, a *positive* (+) score means that, overall, the participant is *in favor of* taking the action. A *negative* (-) score means that, overall, the participant is *against of* taking the action.

Indirect Measure of Subjective Norm

  - For each normative belief, the belief score on the should/should not or do/do not scale is multiplied by the score relating to the not at all/very much scale of motivation to comply.

  - The resulting are summed products across all the beliefs to create an overall Subjective Norm score:

  - Formula: N = (a x d) + (b x e) + (c x f)

    - Where N = total Subjective Norm score a, b and c are scores for each of the three normative beliefs d, e and f are scores for motivation to comply relating to each source of social pressure

  - Using this method, a ***positive*** (+) score means that, overall, the participant experiences social pressure ***to*** perform an action. A ***negative*** (-) score means that, overall, the

participant experiences social pressure ***not to*** perform the action.

Indirect Measure of Perceived Behavioral Control

- o For each control belief, the belief score on the unlikely/likely scale is multiplied by the score relating to the relevant item on the less likely/more likely scale or the much more difficult/much easier scale.

- o The resulting products are summed across all beliefs to create an overall perceived Behavioral control score:

- o *Formula - PBC* = (a x d) + (b x e) + (c x f)

    - o Where PBC = total perceived behavioral control score. a, b and c are scores for each of three control beliefs. d, e and f are scores for control belief power relating to each control belief.

- o Using this method, a ***positive*** (+) score means that, overall, the participant ***feels in control of*** performing an action. A ***negative*** (-) score means that, overall, the participant ***does not feel in control of*** performing an action

Appendix C, continued

Variables	How each composite variable was calculated
Indirect Measures	
Behavioral beliefs	(Q1 * Q22) + (Q2 * Q23) + (Q3 * Q24) + (Q4 * Q25) + (Q5 * Q26) + (Q6 * Q27) +(Q7 * Q28) + (Q8 * Q29) + (Q9 * Q30) + (Q10 * Q31) + (Q11 * Q32) + (Q12 * Q33) + (Q13 * Q34) + (Q14 * Q35) + (Q15 * Q36) + (Q16 * Q37) + (Q17 * Q38) + (Q18 * Q39) + (Q19 * Q40) + (Q20 * Q41) + (Q21 * Q42)
Normative beliefs	(Q56 * Q59) + (Q57 * Q60) + (Q58 * Q61)
Control beliefs	(Q63 * Q73) + (Q65 * Q75) + (Q66 * Q76) + (Q67 * Q77) + (Q71 * Q81)
Direct Measures	
Attitudes	MEAN(Q43, Q44, Q45, Q46)
Subjective Norms	MEAN(Q47, Q48, Q49)
Perceived Behavioral Control	MEAN(Q50, Q51, Q52)
Intent	MEAN(Q53, Q54, Q55)

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