ABSTRACT

WENTZEL, ELIZABETH LYNLEY. Resistance to Mandated Organizational Change in the Healthcare Industry. (Under the direction of Dr. Chad Hoggan).

During inevitable times of change, healthcare industry leaders strive to implement successfully the changes while focusing on patient safety. However, many change efforts experience turbulence and dissonance resulting in potentially hazardous results to patients’ safety. The purpose of this quantitative study was to explore how different employees reacted to mandated change. The conceptual framework for this study focused on the relationship between workplace tenure and educational attainment with the Resistance to Change (RTC) model developed by Dr. Shaul Oreg (2003) and informed by cognitive dissonance. When faced with mandated change, people naturally experience tension to reduce opposing beliefs or feelings. Resistance to Change ties directly to cognitive consistency and the need to ensure beliefs match behavior. This study focused on data collected via an electronic survey at a healthcare facility and included the RTC model and demographic information. The relationship between the RTC and tenure/educational attainment focuses on creating better change environment. This study did not show the relationship, so further research is needed to increase patient safety.

Keywords: Workplace Tenure, Educational Attainment, Resistance to Change, Mandated Change, Cognitive Dissonance, Reaction to Change, Cognitive Rigidity, Short-Term Thinking, Emotional Responses.
Resistance to Mandated Organizational Change in the Healthcare Industry

by

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DEDICATION

I dedicate this dissertation to my son, Philip Michael Wentzel, and to my late parents, Philip Robert and Carole Joy (nee Walsh) Wentzel. Though my father passed many years ago, his love of learning inspired me to pursue this educational endeavor. My mother supported and encouraged me while she was alive with reminding me all great things take time and patience. My beloved son pushed me through the hard days and provided tough love when I needed it, including asking if I did my homework yet. Without these three, my journey would have ended, but through their love and support, I am able to accomplish anything.
**BIOGRAPHY**

The author of this dissertation, Lynley Wentzel, was born in Charlottetown, Prince Edward Island, Canada. At age six months, an American family adopted her and brought to Long Island, New York. She grew up in the Mid-West before relocating to the East coast, living in New York, Missouri, Washington, and North Carolina, which she now calls home. Her nomadic nature spawned a voracious desire to learn about the world around, seeking understanding of new cultures and experiences.

Lynley graduated from the State University of New York with a Bachelor of Arts in Anthropology. After relocating to North Carolina, she graduated with her Master of Science in Leadership and Organizational Development from Pfeiffer University. Her twenty plus year career focused on Human Resources and Training Development spanned healthcare, manufacturing, and financial industries. Currently, Lynley works as the ERA Training Manager for North Carolina State University’s Research Operations and Innovation office. She resides in Nashville, North Carolina with her son, three dogs as well as ducks and chickens. Her future ambitions include returning to her home country of Canada and working at University.
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I would like to thank my fellow doctoral students for their feedback, cooperation, and of course, friendship. Seeing each of them graduate encouraged me to stay the path and forge on. In addition, I would like to express my gratitude to my supervisors, Dr. Genevieve Garland and Abby Guillory, MLS for talking me off the ledge several times and sharing their experiences during their dissertation process. Last but not the least; I would like to thank my family: my parents and my son for supporting me emotionally throughout writing this dissertation and my life in general.
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CHAPTER 1: INTRODUCTION

Change in Healthcare

The ever-evolving healthcare industry, including professionals, information technology, insurance, and healthcare facilities, encounters rapid growth more frequently than most businesses due to being one of the most legislatively regulated industries in the United States with constantly changing, complex laws to interpret and implement (Al-Abri, 2007; Holly, 2013). The industry, by its very nature, changes constantly because of its dedication to research and responding to changing demographics, health issues, diseases and ailments by frequently implementing new technological advances to treat patients or implementing new systems due to new legislation (Al-Abri, 2007; Griffin, 2017; Kessler, 2014).

Within the healthcare industry, success in change initiatives focuses not on revenue or size, but the organization’s ability to demonstrate improvements in providing care while focusing on patient safety (Al-Abri, 2007; Ford, Bach, & Fottler, 1997; Pexton, 2009). Patient safety is focused on the prevention of adverse effects of medical care. Each new advance in patient treatment or computer technology brings with it some form of organizational changes with a range of impacts, which can significantly alter patient care and employee functions. Healthcare in the United States faces the challenges of uncertainty and transition with our federal government seeking ways to change healthcare delivery and reimbursement practices. Coupled with changes in population demographics, such as an increasing aging population, the need for emerging legislation and technological improvements in health care increases as costs continue to skyrocket (Al-Abri, 2007; Kessler, 2014).

Chapter 1 begins with an overview of the study. One of the major sources of change is in legislation, which is discussed in the next section. Legislation causes major shifts in
technological adoption and resources, which is discussed after legislation. Additionally, Chapter 1 includes the statement of problem, the purpose of the study, the research questions, the conceptual framework, the significance of the study, assumptions and biases, limitations and delimitations, and the definitions of major terminology. The chapter concludes with a summary including a roadmap of the remaining chapters.

**Healthcare Legislation**

During his Presidency, President Barack Obama signed The Patient Protection and Affordable Care Act (Public Law 111-148) into law on March 23, 2010, with benchmarks over the next eight to ten years. Among other regulations, the law includes provisions to take effect over a period of four years to six years, including providing incentives for all businesses to provide healthcare benefits, prohibiting denial of coverage and denial of claims based on pre-existing conditions, establishing health insurance exchanges, prohibiting insurers from establishing annual coverage caps, improving medical technology, and supporting medical research. This legislation included provisions for technology use within the industry to drive better healthcare results.

The Health Information Technology for Economic and Clinical Health (HITECH) Act, part of the American Recovery and Reinvestment Act of 2009, became law on February 17, 2009 and focused on promoting the adoption and meaningful use (MU) of health information technology, namely the use of Electronic Health Record (EHR) systems (Patient Protection and Affordable Care Act, 2010). The Act specifies three main components of meaningful use: The use of a certified EHR in a meaningful manner, the use of certified EHR technology for electronic exchange of health information to improve quality of health care, and the use of
certified EHR technology to submit clinical quality and other measures (Patient Protection and Affordable Care Act, 2010).

The Meaningful Use program divides into three stages spanning multiple years. Each stage builds on the previous one to increase EHR usage for greater patient populations with a wider range of processes. The goals and requirements of the MU stages are as follows: In 2011, Meaningful Use Stage 1 emphasized proper electronic data capture and sharing using an EHR technology. Eligible providers attested to Stage 1 in order to receive their incentive payment after meeting nine core objectives and one public health objective. Meaningful Use Stage 2, which began in 2014, introduced new objectives and measures, as well as higher thresholds, requiring providers to extend EHR capabilities to a larger portion of their patient populations. The recent changes to the Meaningful Use program aligned Stage 1 and 2 more closely, with both requiring nine core objectives and one public health objective, for attestation. Meaningful Use Stage 3 aims to simplify the program, drive interoperability between electronic health records, and improve patient outcomes. Based on the timeline, some providers began implementing Stage 3 Meaningful Use in 2017. However, they are not required to participate until 2018 (Patient Protection and Affordable Care Act, 2010).

Overall, the stages outlined above provide criteria for participating in meaningful use up to and including in 2018. Center of Medicare Services (CMS) responded to concerns from medical professionals by putting off required use of 2015 Edition Certified EHR Technology (CEHRT) and attestation to Stage 3 objectives until the 2019 reporting year. These changes were only established for the 2017 and 2018 reporting years for Medicare MU; however, the Inpatient Prospective Payment System (IPPS) rule also extended these changes (Patient Protection and Affordable Care Act, 2010). The IPPS provides billing rates for Medicare patients based on their
diagnosis. As noted, the three-stage process of regulations spawned a wealth of changes in the structuring of medical organizations, procedures and technology related to patient care and record-keeping systems (EHRs) creating a significant impact on employees. This impact is the catalyst for major change in technology software and its use as discussed in the next section.

**Healthcare Technology**

Healthcare organizations are continually evolving to meet the healthcare industry’s need for new, emerging, and innovative technological advances often encouraged by governmental regulations and patient safety concerns (Al-Abri, 2007; Griffin, 2017; Holly, 2013). Healthcare professionals require technology to perform various medical tasks as well as ensuring patient records are complete and accurate with the use of Electronic Health Records (EHRs) systems during time-constrained and high-pressure situations of treating patients while ensuring patient safety. According to Parente and McCullough (2009), this technology enhances patient safety at statistically significant levels by reducing medical errors and providing more convenient access and retrieval of the most up-to-date patient information. Computerized records systems can minimize problems by eliminating the need for handwritten orders and by placing stricter regulations on drug choice and dosage (Schnipper et al., 2008). This software holds digital versions of vital medical data related to the patient’s medical history, allergies, surgeries, medications, as well as demographic information to improve patient care and safety (HealthIT.gov, 2019). Reliable access to complete patient health information is essential for safe and effective care by avoiding drug interactions, allergic reactions, and misdiagnoses while improving overall population health.

However, even with the increased pervasiveness of patient safety, some medical professionals resist changing their ways of managing patient information. Healthcare technology
changed the ways hospitals, clinics, and medical service providers operate their daily businesses regarding patient care and services (Gallego, Fower, & Gool, 2008). Past research on new technology illustrates issues relating to resistance were overlooked, and the effects of technology changes upon the healthcare workers are not well understood (Lin, Lin, & Roan, 2012).

**Barriers to Change**

With any form of change, more so with mandated change, resistance by those impacted arises for several reasons. Employees of changing organizations, no matter education or tenure, may resist change due to emotions, such as fear of the unknown, loss of job security, mistrust of the change benefits, disdain of being told the way they work is obsolete, or an individual’s predisposition to accept change (Kunze, Boehm, & Bruch, 2013; Saksvik, & Hetland, 2009; Van de Heuvel, & Schalk, 2009; Van Duk & Van Dick, 2009). Turner and Tajfel’s social identity theory (1986) state a portion of an individual’s self-concept comes from perceived membership in a relevant social group (Van Duk & Van Dick, 2009). This self-concept embodies work, personal values, and social norms or constructs. The concept of self includes the individual’s emotions, sense of worth, intelligence, and desires (Crowley et al, 2010; Foster, 2010; Hodson, 1995, 1996 & 1999).

For healthcare professionals, this membership resides with their peers and at their place of work. Change can result in people reacting negatively to the altering landscape of their work-life due to the challenge on their social identity because when a change violates this perceived notion of self, the person sees the violation as an insult to character (Crowley et al, 2010; Foster, 2010; Hodson, 1995, 1996 & 1999; Oreg, 2003, 2006). This self-identity is a merging of their education, tenure at work, age, gender, and character traits like a rigid cognitive process prohibiting comfort with change (Crowley et al, 2010; Foster, 2010; Oreg, 2003). Healthcare
Professionals tend to possess greater educational attainment than other professions like business management or IT and have tenure. The next two sections detail why healthcare professionals might experience greater resistance to change.

**Educational Attainment**

Employees in the healthcare industry require various levels of education for their roles as Medical Doctors, Registered Nurses, and various types of Technicians. Educational attainment ranges from certificate level through Post-Doctorate level (http://exploringmedicalcareers.com/). Employees holding advanced educational degrees understand their employment options increase as well as tend to focus on previous change efforts that failed thus causing greater resistance to change (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Schwartz, 1994; Van Dam, Oreg & Schyns, 2008).

Healthcare employees tend to obtain high levels of education including advanced technical degrees and certifications (Carnevale, Smith, & Strohl, 2010). Most healthcare workers have at least an associate’s degree such as with Licensed Nurse Practitioners. Nurses take varying levels of training depending on the type of focus, such as dialysis or trauma. Registered nurses possess a bachelor's degree in nursing, an associate’s degree in nursing, or a diploma from an approved nursing program (BLS, 2019). In addition to the degree, registered nurses must pass the National Council Licensure Examination and fulfill any state license requirements where they work. Medical technicians hold an associate’s degree or postsecondary certificate from a community college or vocational school. Medical technicians possess a certificate or associate’s degree whereas medical laboratory technologists need a bachelor’s degree to work in the field (BLS, 2019). Physicians possess the greatest level of education in the medical industry. Some focus only on research while others focus on patient care. Regardless, each takes four years of a
Bachelor’s program, four years of medical school, and finally at least three years as a resident depending on specialization (BLS, 2019). Most, if not all positions in the healthcare industry require the passing of a board examination for each state in which the individual works.

Educational experiences presumably promote the intellectual openness, flexibility, and extent of perspective (Oreg, 2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008; Schwartz, 1994). These experiences increase the openness to non-routine ideas or activities. Education plays a large role in whether an employee will resist change based on their social identity within their work environment (Tajfel, 1974). According to Vithessonthi (2008), individuals with higher educational achievement are more likely to resist changes since they possess a higher self-confidence for learning and personal development, therefore imposed changes pose a greater threat to their autonomy and social identity. Additionally, employees with a higher level of education understand more jobs are available to them. If satisfied with their current situation, change can elicit resistance. Employees who possess higher education can become resistant to change due to possessing advanced knowledge and a fear that their way of doing something is wrong (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Reese, 2009; Van Dam, Oreg & Schyns, 2008)

**Workplace Tenure**

Employees with shorter tenure tend to resist change less frequently than those with longer tenure (Cole, 2016; Oreg, 2003; 2008). The reason is employees with long-term tenure in an organization or position have more invested. Researchers posit the more years an individual has in a position, the more likely the individual will be resistant to change (Cole, 2016; Koslowski, 2005; Kotter, 1996). Employees value their contribution to organizations, and those with tenure
tend to resist change because of a fear of losing face with fellow employees if they are unable to make the changes like their peers after so many years in their position (Hodson, 1999).

According to the BLS (2019), the health industry is the largest industry in the United States, and it is expected to continue to grow. The healthcare industry is noted as having the greatest level of turnover or attrition due to a multitude of reasons. However, even though individuals may not stay long term at one hospital or clinic, due to the rigors of education and licensure, they usually leave for a similar position elsewhere (Carnevale, Smith, & Strohl, 2010). The literature on years of tenure and resistance to change in individuals (Koslowski, 2005; Kotter, 1996; O’Reilly & Fish, 1976) suggests increased tenure contributes to resistance to change.

Several studies show tenure at a company or in a position elicit greater levels of resistance (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Reese, 2009; Van Dam, Oreg & Schyns, 2008). Employees who have lengthy tenure may fear losing face if unable to cope with the change or learn a new process. Additionally, long-term employees may feel change violates their workplace identity, which ties to their social identity (Tajfel, 1974; Tajfel, Brown, & Turner, 1979). Many with high tenure tend to be satisfied with their current situation and dislike changing the status quo (Van Dam, Oreg & Schyns, 2008).

**Statement of Problem**

The greatest concern of employee resistance to change in healthcare is the risk to patient safety. Employees’ reactions to mandated change put patients at risk for accidents, medical mistakes, and other dangers. The goal of this study was to understand factors contributing to resistance to mandated technological changes in the healthcare industry, such as the HITECH legislation. The focus of this study involved healthcare employees’, from front desk to medical
doctors, experiences during a time of change related to emerging Federal legislation over the last ten years. The healthcare industry deals with rapid and constant change due to advances in technology, changing laws, and regulations. Employees in this field are educated and experience longer tenure in their roles than other fields like manufacturing (Holly, 2013; Kunze, Boehm, & Bruch, 2013).

Many earlier studies used qualitative analysis with data obtained using interviews, focus groups, and similar methods versus quantitative research such as attrition statistics and survey results. Qualitative research typically is exploratory and/or investigative in nature. It is indispensable in developing a deep understanding of a given complex circumstance and sound rationale for further decision making. Quantitative research is essential for providing a broad base of insight on which typically is a final course of action recommended (Barczak, 2015).

Previous studies related to healthcare are orientated toward emotional intelligence as a mitigating factor (Di Fabio, Bernaud, & Loarer, 2014). Other healthcare-related studies looked at the implementation of electronic health records or changes operating procedures but did not factor in tenure or education (Jamoom, Patel, Furukawa, & King, 2014). This quantitative study examined how educational achievement and job tenure contribute to resistance within the healthcare industry to understand the dispositional resistance of employees.

One method used to determine who might resist change is the Resistance to Change (RTC) model developed by Dr. Shaul Oreg, which measures dispositional resistance (Oreg, 2003; Oreg et al, 2008; Oreg, & Sverdlik, 2011). Few studies address resistance to change within the field of healthcare and its effects on the employees, and even fewer employ the use of the Resistance to Change (RTC) model with healthcare employees as the subject. The study utilized the RTC model to collect self-reported attitudes to determine what leads to acceptance of or
Resistance to change. It combined the variables of education (no college/some college, Associate’s Degree, Bachelor’s, Master’s or Doctorate) and tenure (less than 1 year, 1 to 5 years, 5 to 10 years, 10 to 15 years, 15 or more years) in an effort to analyze why healthcare employees may resist change (Oreg, 2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008). Framed by a discussion of the role of tenure and educational attainment, which is discussed in the literature review, this study examined who resists organizational change in the healthcare industry based on their dispositional resistance. In addition to education and tenure, demographic variables of age, gender, race, and ethnic background were added to ensure a fair representative sample of the population was obtained.

**Purpose of the Study**

The purpose of this study was to gain a better understanding of the relationship between healthcare industry employees’ resistance to mandated change and their tenure, educational attainment level, and RTC model, as proposed by Oreg (2003, 2006; Oreg et al, 2008; 2011). Overall, the purpose of this study focused on understanding the causes of resistance to mandated change in the healthcare setting.
Research Questions

To support the purpose of this study, the following research questions were addressed:

1. What are the participants’ levels of resistance as measured by Oreg’s Resistance to Change model (Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response)?

2. Is there a relationship between educational attainment and each of the four attributes of Oreg’s Resistance to Change model (Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response)?

3. Is there a relationship between tenure and each of the four attributes of Oreg’s Resistance to Change model (Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response)?

Theoretical Framework

The framework for this study primarily incorporated resistance to change with educational attainment and workplace tenure. Festinger (1957) posits cognitive consistency is as important a psychological need as feeding hunger. This tendency for individuals to seek consistency among their cognitions elicits an aversive state known as dissonance (Gawronski, 2011; Thorgersen, 2004). In other means, individuals like their inner thoughts to match their behaviors and beliefs. If this does not happen, most individuals experience dissonance or resistance because there is an inconsistency between attitudes or behaviors. The theory of cognitive dissonance focuses on how people strive for internal consistency (Brehm, & Cohen, 1962; Festinger, 1957; Festinger, & Carlsmith, 1959; Gawronski, 2011; Jermias, 2001; Wickland, & Brehm, 1976). Therefore, mandated change elicits adverse reactions as the individual struggles with the inconsistencies

The components of Cognitive Dissonance state an individual must choose between attitudes and behaviors which are contradictory (Brehm, & Cohen, 1962; Festinger, 1957; Festinger, & Carlsmith, 1959; Jermias, 2001; Gawronski, 2011; Gawronski & Strack, 2004, Gawronski, Walther, & Blank, 2005). When inconsistency (dissonance) is experienced, individuals largely become psychologically distressed. Dissonance occurs most often in situations where an individual must choose between two incompatible beliefs or actions (Festinger & Carlsmith, 1959). When employees are comfortable in their work environment and do not see the need for a change, they become dissonant when forced to alter their work habits or processes (Jermias, 2001; Gawronski, 2011; Gawronski & Strack, 2004, Gawronski, Walther, & Blank, 2005).

The principles of cognitive dissonance provided the theoretical base for understanding how potential tenure and educational differences of medical professionals might increase resistance to change. Resistance to change has been thoroughly researched within organizations facing change (Brehm, 1956; Festinger, 1957; Harmon-Jones, 2002; Oreg, 2003a, 2003b, 2006; Piderit, 2000). Dissonance is aroused whenever individuals voluntarily engage in an unpleasant activity to achieve some desired goal, like the changing technology to serve patients (Jermias, 2001; Gawronski, 2011; Gawronski & Strack, 2004, Gawronski, Walther, & Blank, 2005).

Psychological discomfort is a state, which prohibits people from acquiring and learning new knowledge during the transformation period (Jermias, 2001; Gawronski, 2011; Gawronski & Strack, 2004, Gawronski, Walther, & Blank, 2005). By using this theoretical/conceptual framework, the study hoped to show how certain employees resist change more frequently due to
the variables of educational attainment and tenure, which elicits a cognitive dissonance response due to conflicting beliefs at acquiring new knowledge and aligned this with the RTC model’s factors of cognitive rigidity, routine seeking, short-term thinking, and emotional responses.

The conceptual basis of this study related to healthcare employees’ experiences, ideas, beliefs, and expectations during the change process. The change process of implementing new technology could result in either a success or a failure. The conceptual framework for this study primarily integrated resistance to change with educational attainment and workplace tenure. Oreg (2003) established the construct of dispositional resistance to change capturing affective, cognitive, and behavioral aspects of individuals’ personal orientation toward mandated change. Dispositional resistance to change predicts reactions to mandated change related to individual and work-based outcomes (Oreg, 2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008). A background of the foundations of this exploratory study followed two assumptions as proposed by Oreg (2003). These assumptions joined into a framework upon which this study’s selection of variables and survey instruments are based. They are listed as follows:

1. The most appropriate model for demonstrating the likelihood an employee will resist organizational change based on workplace tenure and educational attainment is proposed by Dr. Shaul Oreg (2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008) in his research study, *Resistance to change: Developing an individual differences measure*.

2. Resistance to change can be measured (Oreg, 2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008).
Resistance to Change Model

Oreg (Oreg, 2003; Oreg et al, 2008; Oreg, 2009; Oreg 2018; Oreg, & Sverdlik, 2011) studied individual differences in tendencies to experience change negatively and resist mandated changes. As seen in Table 1, he theorized a person’s disposition consists of four factors, the dependent variables in my quantitative study, related to change: routine seeking, emotional reaction, short-term thinking, and cognitive rigidity (Oreg, 2003; Oreg, & Sverdlik, 2011; Oreg, et al., 2008). Routine seeking occurs in several types of people. While not being a sole catalyst for resistance to change, routine seeking combined with short-term thinking creates a sense of insecurity. Emotional reactions happen in all people, but do not necessarily predict resistance to change. Cognitive rigidity creates the potential for resistance by limiting individual comfort and ultimately changing their minds. It is important to determine which RTC factors elicit a negative resistance reaction to a change within the healthcare industry, to reduce negative effects on the healthcare industry, such as the unsafe conditions for patients (Oreg, 2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008). Oreg designed the RTC model to assess individuals’ predispositions to resist changes in the workplace. These aspects can be conceptualized as reflecting behavioral, affective, and cognitive aspects of resistance to change (Oreg, 2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008). Below, I will discuss and explain the different factors.
<table>
<thead>
<tr>
<th>Factors</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Seeking (RS)</td>
<td>The behavioral component of resistance to change, inclination to adopt routines.</td>
</tr>
<tr>
<td>Emotional Reaction (ER)</td>
<td>The affective component of resistance to change, the amount of stress and uneasiness induced by change.</td>
</tr>
<tr>
<td>Short-term Focus (SF)</td>
<td>The affective component of resistance to change, the extent to which individuals are distracted by the short-term inconveniences associated with change.</td>
</tr>
<tr>
<td>Cognitive Rigidity (CR)</td>
<td>The cognitive component of resistance to change, frequency and ease with which people change their minds.</td>
</tr>
</tbody>
</table>

Note: Adapted from Oreg, 2003.

**Routine Seeking.** This factor pertains to the acceptance of routines into one’s life. It includes items pertaining to a preference for low levels of stimulation and the reluctance to give up old habits or routines (Oreg, 2003). Several organizational theorists discuss reluctance to give up old habits as a common characteristic of resistance to change (Kunze, Boehm, & Bruch, 2013; Saksvik, & Hetland, 2009; Van de Heuvel, & Schalk, 2009; Van Duk & Van Dick, 2009).

**Emotional Reaction.** This factor focuses on reactions to mandated change versus change in general. Individuals resist mandated changes as it takes away control from them versus changes that are self-initiated (Oreg, 2008). It contains items pertaining to loss of control and emotional resilience.
**Short-Term Thinking.** The focus of short-term thinking is the immediate inconvenience or adverse effects of the change (Oreg, 2003; 2008). The items involve an irrational component of resistance arising from immediate inconvenience despite one’s cognizance of long-term benefits (Foster, 2010; Oreg, 2008). Emotional reactions and short-term thinking are sometimes combined as affective responses.

**Cognitive Rigidity.** This factor contained three items addressing the ease or regularity with which individuals change their minds (Oreg, 2003; 2008, 2018). Oreg (2006) posited cognition is part of resistance, suggesting the experience of change, including the perception of the fairness, produce motivational and cognitive effects leading to resistance.

**Demographic Variables.** Demographic variables, such as age, gender, education level, and tenure have all been included in previous studies in many industries. This present study took these demographic variables and bridged them with the four factors of the resistance to change model focusing on the healthcare industry. The independent variables of the study were educational attainment and tenure of role. Once a person works toward an educational goal, change can pose a greater threat to their autonomy and perceived workplace identity (Oreg, 2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008). Due to the greater education standards for this industry, healthcare workers are more likely to resist changes because of an increased sense of security in finding employment should they chose to leave their current employer as well as a more rigid view of previous change efforts (Bartlem & Locke, 1981). Tenure on the job is another major factor affecting workplace resistance to organizational change. Employees with greater tenure resist or avoid change due to a fear of failure or the implication of doing their job incorrectly in the past (Crowley, Tope, Chamberlain, & Hodson, 2010). To conduct this research, I developed a conceptual framework illustrating the use of the variables for the study. Figure 1.1
provides a representation of the conceptual framework by identifying the independent and the dependent variables.

Figure 1.1: Conceptual Framework

**Assumptions and Biases**

Resistance to change research with healthcare employees included assumptions and biases, which were potentially unavoidable. Necessary efforts to reduce assumptions and biases focused on research design to eliminate or minimize the effects in order to increase the outcomes of the research. With over fifteen years in the healthcare industry as a change agent, this researcher possessed extensive knowledge of the effects of change on various levels of healthcare employees including resistance. This experience provided the researcher with a unique perspective of the types of challenges these employees endure during implementations of technology.

It is assumed participants of the study are involved in the healthcare industry and undergoing change. Additionally, the privacy of the participants will be protected through research methods. The researcher confirmed all participants are located at the same hospital in the same geographical location and the sample size of participants being adequate for the study
to obtain statistical significance. These assumptions along with the personal experience in the healthcare industry built my interest in the exploration of this research study.

**Significance**

It is vital to understand what causes some employees to resist where others do not, especially in the healthcare field where there is great risk to the patients’ health and safety. This field is inundated with regulations mandated by the government like HITECH, industry drivers like population health, and an ever-changing technological landscape. Resistance to change takes place for many reasons including tenure and educational level (Oreg, 2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008). This study primarily explored the connection between the RTC model and the independent variables of education and tenure. Employees with at least associate’s degrees resist more based on their plentiful job possibilities versus employees without degrees whose job prospects are limited (Roscigno & Hodson, 2004). Employees with tenure may resist change because of fear of losing face or the inability to perform new tasks (Crowley, Tope, Chamberlain, & Hodson, 2010).

Employees’ resistance to change causes many issues during organizational change efforts (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Schwartz, 1994; Van Dam, Oreg & Schyns, 2008). Not every employee experiences resistance, and levels of resistance vary from individual to individual. Even the way employees display their resistance varies, such as work avoidance to outright sabotage of the change process (Oreg et al, 2011; Van Dam, Oreg & Schyns, 2008). There are certain cognitive processes explained by Oreg (2003) that suggest the resistance potential is more likely. However, knowing whether employees with greater educational attainment and tenure are more likely to resist changes can prevent major issues, like danger to patient safety. When an employee or group of employees resist a major
change, the whole organization suffers (Oreg, 2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008). Studies focusing on the characteristics of the Healthcare employee such as education and tenure to determine what leads to resistance within this dynamic field to ensure that the best of patient care, safety, and customer service takes place.

Organizational researchers have developed sophisticated theoretical models and measurement instruments to study employee responses to organizational change (Herscovitch & Meyer, 2002; Szabla, 2007). These models serve to broaden current understandings of change processes. This study advanced knowledge in this area by empirically testing links between resistance to change and employee attributes of education and tenure. By demonstrating how education, tenure, and resistance to change are interrelated, hospitals can take action to reduce or eliminate the risks to patient safety and health.

**Limitations/Delimitations of the Study**

This study sought to understand resistance to change in the Healthcare industry. However, there are some limitations inherent in this study. First, the participants of this study work at the same hospital, eliminating variances in geography and organizational culture. This may alter the perceptions of the employees. This study obtained data via self-reported surveys via the RTC model and a demographic survey, where some individuals may be dishonest with their responses. If any individual feels uncomfortable with providing the information for fear of reprisal, they may not be truthful in their answers. This quantitative study may not encompass all the possible data retrievable due to the lack of personal stories or focus groups often used in qualitative studies. The study is restricted to the sample size of outpatient clinic staff and the Physician’s Network at Rex Hospital. Additionally, the period of the study is confined to the
year 2019, which will impact the overall results. The study is further delimited using the survey instrument utilized.

**Summary and Organization of the Study**

This dissertation consists of five chapters. Chapter 1 identifies the nature of the problem, the statement of the problem, and the purpose of the study. Research questions are followed by details of related terms. The conceptual framework is detailed, and variables introduced. Chapter 1 concludes by identifying the significance of the study, limitations, and the overall organization of the study. Chapter 2 contains an introduction describing the purpose and organization of the chapter as well as a thorough examination of relevant literature related to resistance to change. Additional literature provides a detailed understanding of educational attainment as well as tenure in the workplace and its effects on resistance to change. The chapter provides a detailed synthesis of the intersection of resistance to change, educational attainment, and tenure in the workplace as shown by scholarly literature. Chapter 3 describes the methodology and research design, research objectives and associated research questions, the variables used in the study, as well as the study’s sample and participants. Discussions of the validation of the instrument and critical review are included. Chapter 4 provides a detailed analysis of the research including the RTC model and demographics including Education and tenure both in correlation and multiple linear regression analysis. Chapter 5 includes a summary and recommendations for future research and actions for employers.

**Definitions**

American Recovery and Reinvestment Act of 2009 (ARRA) - commonly referred to as the Stimulus or The Recovery Act, was an economic stimulus package enacted by the 111th United States Congress in February 2009 and signed into law on February 17, 2009,
by President Barack Obama. The Act included direct spending in infrastructure, education, health, and energy, federal tax incentives, and expansion of unemployment benefits and other social welfare provisions (ARRA, 2009).

**Change** - Within the context of the organization underlies most definitions of organizational learning (Merriam et al., 2007). “Change is a learning process and learning is a change process” (Swanson & Holton, 2001, p. 286).

**Electronic Health Record** - is a systematic collection of medical information about an individual patient or population. It is a record in digital format that is theoretically capable of being shared across different healthcare settings. In some cases, this sharing can occur by way of network-connected, enterprise-wide information systems and other information networks or exchanges (WHO, 2018).

**Healthcare Industry** - or medical industry, is an aggregation of sectors within the economic system that provides goods and services to treat patients with curative, preventive, rehabilitative, and palliative care. The modern healthcare divides into many sectors and depends on interdisciplinary teams of trained professionals and paraprofessionals to meet health needs of individuals and populations (WHO, 2019).

**Health Information Technology** - provides the umbrella framework to describe the comprehensive management of health information across computerized systems and its secure exchange between consumers, providers, government and quality entities, and insurers. Healthcare is increasingly viewed as the most promising tool for improving the overall quality, safety and efficiency of the health delivery system (WHO, 2019).

**Health Information Technology for Economic and Clinical Health (HITECH) Act** - enacted as part of the American Recovery and Reinvestment Act of 2009, was signed into law on
February 17, 2009, to promote the adoption and meaningful use of health information technology. Subtitle D of the HITECH Act addresses the privacy and security concerns associated with the electronic transmission of health information, in part, through several provisions that strengthen the civil and criminal enforcement of the HIPAA rules (ARRA, 2009).

Organizational Change - Organizations going through changes. This occurs when business strategies or major sections of an organization change to meet new regulations, changing environments, or economic needs. Organizational change is a series of planned, structured tactics to enable the organizations to achieve their strategic goals (Gartenstein, 2018)

Resistance to Change Model (RTC) - The RTC was designed to assess individuals' tendencies “to resist or avoid making changes, to devalue change generally, and to find change aversive across diverse contexts and types of change.” (Oreg, 2003)

- **Routine Seeking (RS)**: the behavioral component of resistance to change, "inclination to adopt routines" (Oreg, 2003).

- **Emotional Reaction (ER)**: the affective component of resistance to change, "the amount of stress and uneasiness" induced by change (Oreg, 2003).

- **Short-term Focus (SF)**: the affective component of resistance to change, "the extent to which individuals are distracted by the short-term inconveniences" associated with change (Oreg, 2003).

- **Cognitive Rigidity (CR)**: the cognitive component of resistance to change, "frequency and ease with which people change their minds”(Oreg, 2003).
CHAPTER 2: LITERATURE REVIEW

The purpose of this quantitative research study was to explore how education and tenure affect resistance to mandated change in the healthcare industry. This researcher began the literature review process by reviewing books about organizational development in order to understand the history of interest in change management and the development of the field. This researcher then searched for empirical research published in peer-reviewed journals related to organizational change and change theory. Next, this researcher reviewed several models of change and related theories. An investigation into the literature was also conducted to identify empirical articles about overcoming employee resistance to mandated change and implementing change in the healthcare industry. Each of these research areas revealed gaps in the literature related to resistance to change and its effects on the healthcare industry. Based on those gaps, the researcher developed the research questions of this study.

An extensive search of ProQuest Central, Emerald Insight, Business Source Complete, Social Sciences Citation Index, and Google Scholar databases revealed few empirical studies of Oreg’s model. Studies using the Resistance to Change Model did not focus specifically on the Healthcare industry (Oreg, 2003, 2008, 2011). This researcher conducted extensive database searches using key words and phrases, including resistance, resistance to change, employee resistance to change, tenure, educational attainment, organizational psychology, cognitive dissonance, cognitive rigidity, short-term focus, emotional reactance, routine seeking, change management, barriers to change, mandated change in healthcare, and quantitative methods.

Several books, book chapters, peer-reviewed journal articles, dissertations, papers, and conference proceedings emerged to inform this literature review. A few studies focused on change in the healthcare industry using different conceptual models (Carnevale, Smith, & Strohl,
2010; Jones & Van de Ven, 2016). None of the studies combined education levels and length of tenure in the healthcare industry with the RTC model. As noted in Chapter 1, the passage of the Affordable Care Act legislation stimulated the implementation of large model change in the healthcare industry, especially in technology use. Healthcare service providers across the country are working to adapt and thrive as changes are implemented into the nation’s healthcare system (Ossoff & Thomason, 2013). The problem this research focuses on relates to how higher education and lengthier tenure increase the likelihood of resistance to mandated change in the healthcare industry aligning with the factors of the Resistance to Change model developed by Oreg (2003).

Chapter 2 contains a historical overview of organizational development and research of change implementation with a focus on resistance to change as well as identifying gaps in the literature. Additionally, Chapter 2 contains a review of Oreg’s (2003) model and its evolution including the theoretical foundations. The chapter includes a review of literature analyzing the strengths and weaknesses of prior research as well as a synthesis of findings regarding various models of change, cognitive dissonance resistance to change, and the healthcare industry. Finally, Chapter 2 contains an overview of the need for research into resistance to change in the technologically driven health care industry. The summary concludes the chapter with an explanation of the urgent need for this study in relation to current knowledge of the healthcare industry. Understanding the catalyst for resistance to change is essential to drawing conclusions about change implementation in healthcare industry settings.

Organizational Development and Change Theory

Over the last few decades, considerable research focused on organizational change resulting in several theories of change and hundreds of models developed based on those theories.
This section delves into these theories in greater depth. Organizational change, which is a series of planned, structured tactics to enable the organizations to achieve their strategic goals, allows for the emergence of better business practices through changes in thinking and performing work (Gartenstein, 2018). Rapidly changing knowledge and social standards coupled with changing laws and economic challenges, organizational change is a characteristic of all businesses today (Bauer & Gruber, 2007; Beer, Voelpel, Leibold, & Tekie, 2005; Cranton & King, 2003; Foster, 2010; Fugate, Pressia, & Kinicki, 2012; Jenster & Pedersen, 2000). Change is a critical aspect to a competitive advantage in an age of constantly evolving technological workplaces (Bauer & Gruber, 2007; Cranton & King, 2003).

According to Prochaska and his colleagues (2003; Moore, 2005), the organizational change process is any activity initiated to help modify thinking, feelings, or behaviors related to jobs or a person’s position within an organization. These changes directly relate to the modification of thinking, feelings, and behaviors as business practices change. Major organizational change is profoundly problematic because the structure, culture, and routines of employees often reflect a persistent adherence to the past, which leads to resistance even as the external environment of the organization changes rapidly (Hodson, 1995, 1996 & 1999; Roscigno & Hodson, 2004). Organizational change often translates into increased work expectations, responsibilities, stress, and work hours (Bauer & Gruber, 2007; Beer, Voelpel, Leibold, & Tekie, 2005; Cranton & King, 2003; Foster, 2010; Fugate, Pressia, & Kinicki, 2012; Jenster & Pedersen, 2000). The study of organizational change brings forth numerous theories ranging from organizational to individual catalysts (Suddaby & Foster, 2016).
Throughout the history of organizational development studies, numerous theories emerged to explain the phenomena of change and associated catalysts. One of the early attempts to understand the process of organizational change was called Scientific Management. Taylor viewed organizations as machines whereas he looked at the causes and effects of change (Thomas, 1927). His theory focused on the premise employees were highly trained or not highly trained, which changed acceptance levels of change. Another early theory manifested from the Hawthorne experiments. The investigators attempted to determine the effects of working conditions on morale as well as productivity (Mannevuo, 2018). The experimenters changed the level of light in a work area initially finding a correlation to increased light and productivity. However, as the experiment continued with other perimeters, the researchers concluded either attitude or motivation of the worker significantly affected the output of work (Mannevuo, 2018).

With the emergence of Industrial Psychology in the late 1940’s, the focus shifted toward organizational change theories thereby setting the stage for the emergence of Organizational Development research and practitioners (Suddaby & Foster, 2016). Organizational Development research approaches strive to understand, identify, and manage employees or organizations undergoing change initiatives (Foster, 2010; Hodson, 1995, 1996 & 1999; Roscigno & Hodson, 2004; Vidal, 2007). Kurt Lewin (1947) focused on overcoming resistance to change through a three-step model focused on how managers address and prepare employees for the change process. He posited structures including habits and routine embed in the workplace processes, change must encourage new habits and routines while dismantling old ones (Lewin, 1947).

Organizations presume their employees will adapt to mandated changes of work processes, but many organizations still experience employee resistance (Foster, 2010; Hodson, 1995, 1996 & 1999; Roscigno & Hodson, 2004; Vidal, 2007).
Kotter (1996) developed a model of change identifying eight stages the organization must progress through in order to implement change successfully. The eight steps include a sense of urgency, creation of a guiding coalition, development of visions and strategies, as well as others focused on the organization (Kotter, 1996). Despite the widespread use of Kotter’s model, there are criticisms of it. Critics report it is too rigid, requiring each stage addressed in a specific order (Oreg, 2003). Understanding and valuing the nature of adult learning during the change process means appreciation of their life experiences and educational achievement (Terehoff, 2002). This need brought forth the need for resistance to change theories focused on the actor, not the organization.

**Resistance to Change Theory**

Resistance to change became a popular term after Lewin (1947) proposed his field theory. Field theory is a psychological theory, which examines patterns of interaction between the individual and environment where Lewin (1947) posited change resistance manifested from poor change management, fear of the unknown, poor communication of change efforts, and so forth. The concept first made its appearance in psychology with roots to the holistic perspective of Gestalt theories (Foster, 2010). Kurt Lewin (1952) posited individuals exhibit “inner resistance” to changes they perceived as mandated on them. Lewin (1949) theorized resistance as an interaction between a person’s perception of their needs, disposition, and the forces acting upon an individual in the external environment. Lewin (1947) proposed three stages of change identified as:

1. **Unfreeze**: This stage involves the unfreezing of the organization to attempt at minimizing resistance by communication. This stage involves preparing the organization for the change process.
2. **Change**: This stage allows the people to resolve their uncertainty of the change. The stage takes time as people transition to new processes and lessen negative responses.

3. **Refreezing**: This stage occurs when people embrace the new ways of working and internalize new habits. Workers feel greater confidence and comfort in new ways of doing their jobs.

The terminology of Resistance to Change is found throughout the pages of most organizational development and human resource development books; however, some scholars challenge Lewin’s view as not addressing all the reasons for resistance (Oreg, 2003; Sverdlik & Oreg, 2009; Oreg et al., 2011). Social Psychologists conceptualized resistance as a cognitive state, as an emotional state, and as a behavioral state (Piderit, 2000). Oreg (2003, 2008) defines resistance to change as an individual inclination to undervalue change by labeling it negative regardless of the reasons. Piderit (2000) studied resistance and conceptualized it as negative responses in addition to the above-mentioned states. An emotional conception of resistance, proposed by Coch and French (1948), acknowledged an emotional component of resistance and produced undesirable behaviors in employees. Negative thoughts or cognitions about the change led to resistance from a cognitive standpoint (Piderit, 2000). Armenakis, Harris, and Mossholder (1993) posited cognitive states refer to an unreadiness about change leading to behavioral resistance. Piderit (2000) suggested resistance arose from defensive reactions to a change motivated by frustration and apprehension. Bartlem and Locke (1981) postulated cognition is part of resistance, suggesting experiencing change produces motivational and cognitive effects leading to resistance.

Resistance to change encompasses an interaction between change events and the internal processing of the impact of the event. Often, resistance to change is negative and focused on the
loss of stature, negative feeling of fear, and a sense of losing one’s self (Crowley, Tope, Chamberlain, & Hodson, 2010; Foster, 2010). Positive psychology looks at change differently. Brehm (1966) introduced an alternative theory for resistance to change stating resistant behaviors stem from an alleged loss of choice in a person’s environment. Dent and Goldberg (1999) postulate the solution for managing change is discovering what the change means from the employee perspective. According to Michelman (2007), employees fear change initiatives for many reasons including the survival of their job or their ability to adapt to whatever is new. Employee perceptions of organizational change processes and outcomes influence their reactions to organizational events (Foster, 2010; Hodson, 1995, 1996 & 1999; Roscigno & Hodson, 2004; Vidal, 2007), and one possible reaction is resistance.

Employees’ resistance-oriented reactions to change are frequently the result of feelings of uncertainty, loss of control, and/or fear of failure (Crowley et al, 2010; Oreg, 2003). Employee resistance to change is a major obstacle to organizational change initiatives (Foster, 2010; Hodson, 1995, 1996 & 1999; Roscigno & Hodson, 2004; Vidal, 2007). According to Foster (2010), people interpret desirable behaviors as nonresistant and undesirable behaviors as resistant. Employees see situations clearer as they “live it every day” and can provide keen insight into how the change should occur if at all (Roscigno & Hodson, 2004). Employee resistance to changes varies, but research shows greater educational attainment and tenure tend to produce more resistance to change (Grama & Todericiu, 2016). Employees with greater education know their options for employment increase and those with tenure tend to hold onto previous change effort experienced that failed (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Van Dam, Oreg & Schyns, 2008; Schwartz, 1994).
As postulated by Belgard (2004), resistance to change is not only related to the change itself but from fear of the unknown and the perception of loss. Fear of the change and the unknown are all a natural reaction to the unfamiliar. The longer an employee works in a position the more the job duties and its processes become ingrained in the worker. Belgard (2004) holds the belief individuals feel a sense of resistance due to the threat of disturbance to the status quo. According to Tiong (2005), stress caused by change are closely related. Research has shown organizational change to be a primary cause of stress, because of the feelings of uncertainty, insecurity, and threat. Piderit (2000) postulated reasoned action could be used to evaluate levels of resistance through affective, cognitive, and behavioral aspects. The emotional aspects of Piderit’s (2000) theory focus on the individual’s feelings about change, the cognitive aspects characterized by thoughts, and the behavioral aspects of intended actions or inaction towards the change. These theories of resistance to change are focused on in numerous change studies detailed in the next section.

**Resistance to Change Studies**

Historically, studies on organizational change focused on how organizations prepared for organizational change versus individuals’ reactions to change (Armenakis & Bedeian, 1999; Faucheux et al., 1982; Friedlander & Brown, 1974). Emerging in the forefront of literature, recent studies explore resistance to change from the individual perspective (Judge, Thoresen, & Welbourne, 1999; Oreg, 2003). Several studies focus on resistance to change utilizing a multitude of models and theories. Researchers Di Fabio and Gori (2016) conducted a study focused on the Acceptance of Change model (ACS). The study looked at acceptance of change initiatives more so than overall resistance. Acceptance of change (AC) is the propensity to embrace change versus avoid change because it is regarded as positive for a person’s well-being.
Research on change largely focuses on reasons for resistance, but Di Fabio and Gori (2016) explain assessing the acceptance of change frames change as a mechanism of growth using positive psychological constructs versus negative attributes.

The Psychological Reactance (PR) theory states people assess their ability to decide which actions to take or decisions to make in their environment (Brehm, 1966; Wicklund, 1974). There are four main components of PR theory: 1) Perception of a specific freedom, 2) Perceived threat to the specific freedom, 3) PR in response to the perceived threat, and 4) Attempts to restore the threatened behavioral freedom (Brehm, 1966). Self-determination theory (SDT) is an internal process theory specifying people are motivated to seek experiences that satisfy innate psychological needs such as a need for competence, a need for relatedness and a need for autonomy (Ryan & Deci, 2000).

The ability to accept changes readily and constructively is crucial for meeting the challenges associated with change (Di Fabio & Gori, 2016). Several studies looked at tenure and education as resistance factors (Begley & Czaika, 1993; Cunningham et al, 2002; Iverson, 1996; Morgenson et al, 2006). Specifically, tenure and level of education linked with acceptance of organizational change (Iverson, 1996). Other studies focused on a variety of industries and reasons for resistance, but only a select few focused on the healthcare industry.

Studies in Healthcare

Studies in resistance to change are expansive, however few deals directly with the healthcare industry. Those studies, which focus on the healthcare industry rarely, include the RTC model, tenure, or education as variables. To understand the complexities of the healthcare industry related to levels of education and tenure of its employees as well as how these actors relate to the overall healthcare system in which they work; this researcher will provide an
overview of the industry. According to the World Health Organization (WHO), “a health system consists of all organizations, people, and actions whose primary intent is to promote, restore, or maintain health” (Rice, et al, 2014). Within a health system, healthcare providers include institutions such as hospitals or individuals providing medical services such as professionals like physicians, nurses, medical assistants, technicians, and support staff. As of 2019, there were 6,210 registered hospitals in the United States (AHA Fast Facts, 2019).

Employees within the healthcare industry typically have advanced educational degrees. The American College of Physicians (2019) uses the term physician to describe all medical practitioners holding a professional medical degree. In the U.S., most physicians have a Doctor of Medicine (M.D.) degree, though some possess a Doctor of Osteopathic Medicine (D.O.) degrees and receive similar training so are also allowed to use the title physician. As of 2018 in the United States, there are 953,695 physicians who are actively licensed to practice medicine (AHA Fast Facts, 2019). Nursing professionals are also a critical part of any healthcare systems making up the largest section of the health profession. According to the World Health Statistics Report (WHO, 2018), there are approximately 3.9 million nurses in the United States. Nursing care is provided by varying levels of professionals and paraprofessionals. Nurses are different from other health care providers due to their approach to patient care, their schooling, and scope of practice (BLS, 2019). Nurses develop plans care, work with physicians, the patient, the patient's family, and other team members, focusing on treating illness to improve quality of life (Gentle, 2014). This includes Licensed Professional Nurse, Registered Nurse, and Nurse Practitioner. In addition to physicians and nursing staff, several other members of the care team exist with various levels of educational attainment.
Paraprofessionals include Medical Assistants or Certified Nursing Assistants who focus on a variety of non-medical care such as bathing patients (Gresham, 2019). Support staff like outpatient clinic staff focused on front desk, perform no medical services but are a vital part of the patient’s care and safety. Medical Technicians use technologically advanced equipment to run various diagnostic tests to assist physicians in determining root causes of symptoms. Medical technician positions range in specialties from Surgical Tech, Emergency Rooms Technicians, and laboratory Technicians focused on analyzing blood or tissue (AMT, 2019). In addition to educational attainment, employees in this industry tend to stay in their fields longer than others.

According to the BLS (2019), the median tenure for men and women with less than a high school diploma was 4.7 years and 4.2 years, whereas employees with at least a college degree possessed a median tenure of 5.2 years and 5.0 years. Tenure for those in professional industries like healthcare, in general, possessed greater tenure of over five years (BLS, 2019). In general, hospitals experience greater turnover rates individually, but employees in the industry possess greater tenure in role, moving from location to location (BLS, 2019). Healthcare employees, as seen above, have greater education and tenure than other industries leading to resistance that is more probable to change as detailed below.

With the ever-changing landscape of healthcare, avoiding resistance to change is paramount (Carnevale, Smith, & Strohl, 2010; Patient Protection and Affordable Care Act, 2010). Healthcare experiences technological and legal changes each year. Medical professionals concern themselves with the management of change related to acquiring and maintaining the expertise needed to undertake their professional roles including technological advances (Al-Abri & Al-Hashmi, 2007). According to Barrett & Stephens (2016), healthcare technology implementation has consistently elicited employee resistance in healthcare organizations. This
research addressed organizational changes related to change in technology as it affects healthcare workers (Barrett & Stephens, 2016). Numerous researchers focused on the problem of resistance to change in the healthcare industry through the last eight to ten years. One such study examined the relationships between change resistance and if it strengthened or weakened over time during an extended duration of organizational change (Jones & Van de Ven, 2016). Jones and Van de Ven (2016) found during significant organizational changes, that resistance to change became increasingly negative over time with two important consequences: employees’ commitment to the organization and perceptions of organizational effectiveness decreased.

Di Fabio, Bernard, & Loarer (2014) explained emotional intelligence combined with personality is a catalyst for resisting change in healthcare. Tummers and Van de Walle (2012) focused on external factors for resistance in their research study involving the implementation of Diagnosis Related Groups. The researchers postulated many health professionals were overtly resistant to policy changes doubting whether the policy is beneficial for patients (Tummers & Van de Walle, 2012). Other research, like La Thi et al (2018) focused on sanitation versus employee resistance. Some researchers are returning to the idea that the organizational context like communication of changes and leadership encourages resistance to change more than individual disposition or personality (Burnes, 2012, 2014; Choi & Ruona, 2011; Coch & French, 1948). Cunningham et al (2002) conducted a longitudinal study of a large Canadian hospital focused on organizational changes. Using self-reported data, the researchers found job insecurity and interference as one of the major reasons for resistance to the mandated changes (Cunningham et al, 2002). The researchers did not use the RTC model nor include tenure and education as mitigating variables. Overall, most healthcare industry studies do not focus on technology nor do they use the Oreg Resistance to Change model described in detail below.
Resistance to Change Model Development

This view of resistance towards change has been validated through Oreg’s (2003, 2006) research studies, using samples from multiple industries and countries. According to Giles (2006), resistance to change can be defined as an individual’s desire to maintain consistency when change is unwanted or threatening. Oreg (2006) described most research studies involving change within organizations as focused on circumstantial variables related to change and not on individual differences in predicting resistance. Oreg (2003) developed what he claimed to be the first instrument specifically to address individual resistance to change simultaneously looking at three dimensions of resistance: affective (Short-term thinking and Emotional Reactions), cognitive (Rigidity), and behavioral (Routine seeking) components. The initial study looked at six sources of resistance but ultimately determined three overreaching themes (Oreg, 2003). The conceptualization combines cognitive, affective, and behavioral aspects of resistance in order to understand fully the mechanics of resistance (Oreg et al, 2011; Van Dam, Oreg & Schyns 2008). These three components work in concert together or alone to motivate an individual to resist change. The cognitive component relates to thought patterns or general unreadiness to change or learn (Oreg, 2003). Affective aspects relate to the emotional responses such as fear or anger (Foster, 2010). Lastly, behavioral components relate to the actions displayed in accordance with resistance, like sabotage or defiance (Crowley, Tope, Chamberlain, & Hodson, 2010).

Oreg (2006) found certain employee responses to mandated organizational change affect other response types. Cognitive responses can influence behavioral responses. In such cases, individuals who do not believe in the value of the change (cognitive resistance) may also behave in ways that run counter to effective change implementation. The RTC model demonstrates that beliefs are now multi-dimensional. Oreg (2018) echoed the thoughts of others viewing change
negatively without much regard for other mitigating factors. Many influences encourage resistance to change and researchers historically focused on individual reasons like Oreg (2003). The emerging research focuses on positive reasons for change and reasons for resistance (Battilana & Casciaro, 2013; Di Fabio & Gori, 2016; Di Fabio, Bernard, & Loarer, 2014).

In 2008, a team of researchers headed by Oreg focused on an international group of participants from 17 countries. To establish validity in the Resistance to Change model cross-culturally (Oreg et al, 2008), the team determined correlating an instrument already validated cross-culturally; therefore, they combined the RTC with Schwartz’s Personal values survey. According to Oreg, et al. (2008), the contrasting values of self-transcended/self-enhancement and conformity/openness to change merge well with the RTC model’s four distinct factors thus showing the validity of the instrument. The research required a group of participants with common characteristics due to the vast differences inherent in varying cultures. The team chose to use undergraduate students, so the participants matched on age and educational levels. The countries sampled in the present study are Australia, China, Croatia, the Czech Republic, Germany, Greece, Israel, Japan, Lithuania, Mexico, the Netherlands, Norway, Slovakia, Spain, Turkey, the United Kingdom, and the United States (Oreg, et al, 2008). Since the participants spoke several different native languages, all instruments required translation by fluent individuals to ensure language barriers did not skew the results of the study. Participants filled out the 17-item RTC Model, Schwartz’s 40-item Portrait Value Questionnaire, and a demographics questionnaire. The team used a multi-group confirmatory factor analysis procedure to analyze the data. The results, according to the team, show correlations among RTC submodels. Once the analysis of the RTC finalized, the team analyzed the results between RTC Model scores and the values’ scores in each of the 17 samples (Oreg et al, 2008).
Their results coincided with their expected results. The research team posits a correlation between Emotional Reaction and short-term thinking, which this study confirmed. Though vital in confirming the validity of the RTC model as a culturally usable instrument, it did not completely address how personal values correlate directly to resistance. Additionally, this population deals specifically with educated participants whose average age is 22 years. In healthcare, the educational and age ranges are more pronounced. Equally important is the variance in educational choices amongst those participating in the study since the criteria related to current college students, not specific educational courses.

To develop the theory and model further, Sverdlik and Oreg (2009) focus on mandated change wishing to illuminate the conflicting motivational factors related to their conceptual framework. They explain that mandated change triggers people’s orientation toward both originality versus stability and autonomy versus compliance (Sverdlik & Oreg, 2009). The research involved facility and staff at a four-year institution in Israel. The mandated change related to the relocation of the main campus, which resulted in lengthier travel times for staff. Using both Schwartz’s 46-item value survey (SVS) and the 17-item RTC, the team surveyed 500 employees with a response rate of 117. An additional survey added a dimension to this research by using Oreg’s Change Attitudes Model for additional data of the participants’ reaction to the mandated change.

The research again used undergraduate students as participants and related to voluntary change. Oreg and Sverdlik (2009) used the university in Israel. The students were predominately female and average 28 years old. The participants received the 46-item SVS and the 17-item RTC. The analysis used an equivalent analysis to determine a correlation with the factors. They found that support for change correlated between values when controlling for mandated or
voluntary change. Oreg and Sverdlik (2009) also propose their findings enhance the knowledge of resistance to change since their study looked at correlations of different types of change. This study did advance the knowledge of resistance to change and a relationship with values/norms, but the participants again were largely students or employed in academics.

Oreg and Sverdlik (2011) focus their research on the relationship of the employee and the change agent as well as ambivalence, adding a new dimension to the current knowledge on change. The participants are employees in the defense industry in the throes of a merger. Per the team (2011), the participants achieved relatively high levels of education, with 37% holding a graduate degree, 35% an undergraduate degree, and 20% a technical degree, and 8% had lower levels of education, most of whom earned a high school degree. The second phase of the study focused on examining internal conflict related to employees’ dispositional resistance and their workplace social identity. This study returns to the college campus and involves staff. Again, the results determined that the violation of social identity correlated to resistance to change. The third phase of the study looked at employees at a government electric company. The study focused on resistance to change and employee ambivalence. One key factor here is the tenure of the employees.

As per Sverdlik and Oreg (2011), a pattern emerged with the three studies correlating dispositional resistance with ambivalence among individuals having an adverse orientation toward the change agent (Oreg & Sverdlik, 2011). The studies helped evolve and grow the validity in the Resistance to Change model through using already validated models. The studies tended to focus on similar educational attainment levels and tenure, not like healthcare. Overall, the studies added to the overall knowledge of resistance to change, however, these studies
neglected to look at the potential issues related to healthcare careers, namely lengthier tenure and more variance in educational attainment.

**Conceptualization of Study**

The conceptual framework for this study focused on the interconnectivity of demographic variables of tenure and education coupled with the Resistance to Change model. This allowed research to connect the relationship between mandated technological changes in healthcare and employee resistance to changes. As stated in Chapter 1, the most appropriate model for demonstrating the likelihood an employee will resist organizational change based on workplace tenure and educational attainment is proposed by Oreg (2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008) in his research study, “Resistance to change: Developing an individual differences measure”. These factors are behavioral, affective, and cognitive aspects of resistance to change, conceptually. The behavioral aspect focuses on the inclination to adopt routines, especially with work (Oreg, 2003). The affective dimension comprises two factors: Emotional Reaction and short-term thinking. These factors focus on inconveniences experienced by individuals involved in change and the amount of stress and uneasiness when confronted with change (Oreg, 2003, 2006). The cognitive factor is Cognitive Rigidity factor, which taps the frequency and comfort people change their minds (Oreg, 2003).

Routine seeking behavior in employees relates to the organizational norms and culture. The more routine the processes become, the more the employees seek to maintain this routine (Oreg, 2003; 2006). Routine seeking shows employees prefer traditional processes, known rituals, predictable tasks, and familiar environments (Foster, 2010). Routine seeking may be a factor of how long an employee has been on the job, and how familiar or complacent they become with the status quo (Oreg, 2003).
Short-term thinking and emotional responses relate to an individual’s inability to focus on long-term benefits of changes. Oreg (2003) described these factors as intolerance of adjusting to the process of change. Additionally, Oreg (2006) clarified the focus on short-term change periods leads to increased resistance. Short-term thinking is augmented by a lack of personal resilience coupled with emotional responses to the change. According to Conner (1993), personal resilience relates to regaining a sense of stability and productivity after the change. People who focus on regaining control of the status quo resist change, even if aware of the long-term benefits of the proposed change (Oreg, 2003). Belgard (2004) posited short-term thinking rooted in the fear of the unknown and loss of control.

Cognitive rigidity is described as “the tendency of an individual not to change” (Schultz & Searleman, 2002, p. 166). Cognitive rigidity is an irrational reaction to mandated change such as people unwilling to change because they do not like change (Oreg & Sverdlik, 2011). Oreg (2003) theorized cognitive rigidity of dogmatic individuals is characterized by rigidity and closed-mindedness. People’s response to change relates to the experiences, perceptions, and cognitive development of that individual (Diamond, 1986). Cognitive rigidity leads to resistance through the people’s inability to alter beliefs and assumptions when challenged. Oreg (2003; 2006; Oreg et al, 2011) explained change causes anxiety in those who fear loss of control or concerns over their ability to learn new tasks.

Oreg (2006) suggested attitudes could be predicted in people facing change by affective, cognitive, and behavior responses. Oreg (2006) establishes relates to personality, resistance to change, and work-related outcomes in his Resistance to Change Model. Oreg (2003) adopted the research of Piderit (2000) and established four sources of resistance to change within individuals that demonstrate the affective, cognitive, and behavioral dimensions: (a) routine seeking, (b)
cognitive rigidity, (c) emotional response, and (d) short-term thinking. The researchers considered employees’ characteristics such as tenure and education, the organizational context as well as specific aspects of the organizational change as predictors of reactions to change (Oreg et al. 2011). Shaul stressed employees as the source of resistance conceptualizing the concept of resistance to change as consisting of multiple dimensions (affective, cognitive, and behavioral) (Oreg 2003, 2006, Oreg et al, 2008, 2011).

Summary of Chapter

My research study adds to the current knowledge of the resistance to change literature, since none of the studies conducted focused on tenure and education levels in the healthcare industry using the Resistance to Change model. Researching this specific population enhanced the scholarly knowledge of Change Theory. Furthermore, the need to understand the factors leading to employee resistance in this demographic will show ways to assist employees deal with change and help to implement change management programs geared toward employees with greater education and tenure.
CHAPTER 3: METHODOLOGY

This chapter presents an overview of the methods used in the research study. An introduction to the study is provided, followed by a detailed research design with sections explaining the sampling process, participants, instrumentation, and data collection methods. Prior to the initiation of the research, Institutional Review Board (IRB) of North Carolina State University approved all aspects of the study as meeting the criteria as exempt status (IRB#: 6658). The study applied a quantitative, non-experimental, explanatory correlation design using gaps found in literature to guide and frame the research questions. Non-experimental design is not obligated to have an experimental, manipulated variable or random assignment of participants (Creswell, 2009). My research is repeatable and has variables, which can and are measurable.

The importance of this research study is twofold. First, previous studies rarely focused on a healthcare population related to mandated organizational change, which is different in many ways from those of previous studies, namely educational facilities (Oreg, 2003; Oreg et al, 2008; Oreg & Sverdlik, 2011; Saksvik & Hetland, 2009; Sverdlik & Oreg, 2009). Second, resistance to change in this type of population results in inadequate patient care leading to injury or death. Understanding this population’s reason for reacting in certain resistant ways toward change helped us think strategically about the development of proactive change management techniques. The next section reviewed the overall research design including pre-data analysis, instrumentation, and design methods.
Research Design

This study examined variability among employees in the healthcare industry by analyzing resistance to mandated organizational change by means of data collected from the RTC model and demographic surveys. After a thorough examination of the literature, quantitative correlation analysis was the best method as it explained the underlying meanings for observed behavior (Bernard & Bernard, 2012; Creswell, 2013; Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013). Gall, Borg, and Gall (1996) elucidated the intent of quantitative research is to explain, predict, confirm, or validate relationships to develop generalizations about the theories being researched. Quantitative, non-experimental research involves surveys designed to enable researchers to query participants to determine their opinions, behaviors, or attitudes (Bernard & Bernard, 2012). Quantitative methods utilize numerical measurements to provide important connections and to express quantitative relationships between variables (Bernard & Bernard, 2012; Creswell, 2013; Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013).

Survey research design has several advantages over other research design methods including convenience and lower time commitment for study participants (Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013). However, unlike more qualitative research approaches, survey design does not allow for in-depth examination of individual respondent’s beliefs or attitudes (Gall, Gall & Borg, 2007). Survey research uses close-ended questions, which limits the participants to answering the questions through discrete number representations (Punch, 2013). This study encompassed the use of quantitative data compiled from Likert-type or frequency scale survey to understand the complexities of resistance to organizational change by means of empirical data and mathematical models.
Quantitative methods rely on numerical measurements categorized as experimental or non-experimental and research design according to the purpose of the study (Creswell, 2013). Quantitative research is classified as exploratory-initial understanding of phenomenon, descriptive-precise measurement and reporting, and explanatory-discovery and reporting (Bernard & Bernard, 2012; Creswell, 2013; Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013). Creswell (2013) explained the three purposes for conducting research are describing a situation, exploring a phenomenon, or examining relationships between variables and defines descriptive design the researcher lacking direct control over variations in independent variables where the participants are not randomly assigned to conditions.

Creswell (2013) described quantitative research as a process of collecting data, analyzing, interpreting, and writing the findings and results of the study. According to Bernard and Bernard (2012), research studies start with at least one question about a phenomenon of interest and research questions enable researchers to focus a topic, manage efforts, and help to determine the research design. The purpose of exploratory research is to determine if relationships exist between independent and dependent (or outcome) variables by using correlation statistics. This matches Gall, Gall, and Borg’s (2007) observation correlation survey research designs are frequently used methods to collect data not directly observable, as are the constructs being examined for this study (e.g. perceptions of openness to change). Because this study focused on examining the relationships among different constructs with the intent of forming inferences about predictability in organizational settings, I employed a quantitative approach. Given the nature of my research questions, using correlation quantitative design is determined to be the most appropriate to address questions pertaining to empirical relationships among several constructs and present a generalizable set of findings.
Instrumentation

This research study used an electronic survey in Qualtrics consisting of two sections: demographics (with independent variables) and Oreg’s Resistance to Change Model. The measurement instrument used in this study for the data to be gathered and analyzed utilizing the model presented by Oreg (2003) called the Resistance to Change (RTC) Model (Appendix B). Permission was granted by Oreg to use this survey (see Appendix A). The survey addressed resistance (Oreg’s Resistance to Change Model) coupled with a demographics survey, which included the independent variables of tenure and educational attainment as well as age, gender, and race/ethnicity (Dent & Goldberg, 1999, Oreg et al., 2008; Oreg, 2003; Schwartz, 1992). The combination of these two surveys used by Oreg (2003, 2006, 2011) highlighted the correlation between certain demographic data (education and tenure) and the prevalence of the disposition of resistance to change.

Many researchers use participant self-reported data collected via Likert-type surveys for analysis of emotional responses, personal values, or forms of resistance (Foster, 2010; Dent & Goldberg, 1999, Oreg et al., 2008; Oreg & Sverdlik, 2011). A Likert-type scale assumes the intensity of experience is linear, therefore, uses choices of five to nine pre-coded responses with a neutral point (Bowling, 1997; Burns, & Grove, 1997; Likert, 1932). The advantages of a Likert-type are the ease of analysis and the unlikeliness of a simple yes/no answer (Bowling, 1997; Burns, & Grove, 1997). The disadvantage of this type of survey is the potential for lying due to the participant answering based on what they think the researcher wants to see or socially acceptable answers (Bowling, 1997; Burns, & Grove, 1997).

Survey research was appropriate for measuring attitudes, perceptions, beliefs, ideas, and opinions of individual units of analysis. Quantitative studies demonstrate the use of scientific
methods to understand social phenomena through the numerical measurement of constructs (Creswell, 2013). The model measured resistance to change with four sub scales listed as routine seeking, emotional response to mandated change, short-term thinking, and cognitive rigidity (Oreg, 2003). The RTC model is a validated instrument extensively used in organizational research studies (Oreg, 2003, 2006, 2017; Oreg et al, 2008).

Oreg (2003, 2006, 2011; Oreg et al, 2008) conducted seven studies using the RTC Model scale. The initial study (Study 1) was an exploratory analysis, which determined the four factors: routine seeking, emotional response to mandated change, cognitive rigidity, and short-term thinking (Oreg, 2003). Studies 2, 3, and 4 confirmed the structure and validity by demonstrating convergent and discriminant validities (Oreg, 2003). The final studies, 5, 6, and 7, demonstrated concurrent and predictive validities of the model as well (Oreg, 2003). The predictive validity addressed confirms which factors correlate strongest to resistance to change. Oreg and his team eliminated any exploratory factors with correlations less than .4 with other items (Oreg, 2003). Oreg (2003) states after deletion of items, which did not load significantly on any factors or loaded highly on multiple factors, the four-factor model remained.

The concept of dispositional resistance to change introduced in a series of exploratory and confirmatory analyses through which the validity of the Resistance to Change (RTC) Model has been established (Oreg, 2003, 2008). The RTC model is a 17-question; self-report scale geared to determine the level of resistance to change initiatives. It consists of declarative statements related to each sub model on a 6-point Likert model ranging from strongly disagree to strongly agree. The first five questions of the RTC model represent the routine seeking factor. Questions 6 through 9 represented the emotional response to mandated change factor. Questions
10 through 13 represented the short-term thinking. Questions 14 through 17 represented cognitive rigidity.

All four scales within Oreg’s seven initial studies upheld acceptable internal reliability, measured by Cronbach’s coefficient alpha of 0.87 for the total model representing high internal consistency, as seen in Table 2 (Oreg, 2003). The sub scales reported alphas of (routine seeking) 0.75, (emotional response) 0.71, (short-term thinking) 0.71, and (cognitive rigidity) 0.69 (See Table 1.2). Alphas for the Routine Seeking factor, the Emotional Response factor, and the Short-Term thinking were all acceptable (Oreg, 2003; 2006). The alpha for the Cognitive Rigidity, which contained only three items, was marginally acceptable (Oreg, 2003; 2008). Higher levels of agreement in participant responses indicated higher levels of resistance to change.

Table 3.1

RTC Subscales and Coefficient Alphas.

<table>
<thead>
<tr>
<th>Scale</th>
<th>Description</th>
<th>Items</th>
<th>Alpha</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Seeking</td>
<td>Comfortable with routine or consistency</td>
<td>1,2,3,4,5</td>
<td>.75</td>
</tr>
<tr>
<td>Emotional Reaction to Imposed Change</td>
<td>Response or feelings in regard to imposed change</td>
<td>6,7,8,9</td>
<td>.71</td>
</tr>
<tr>
<td>Short-Term Focus</td>
<td>Perception of change as an inconvenience or a hassle; not focused on long term benefits of change</td>
<td>10,11,12,13</td>
<td>.71</td>
</tr>
<tr>
<td>Cognitive Rigidity</td>
<td>A form of stubbornness and difficulty accepting other opinions</td>
<td>14,15,16,17</td>
<td>.69</td>
</tr>
<tr>
<td>Total RTC Scale</td>
<td>Personality trait representing a general negative approach toward change, inclination to avoid or resist change</td>
<td>1-17</td>
<td>.87</td>
</tr>
</tbody>
</table>

Adapted from Oreg (2003) Resistance to change: Developing an individual differences measure

Most participants with whom the model was validated were from the United States. Subsequent research validated the model cross-culturally in various countries (Di Fabio, Bernaud, & Loarer, 2014; Meyer, Hecht, Gill, & Toplonytsky, 2010; Oreg, 2018; Oreg et al, 2008; Stewart, May, McCarthy, & Puffer, 2009). Measurement equivalence analyses of data
from 17 countries, representing 13 languages and 4 continents, confirmed the cross-national validity of the model (Oreg et al., 2008). Equal patterns of relationships between personal values and RTC across samples provide further evidence that dispositional resistance to change holds corresponding meanings across different geographical locations (Oreg et al., 2011). Oreg (2008) showed validity in the model by comparing the Portrait value questionnaire with RTC as already confirmed in multiple languages and countries, as seen in Table 3. The findings suggest dispositional resistance to change shares its significance, as an individual-level concept, across cultures.

Table 3.2

Pearson Correlations between Resistance to Change (RTC) and Portrait Value Questionnaire Dimensions for the 17 samples.

<table>
<thead>
<tr>
<th>Country</th>
<th>RTC &amp; Openness</th>
<th>RTC &amp; Conservation</th>
<th>RTC &amp; Self-Transcendence</th>
<th>RTC &amp; Self-Enhancement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Australia</td>
<td>-.44**</td>
<td>.32**</td>
<td>.06</td>
<td>-.07</td>
</tr>
<tr>
<td>China</td>
<td>-.54**</td>
<td>.55**</td>
<td>-.05</td>
<td>-.02</td>
</tr>
<tr>
<td>Croatia</td>
<td>-.56**</td>
<td>.58**</td>
<td>-.19*</td>
<td>-.12</td>
</tr>
<tr>
<td>Czech Republic</td>
<td>-.57**</td>
<td>.54**</td>
<td>-.03</td>
<td>-.10</td>
</tr>
<tr>
<td>Germany</td>
<td>-.50**</td>
<td>.54**</td>
<td>-.04</td>
<td>.03</td>
</tr>
<tr>
<td>Greece</td>
<td>-.44**</td>
<td>.45**</td>
<td>-.13**</td>
<td>-.05</td>
</tr>
<tr>
<td>Isreal</td>
<td>-.57**</td>
<td>.51**</td>
<td>-.03</td>
<td>.00</td>
</tr>
<tr>
<td>Japan</td>
<td>-.45**</td>
<td>.42**</td>
<td>-.06</td>
<td>.01</td>
</tr>
<tr>
<td>Lithuania</td>
<td>-.44**</td>
<td>.48**</td>
<td>-.13</td>
<td>-.01</td>
</tr>
<tr>
<td>Mexico</td>
<td>-.30**</td>
<td>.34**</td>
<td>-.20**</td>
<td>.08</td>
</tr>
<tr>
<td>Neatherlands</td>
<td>-.56**</td>
<td>.45**</td>
<td>.06</td>
<td>.10</td>
</tr>
<tr>
<td>Norway</td>
<td>-.54**</td>
<td>.44**</td>
<td>-.10</td>
<td>.09</td>
</tr>
<tr>
<td>Slovakia</td>
<td>-.34**</td>
<td>.33**</td>
<td>-.13</td>
<td>.03</td>
</tr>
<tr>
<td>Spain</td>
<td>-.50**</td>
<td>.43**</td>
<td>-.06</td>
<td>.03</td>
</tr>
<tr>
<td>Turkey</td>
<td>-.31**</td>
<td>.23**</td>
<td>-.12</td>
<td>.06</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>-.47**</td>
<td>.44**</td>
<td>-.13</td>
<td>.06</td>
</tr>
<tr>
<td>United States</td>
<td>-.27**</td>
<td>.28**</td>
<td>-.17*</td>
<td>.06</td>
</tr>
<tr>
<td>M</td>
<td>-.43</td>
<td>.44</td>
<td>-.08</td>
<td>.00</td>
</tr>
</tbody>
</table>

The instruments the researcher used in this study have previously been used in concert with each other in several studies involving faculty and students in universities world-wide as well as engineering firms and corporate settings (Oreg, 2003; Oreg et al, 2008; Oreg & Sverdlik, 2011; Saksvik & Hetland, 2009; Sverdlik & Oreg, 2009). Oreg’s (2003). The previous RTC model surveys do not include healthcare but did not require alteration to coincide with a workplace as Oreg prepared for this by creating a survey for each work location. In order to address privacy and potential researcher bias, the survey was sent via a proxy (see Data Collection for details).

**Study Variables**

This study combined the RTC model with education and tenure along with other demographic variables with participants in the healthcare industry in order to address missing gaps of knowledge in the literature. Previous studies looked at tenure and education alone. Those that did combine tenure and education did not use the Resistance to Change Model in the healthcare industry. Many of the studies (discussed in Chapter 2) focused on the external factors, like management or presentation of the change to the participants (Bauer & Gruber, 2007; Beer, Voelpel, Leibold, & Tekie, 2005; Cranton & King, 2003; Foster, 2010; Fugate, Pressia, & Kinicki, 2012; Jenster & Pedersen, 2000). By focusing on individual attributes like education and tenure, the empirical knowledge will be enlarged for this demographic and for change studies. Below is detailed information about each of the variables.
Dependent Variables (RTC Model)

Developed through a series of experiments to confirm validity (Oreg, 2003; Oreg, et al., 2008), the Resistance to Change (RTC) model was designed to assess individuals’ tendencies to resist or avoid making changes, to devalue change generally, and to find change aversive across different contexts and types of change (Oreg, 2003). The model is operationalized with a survey consisting of 17 items using a six-point Likert style rating (1 = Strongly Disagree to 6 = Strongly Agree). The strength or weakness of these factors can predict the likelihood of resistance. Below is a detailed discussion of each of the four factors.

**Routine seeking.** Routine seeking relates to the extent employees prefer traditional processes, known rituals, predictable tasks, and familiar environments (Oreg, 2006). Routine seeking (RS) relates to a behavioral component of resistance to change, namely an inclination to adopt routines. Individuals who strive for routine and seek out stable environments are most affected by this factor (Oreg, 2003, 2006; Sverdlik & Oreg, 2009). Routine seeking behavior relates to organizational norms and culture, as well as established routines for work completion (Oreg, 2003). Certain people prefer spontaneity, but for some, change can cause extreme stress and anxiety (Oreg et al, 2011). This factor relates to how long an employee is on the job and how complacent to the status quo (Oreg, 2003). According to Hodson (1996), workers become entrenched and impassioned in their duties and routines. This forms a social identity within the workplace. Social identity violations can lead to resistance Tajfel, 1974; Tajfel, Brown, & Turner, 1979). Based on lengthy tenure with a company or in a position, changes alter comfortable and established routines. Knowing which individuals prefer stimulation can help determine which employees need additional assistance through changes.
**Cognitive rigidity.** Individuals who have tendencies toward this factor are not likely to change their views or ideas and might become closed-minded (Oreg et al., 2011; Van Dam, Oreg & Schyns 2008). Cognitive rigidity is an irrational response to change; individuals displaying cognitive rigidity are those who are simply unwilling to change because they do not like change (Oreg, 2003). The rationale behind measuring cognitive rigidity is people who are rigid and close-minded resist change more readily (Oreg, 2003). Employees focused on old methods without some special attention to accomplishing the task are more likely to resist changes to those tasks. Each new task requires forgetting the old methods of doing the job and learning new things. Cognitive Rigidity (CR) relates to the cognitive component of resistance to change, namely the frequency and ease that individuals change their minds (Foster, 2010; Oreg, 2003; Oreg et al., 2008; Oreg & Sverdlik, 2011; Saksvik & Hetland, 2009; Sverdlik & Oreg, 2009).

Turner and Tajfel (1974) state cognitive rigidity stems from the cognitive development of adaptive and defensive tendencies. Adaptive tendencies contribute to the development of maturity and autonomy (Tajfel, Brown, & Turner, 1979). The adaptive tendencies relate to one’s ability to take advantage of opportunities with unknown results. Defensive inclinations protect the individual from risks in adopting change. Self-protective tendencies allow people to avoid anxiety and to maintain comfortable existence in the status quo (Tajfel, Brown, & Turner, 1979).

**Emotional Response.** Emotional Response (ER) relates to the affective component of resistance to change, namely the amount of stress and uneasiness induced by change. This factor comprises emotional reactions from the Resistance to Change model. Emotional reactions can lead to resistance to change (Oreg, 2003). The lack of control a person experiences can cause them to resist or if the change is positive, embrace it. The psychological reaction to a change or event threatens the freedom a person has in choosing his or her own path (Oreg, 2006). When
individuals feel threatened, they attempt to gain back their freedom or sense of freedom and reacted sometimes with hostility or resistance (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Reese, 2009; Van Dam, Oreg & Schyns, 2008). Emotional responses to mandated change encourage people to voice their opinions, participate in overt resistance like sabotage, and work avoidance (Hodson, 1996).

**Short-term Thinking.** Individuals who fail to see the long-term benefits will resist change versus accepting short-term unease (Foster, 2010). Short-term Thinking (ST) relates to the affective component of resistance to change, namely the extent of which individuals are distracted by the short-term inconveniences associated with change (Oreg, 2003). Oreg (2006) described short-term thinking as intolerance of the transition time period during the process of change. Moreover, Oreg (2003, 2006) explained short-term transition periods lead to increased resistance to change. Short-term thinking is known to occur even if the person perceives future benefits of change initiatives as favorable, due to a dislike of uneasiness during the transition. Short-term thinking is augmented by a person’s lack of personal resilience. According to Hodson, (1996), personal resilience refers to a person’s ability to regain a sense of stability and productivity after the change initiative has been implemented. Personal resilience is in direct contrast to the concept of short-term thinking. People with greater education and tenure tend to be more resistant due to short-term thinking (Reese, 2009; Van Dam, Oreg & Schyns, 2008).

**Independent Variables**

**Educational Attainment.** The target population of this research study is required to hold a college degree or certificate for all patient care positions as well as knowledge of medical terminology and computer skills. This target population has a range in educational attainment from associate degree to medical doctors. The studies previously discussed focus on students and
faculty in universities with an average of bachelor’s level education attainment. Educational experiences presumably promote intellectual openness, flexibility, and perspective (Oreg, 2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008; Schwartz, 1994). These experiences increase the openness to non-routine ideas or activities.

According to Vithessonthi (2008), individuals with higher educational achievement are more likely to resist mandated changes since they have more employment options available. Once individuals work toward an educational goal, change can pose a greater threat to their autonomy. Additionally, employees with a higher level of education understand more jobs are available to them. If satisfied with their current situation, change can elicit resistance, Employees who possess higher education can become resistant to change due to possessing knowledge and a fear that their way of doing something is wrong (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Reese, 2009; Van Dam, Oreg & Schyns, 2008). Educational level is relevant as those with higher education resist change more readily (Carnevale, Smith, & Strohl, 2010; Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg, 2003; Oreg, & Sverdlik, 2011; Oreg et al., 2008; Schwartz, 1994; Van Dam, Oreg & Schyns, 2008).

**Workplace Tenure.** Several studies show that tenure at a company elicits a greater level of resistance to mandated change (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Reese, 2009; Van Dam, Oreg & Schyns, 2008). One aspect which coincided with my study is a lengthier tenure of employment; however, the researchers did not use this as a determining factor for resistance. My population tends to stay at their positions (even if a similar role at a different company) for extended times due to a commitment to patients (Di Fabio, Bernaud, & Loarer, 2014). They also spent numerous years and money obtaining their degree and license creating the unlikelihood of leaving the field quickly.
Several reasons emerge to explain this dimension in relation to the possibility of resistance. First, employees who have lengthy tenure may fear losing face if unable to cope with the change or learn a new process. Second, long-term employees may feel that change violates their workplace identity, which ties to their social identity (Tajfel, 1974; Tajfel, Brown, & Turner, 1979). Many with high tenure tend to be satisfied with their current situation and dislike changing the status quo (Van Dam, Oreg & Schyns, 2008). Anticipating which employees who will exhibit resistance allows for the development of better change processes eliminating or reducing resistance, thus protecting patient safety. Next, I will discuss the demographic variables for the study. Tenure at the position correlates with resistance to change; therefore, the survey contained the number of years employed in the participant’s current position (Vithessonthi & Schwaninger, 2008).

**Additional Demographics**

Certain demographic factors influence the potential an employee must resist change. These factors are gender, age, and racial/ethnic background. Each of these personal demographics works to solidify a persons’ social identity, which merges with their workplace identity (Tajfel, 1974; Tajfel, Brown, & Turner, 1979). Though much research shows no correlation between these demographic factors and resistance to change, I have included them in this study to demonstrate the lack of correlation. The demographic survey focused on important data for this group of individuals. Five demographic questions were included in the survey to allow for statistical analysis of such personal characteristics as gender, age, and race. Older workers are often in a maintenance career stage, which potentially leads to greater levels of cognitive rigidity (Kunze, Boehm, Bruch, 2013). Gender information is included for the potential effects it may have on resistance, as females are more apt to be less resistant and conforming to
social norms (Van Duk & Van Dick. 2009). In addition to the above-mentioned demographics, education and tenure are included on the survey as independent variables. Below, a discussion of the remaining variables.

**Age.** Older workers, being in the maintenance career stage, are assumed to be more cognitively rigid, more short-term focused, and hence more resistant to change (Kunze, Boehm, & Bruch, 2013). Some researchers believe older adults find learning new ways of doing things more difficult because their intelligence, memory, and sensory abilities have declined due to advanced age (Chang & Lin, 2011). According to this belief, older learners are less able to learn due to decreased brain function related to failing neurons and increased resistance against learning anything that detracts from their knowledge forged over years of living. As people age, they become more embedded in their social networks, more committed to expected patterns, and less open to exciting and stirring changes or challenges. Chou and Tsai (2009) tested the readiness of unemployed individuals for online training readiness and found readiness average about the same regardless of age. The study suggested that even if the material related to something new and challenging like technology, age did not dictate readiness to adapt to the change.

**Gender.** Gender is biologically dichotomous; however, much of what we consider gender relates to social aspects rather than physical ones. Gender socialization, a major component of overall socialization, is a process through which individuals learn to perform certain roles considered appropriate for each sex (Chang & Lin, 2011). Males and females learn socialization differently based on the cultural environment in which they live. This demographic is a dichotomous variable indicating the biological sex of the employee. Researchers propose that men emphasize values like power and achievement, while females emphasize values like
benevolence and universalism (Schwartz & Rubel, 2005). Gender is not a definitive determinant for behavior, though society enculturates females to be more nurturing and males the conqueror in many cultures.

**Race/Ethnicity.** Race is a construct of characteristics based on social and cultural norms of a society, which groups individuals into categories based on these characteristics. Researchers debate the existence of biologically based races, but the social expectations of race create a social identity through life experiences (Tajfel, 1974). Ethnicity, which is the fact or state of belonging to a social group that has a common national or cultural tradition, plays a role in a persons’ social construct and norms (Van Duk & Van Dick, 2009). Race and ethnicity are included in this study to illuminate or dispel its importance in resistance to change.

**Population and Sample**

The population of healthcare workers includes medical assistants, nurses, doctors, medical testing, and similar fields (NIH, 2018). The medical profession is highly educated to ensure patient safety and adequate care for various illnesses, injuries, and preventative care. This sample population included individuals dedicated to patient care such as doctors, nurses, lab techs, and medical assistants in an outpatient clinic setting. The medical profession employs over 12 million people in the United States (NIH, 2018); therefore, understanding how these individuals react to mandated change is relevant. The age range of individuals within the medical profession ranges from 18 to 75 years of age. Both males and females work within the field in relatively equal numbers according to the National Institute for Health (NIH, 2018). All races, ethnicities, geographical regions, and cultural norms represent the population of this profession. In order to study adequately this population, I obtained a cross-section of the 1,500 members of University of North Carolina (UNC) Rex Hospital Physicians and outpatient clinic staff. This
population includes individuals with various educational levels according to the gatekeeper. There are Associate’s degree (42%), Bachelor’s degree (64%), Master degree (3.5%), and Doctor/MD (.5%). The racial/ethnic makeup is White (75.5%), Black (11.1%), Asian (5.9%), Hispanic (1.7%), and Other (5.8%). The ages are categorically as follows: 18-29 (20.4%), 30-39 (30.1%), 40-49 (22.8%), 50-59 (18.8%), and 60+ (7.8%).

**Sampling Procedures**

The sampling procedure for this study used an electronic survey created in Qualtrics consisting of two sections: demographics and Oreg’s Resistance to Change Model. The surveys were loaded into Qualtrics, which is an online survey tool for ease of use and analysis as well as protection of participants’ identity. This combined survey was emailed to a gatekeeper at UNC Rex who ensured it reached the target population enhancing anonymity. This was a single-stage sampling since access to members of this network was feasible. The sample was a census sample as the survey went to all members of the targeted population. The population was the total number of medical personnel at Rex Hospital, Outpatient Clinics.

**Protection of Participants’ Rights**

Ethical considerations are critical factors in each step in the research process. This researcher guarded against misinterpretation of the data results, as well as an accurate reporting of reliability and applicability of the study (Creswell, 2013). In this research study, I ensured confidentiality of participants’ identification and responses. The survey invitations explained confidentiality and a consent form attached to the survey invited participants’ response to acknowledge their understanding of the study process prior to accessing the survey questions.

The electronic consent form was mandatory with two potential responses of either consent or no consent before gaining access to the survey. Confidentiality was explained to the
gatekeeper in the initial solicitation to participate in the study process. Demographic questions did not include any data to identify the participants like email or name. All surveys and research data will be kept in electronic format and stored in a secure location for a period of 5 years before destruction. This researcher and her committee were the only people with access to data and all responses will remain anonymous.

**Non-Response Bias**

In survey sampling, the subjects who responded to the survey compared to those that did not can result in non-response bias (Creswell, 2013). This bias occurs when respondents differ in meaningful and statistically significant ways from non-respondents (Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013). Nonresponse is often a problem with surveys, where the response rate can be very low. According to Creswell (2013), participants possess traits, which may affect the outcome of results, which differ from those that preferred not to respond.

Non-response may lead to a smaller final sample size causing a loss of accuracy in results. If the non-response is not related to the research variable, taking bigger samples may compensate for the discrepancy in results. However, if non-response relates to the research variable, errors occur and seriously distort the survey results (Creswell, 2013). This non-response bias occurs when a significant number of people in the sample decide to not respond. Some individuals forget to take the survey or since emailed, it directed to the spam folder. Since this survey is well established, this should eliminate the potential for a poorly constructed survey. Additionally, as proposed by Neuman and Neuman (2006), the survey went out by an individual at UNC Rex who is well established and well known to the potential respondents. The results
received were tested for non-response bias by comparing the first and fourth quartiles of responses for differences in demographics as well as the independent variables (Punch, 2013).

**Data Collection**

Upon approval from the Institutional Review Board (IRB) at North Carolina State University, the researcher initiated the research process. After translating the final paper form of the survey into Qualtrics, I invited the group of approximately 1,500 respondents working at UNC Rex Hospital System Physician’s and Outpatient clinic staff with various levels of education, job function, and tenure to take the survey via their weekly newsletter.

**Timeline**

To solicit these employees to take the survey, the researcher sent an email with the survey link to a gatekeeper at UNC Rex who distributed to the outpatient clinics and Physicians. The survey remained open for a period of two weeks, with a follow-up email from the director sent out on the 6th and the 12th day of the survey’s period. Response rates increased by 50% with each new contact (Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013). The email to participants provided an informed consent and a link to the survey (see Appendix D). Once the survey closed, the researcher reviewed data to determine if additional time is required for adequate responses. The data collection was anonymous in order to protect the privacy of the participants completing the survey (detailed above). Preserving the anonymity of the staff is a key consideration in gaining the Internal Board Review (IRB) approval. Data collected through the online tool, Qualtrics, eliminated the need to record the data manually as SPSS downloading was available.
Data Analysis

Data was entered SPSS version 25.0 for Windows software for statistical analysis described in detail in this section. This quantitative study used correlation to evaluate differences in tenure and educational attainment on resistance to change among employees at UNC Rex Hospital. The data analysis focused on the relationship between the four dependent variables (Routine Seeking, Emotional Response, Short-term Thinking, Cognitive Rigidity) and two independent variables (Tenure and Education). The reason for the choice of analysis was how it adds in understanding of how dependent variables change or alter when the independent variables vary with the study population (Creswell, 2009, 2013). Since this study aimed at understanding the relationship between the dependent and independent variables, this method of analysis was the best choice given the number of variables in this study as shown in my research questions below, as seen in Table 3.3.

1. What are the employees’ levels of resistance as measured by Oreg’s Resistance to Change model (Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response)?

2. Is there a relationship between educational attainment and each of the four attributes of Oreg’s Resistance to Change model (Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response)?

3. Is there a relationship between tenure and each of the four attributes of Oreg’s Resistance to Change model (Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response)?
Table 3.3

*Planned Statistical Analysis by Research Questions.*

<table>
<thead>
<tr>
<th>Research Question</th>
<th>Statistical Analysis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Descriptive ((M, SD)), Cronbach’s Alpha</td>
</tr>
<tr>
<td>2.</td>
<td>Descriptive ((M, SD)), Correlation (Spearman), Multiple Linear Regression Analysis</td>
</tr>
<tr>
<td>3.</td>
<td>Descriptive ((M, SD)), Correlation (Pearson), Multiple Linear Regression</td>
</tr>
</tbody>
</table>

Correlation is a statistical technique that can show whether and how strongly pairs of variables are related. Correlation measured the variation among resistance to change scores between grouping variables and within grouping variables of education and tenure (Creswell, 2013; Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013). The Pearson correlation coefficient is a measure of the linear correlation between two variables (Creswell, 2003; 2013). Pearson correlation technique works best with linear relationships because as a variable gets larger, another gets larger (or smaller) in equal proportion (Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013). This analysis is best for this study because education and tenure are linear in nature. There are five assumptions for the requirements of a Pearson Correlation (Creswell, 2013; Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013).

**Assumption 1:** Two variables should be measured on a continuous scale.

**Assumption 2:** Two continuous variables should be paired

**Assumption 3:** Must have a linear relationship between two continuous variables.

**Assumption 4:** No significant outliers.

**Assumption 5:** There should be bivariate normality.
In this study, the Resistance to Change model and education are ordinal variables but, in some cases, like this one, can be treated as continuous. The correlation is intended to show a relationship between resistance to change and the increase in education or tenure or both. Additionally, multiple linear regression analysis is planned to determine the percent of variance in the dependent variables accounted for by the linear combination of independent variables (Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013). Multiple linear regression analysis is suitable when two or more dependent variables (RTC Model) operationalized with multiple independent variables measured on nominal or ordinal scales (Gall, Borg, & Gall, 1996). Creswell (2013) clarified researchers in quantitative research methodology use mathematical models to analyze data and this method works well with the variables in this research as the RTC model includes four factors: (a) routine seeking, (b) emotional response, (c) short-term thinking, and (d) cognitive rigidity. The independent variables consist of two distinct variables. Multiple linear regression allows relationships to be modeled between multiple independent variables and a single dependent variable where the independent variable is being used to predict the dependent variable (Neuman & Neuman, 2006; Punch, 2013). There are eight assumptions:

**Assumption #1:** One dependent variable that is measured at the continuous level.

**Assumption #2:** Two or more independent variables measured either continuous or nominal level.

**Assumption #3:** There should be independence of errors (residuals).

**Assumption #4:** There should be a linear relationship between the predictor variables (and composite) and the dependent variable.

**Assumption #5:** There should be homoscedasticity of residuals (equal error variances).
Assumption #6: There should be no multicollinearity.

Assumption #7: There should be no significant outliers, high leverage points or highly influential points.

Assumption #8: The errors (residuals) should be approximately normally distributed.

It considers the dependent variable intercorrelations as well as identified dependent variables, which produce the largest separation or distinction (Creswell, 2013). The effects of two independent variables (in this research, Tenure and Education) on several dependent variables (RTC model) were examined simultaneously (Creswell, 2013). This design enabled examination of the joint effect of independent variables. Interaction effect means the effect of one independent variable has on dependent variables is not the same for all levels of the other independent variable (Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013). To test this in SPSS, this researcher performed the various tasks explained next.

Pre-Data Analysis

Pre-Data or Preliminary data analysis prepares research data for further analysis. The initial step in Pre-Data analysis is creating a set of variables. Coding involves assigning numbers to responses for grouping into a limited number of categories (Punch, 2013). Specifically, coding involves the assignment of numerical values to responses for questions within the survey. The coding table/book for the RTC Model is available in Appendix C and was used in the pre-data analysis by entering the values into SPSS software. The output from Qualtrics was entered in the SPSS software and cleaned to ensure no missing responses or outliers were present. All questions in the survey were required therefore missing data should be minimal. Additional review checked data for outliers by reviewing scatterplots, which can skew results (Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013).
**Descriptive Statistics**

Descriptive statistics are brief descriptive coefficients that summarize a given data set. Descriptive statistics are broken down into measures of central tendency and measures of variability (spread) (Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013). Measures of central tendency include the mean, median, and mode. Measures of variability include the standard deviation, variance, the minimum and maximum variables, and the kurtosis and skewness (Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013). Descriptive statistics was used to describe the characteristics of the sample respondents including demographic characteristics (Creswell, 2013). The use of descriptive statistics also allowed the researcher to examine variables for normal distribution or possible skewness. According to Punch (2013), descriptive research examines phenomena through attributes with observation or correlation between variables. It also provides the initial analysis of any violations of the assumptions underlying the statistical techniques (Mertens, 1998; Neuman & Neuman, 2006). Once all data was entered and cleaned, this researcher conducted statistical analysis for the mean, standard deviation, and skewness before testing for non-response bias.

**Reliability Analysis**

Reliability analysis relates observations in a research study, which are equivalent to each other in terms of the construct being measured and having equivalent outcomes. Cronbach created reliability analysis with averages listed as Cronbach’s alpha (Creswell, 2013; Gall, Borg, & Gall, 1996; Mertens, 1998; Neuman & Neuman, 2006; Punch, 2013). There are two versions of alpha in reliability analysis, normal and standard (Creswell, 2013). The normal version of alpha is applicable when the items on a scale are summed to produce a single score for that scale.
(Punch, 2013). The acceptable value of alpha in reliability analysis is 0.8. It is commonly used with multiple Likert-scale questions in a survey and researchers need to determine if the scale is reliable. Oreg (2003) ran analysis on his RTC model achieving reliability in the model with a Cronbach’s Alpha of 0.89. For reliability analysis in SPSS, this researcher ran Tukey’s test of additivity and Cronbach’s Alpha.

**Delimitations/ Limitations**

Since the sample in this study was comprised of medical professionals, the research potentially restricts knowledge of other professions’ resistance to change results. This medical facility has a wide range of personnel from limited education to advanced education, male and female, clinical and nonclinical, and various lengths of time on the job. I limited the study to individuals who work at one hospital system, which restricted the study to one organizational culture. The major limitation to this study was the potential for dishonesty in answering the questions due to mistrust related to the purpose of the study. Additional limitations related to lack of response. Since the study involved one professional organization, the potential for receiving too few responses remains. Since those that answer surveys willingly may have different values, this could result in a skewed response.
CHAPTER 4: ANALYSIS OF FINDINGS

This study examined variability among employees in the healthcare industry by analyzing resistance to mandated organizational change by means of data collected from the RTC model and demographic survey. The Resistance to Change (RTC) model was designed to assess individuals’ tendencies to resist or avoid making changes, to devalue change generally, and to find change aversive across different contexts and types of change (Oreg, 2003). After a thorough examination of the literature, quantitative analysis was determined to be the best method to explain the underlying meanings for observed behavior in the healthcare industry related to employee resistance to change. Quantitative, non-experimental research involves surveys designed to enable researchers to query participants to determine their opinions, behaviors, or attitudes thus examining relationships between variables. This study aimed to examine the relationship between education and tenure based on the RTC Model.

Chapter 4 presents the analysis of the collected data to answer each of the research questions presented initially in Chapter 1. This chapter is organized into several sections: Response Rate, Preliminary Data Analysis, Non-Responses Analysis, Research Questions, Reliability Analysis, Factor Analysis, Descriptive Statistics Analysis, Correlation, and Multiple Linear Regression analysis before concluding with a summary. The sections include a full discussion and explanation for the lack of or missing data, analysis of data through several statistical methods, and a summary of the analysis. In the chapter, data were analyzed using statistical procedures found in *Statistical Package of the Social Sciences (SPSS)*, version 25.0. The chapter begins with a discussion of the overall response rate from the survey.
Response Rate

In this non-experimental research, a survey was sent to UNC Rex Hospital personnel via a gatekeeper who placed the request for participants and Qualtrics survey link in their weekly electronic newsletter. As informed by the gatekeeper, the targeted population for the survey included physicians, nurses, and other medical personnel in the outpatient clinics (N = 1500). As this was self-selected participation, no sampling frame was used. The sample yielded 101 responses and 13 responses were omitted for incomplete data; thus, the delivered sample size was 87 that are useable for analysis. Once the responses with missing data were removed, the researcher checked for outliers by examining the boxplot generated through the explore feature of SPSS and determined no outliers in the data using the variables of education and tenure. Smaller sample sizes are acceptable when the population is either limited or the model used in simple. The response rate of this survey was 7% (n=87), thus raising some concerns about acceptable confidence levels. Margins of error are calculated generally for a confidence level of 95%. This means the survey results will be in line with reality 19 out of 20 times. The margin of error in this research is 9.42 (Dillman, Smyth, and Christian, 2009).

Confidence levels are essential to the meaningfulness and trustworthiness of the results, both internal and external validity. Validity has to do with the accuracy or credibility of the inferences made from the data provided by a measurement instrument. Internal validity is the extent to which the research establishes a cause-and-effect relationship between the independent and dependent variables, whereas external validity refers to how well the results of a study can be applied to the total population and to other settings (Campbell & Stanley, 1963; 1966). Though the response rate was small, the researcher followed a strict study protocol to improve internal validity by all participants receiving the survey in the same manner at the same time,
from a gatekeeper. Additionally, the threat of maturation was reduced by a short turn around window. The researcher protected external validity through easily replicable research, psychological realism (a recent change in software offered) and a clearly defined population of interest. Once the researcher eliminated the incomplete responses, preliminary data analysis prepared the data. A discussion appears in the next section.

**Preliminary Data Analysis**

The objectives of preliminary data analysis are to edit the data to prepare it for further analysis, describe the key features of the data, and summarize the results (Blischke, Karim, & Murthy (2011). For the purpose of this research study, several variables data were altered for the multiple linear regression analysis. First, thirteen responses with missing data were removed to eliminate incomplete results from the analysis and as noted above, no outliers were found using the explore feature and visually inspecting the scatterplot. Race/Ethnicity was combined into two groups for ease in analysis: White and Non-White and coded numerically as 0 and 1. Education and age were coded numerically based on the survey categories (see Appendix C), but tenure is a continuous numerical variable and did not require recoding. Education is coded as 5 categories starting with High School (1) to Doctorate (5). Age is coded as six categories (1= 18-25, 2=26-35, 3=36-45, 4=46-55, 5=26-65, 6=66 plus). The researcher mean-centered the variable of tenure for multiple regression analysis using Aggregate, and then compute variable to create a new variable (Chen et al; 2014).

As instructed by model’s creator, questions 4 and 14 on the RTC Model were reverse coded in SPSS using the Recode to Different Variables process (Oreg, 2003). Since the RTC Model has 17 questions that created four distinct factors, the questions must be combined. The questions were summated into new variables, Routine Seeking, Emotional Response, Short-term
Thinking, and Cognitive Rigidity. Questions 1 to 5 created for Routine Seeking (RS). Questions 6 to 9 created for Emotional Response (ER). Questions 10 to 13 created for Short-term Thinking (ST) and finally, questions 14 to 17 created Cognitive Rigidity (CR). These groups were summated and then averages for each score were calculated by using the function of compute variable with commands in SPSS. This allows for analysis using multiple linear regression.

Before further analysis, the researcher checked for normal distribution using the newly created factor of Routine Seeking and Gender. Routine Seeking scores were normally distributed for males with a skewness of 0.125 (SE = 0.333) and kurtosis of -0.160 (SE = 0.656) and for females with a skewness of 0.595 (SE = 0.403) and kurtosis of 1.852 (SE = 0.788). Kurtosis is a statistical measure that is used to describe the distribution. Skewness differentiates extreme values in one versus the other tail, kurtosis measures extreme values in either tail (Blischke, Karim, & Murthy (2011). Distributions with large kurtosis exhibit tail data exceeding the tails of the normal distribution. In this data, there is a smaller tail indicating a normal distribution. An acceptable statistical significance level of .01 equates to a z-score of ±2.58. Therefore, since the z-score is within ±2.58, the data is normally distributed (Spicer, 2005). The researcher then conducted a non-response analysis discussed in the next section.

**Non-Response Analysis**

In research, bias is the introduction of systematic error in the survey design, data collection methods, or analysis (Spicer, 2005). Dillman (2000) postulates research errors in survey research include non-response bias. Non-response bias occurs if there is a systematic difference in characteristics between respondents and non-respondents (Johnson and Wichern, 2015). In other means, this type of error happens when people included in the sample fail to provide usable responses or are different from those who do on the characteristics of interest in
the study. At times, respondents answer based on how they perceive the researcher wishes them to answer versus true feelings. This error results in studies becoming non-valuable as evidence of the true characteristics of the target population, even in studies with high response rates.

In this study, respondents self-selected therefore not a random sample from the employees sent the survey at UNC Rex. This potentially introduces non-response bias as the respondents would be different from the non-respondents in some way, such as motivation to complete the survey, ultimately affecting the results. It is difficult to quantify such bias as there are limited details regarding those that chose not to respond (Spicer, 2005). In order to test for non-response bias, analysis was performed using early (first quartile) verses late respondents (last quartile), as suggested by Miller and Smith (1983), based on their responses to the RTC Model questions.

An independent-samples t-test was run to determine if there were statistically significant differences in early and late respondents on the RTC Model, using averaged factors. This is a type of inferential statistic used to determine if there is a significant difference between the means of two groups, so by looking at the first and last quartiles, the researcher can determine potential non-response bias. The early respondents and late respondents differed in their averages for all RTC model factors. There were 21 early and 23 late respondents. Early respondents were less Routine Seeking \((M = 2.26, \ SD = 0.43)\) than late respondents \((M = 4.00, \ SD = 0.66)\); possessed less emotional response \((M = 3.15, \ SD = 0.90)\) than late respondents \((M = 4.01, \ SD = 0.82)\); had less Short-term Thinking \((M = 2.00, \ SD = 0.72)\) than late respondents \((M = 3.31, \ SD = 0.93)\); and less Cognitive Rigidity \((M = 3.38, \ SD = 0.77)\) than late respondents \((M = 4.05, \ SD = 0.71)\). These results are displayed in Table 4.1.
However, if the variance of both groups is equal, this test will return a $p$-value greater than 0.05 indicating the assumption of homogeneity of variances was met (Spicer, 2015). There was homogeneity of variances for Routine Seeking scores for early and late respondents, as assessed by Levene's test for equality of variances ($p = .63$). Additionally, homogeneity is found with Emotional Response ($p = .84$), Short-term Thinking ($p = .97$), and Cognitive Rigidity ($p = .53$) as all are greater than $p = .05$. With homogeneity met, the t-test was run. In evaluating the mean difference in the RTC Model factors, early respondents mean score for Routine Seeking was $-0.75$, 95% CI [-1.01 to -0.49], $t(42) = -5.70$, $p = .17$ than late responders. Emotional Response of early respondents was $-0.38$, 95% CI [-0.83 to 0.06], $t(42) = -1.72$, $p = .82$ lower than late responders. Short-Term Thinking of early respondents was $-0.63$, 95% CI [-1.10 to -1.56], $t(42) = -2.66$, $p = .72$ lower than late responders. Cognitive Rigidity of early respondents was $-0.54$, 95% CI [-0.88 to -0.20], $t(42) = -3.20$, $p = .35$ lower than late responders. None of the dependent variables showed statistically significant differences between early and late respondents as all $p$ values are greater than .05, therefore, there is no non-response bias in the results which appear in Table 4.1.
Table 4.1

Results of t-Test for Early and Late Respondents by RTC Model Factors.

<table>
<thead>
<tr>
<th>RTC Model Factors</th>
<th>Early (n=21)</th>
<th>Late (n=23)</th>
<th>95% Confidence Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
</tr>
<tr>
<td>Routine Seeking Average</td>
<td>2.26</td>
<td>.43</td>
<td>4.00</td>
</tr>
<tr>
<td>Emotional Response Average</td>
<td>3.15</td>
<td>.90</td>
<td>4.01</td>
</tr>
<tr>
<td>Short-term Thinking Average</td>
<td>2.00</td>
<td>.72</td>
<td>3.31</td>
</tr>
<tr>
<td>Cognitive Rigidity Average</td>
<td>3.38</td>
<td>.77</td>
<td>4.05</td>
</tr>
</tbody>
</table>

Descriptive Statistics

Descriptive statistics analysis is used to summarize and describe data, and to reveal patterns in the data not immediately apparent through inspecting the raw data alone (Creswell, 2007). It can be used to summarize the distribution of scores for a single variable or can be used to summarize the relationship among variables. When conducting descriptive analyses, researchers use frequency distributions, measures of central tendency and percentages. A frequency distribution is an organized summary of the frequency with which each score occurs in the distribution. A frequency distribution can be used to summarize continuous or categorical data (Creswell, 2007). Statistical analyses are broadly categorized as descriptive or inferential. Meaning, researchers use statistics to describe the attributes of a group of individuals (descriptive analyses) or use statistics to make inferences from evidence we find in a sample to what we might expect to see in the larger population (inferential analyses). This section presents the
results for participant demographics with descriptive statistics and indicating inferential analysis to the population.

**Race/Ethnicity.** According to the American Hospital Association (2019), White/Caucasians represent about 69.8% of all physicians and surgeons in America. According to the gatekeeper at Rex, the racial/ethnic makeup for the population (N=1500) is White (75.5%), Black (11.1%), Asian (5.9%), Hispanic (1.7%), and Other (5.8%). As seen in Table 4.2, a majority (78.2%, n=67) of the respondents were White/Caucasian with the next largest category as Asian (10.3%, n =9). None of the participants listed themselves as Pacific Islander or Native American and only one Hispanic/Latinx (1.1%, n=1). There were two Black/African American (2.3%) that responded to the survey. Nine participants chose not to identify (10.3%, n =9).

Although the percentage of White coincides with both the total population demographics of UNC Rex and American Hospital Association statistics, the other Race/Ethnic groups Black/African American are under-represented and Asian are over-represented.

Table 4.2

*Frequencies and Percentages of the Race/Ethnicity of Respondents.*

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian/Asian American</td>
<td>9</td>
<td>10.3</td>
</tr>
<tr>
<td>Black/African American</td>
<td>2</td>
<td>2.3</td>
</tr>
<tr>
<td>White/Caucasian</td>
<td>67</td>
<td>78.2</td>
</tr>
<tr>
<td>Native American</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Pacific Islander</td>
<td>0</td>
<td>0.0</td>
</tr>
<tr>
<td>Hispanic/Latinx</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>Not Identified</td>
<td>9</td>
<td>10.3</td>
</tr>
</tbody>
</table>
Gender. To be inclusive, the researcher chose to include a more comprehensive gender view by providing non-binary as a third option with male and female. The 87 participants included 51 (58.6%) males and 34 (39.1%) females. The non-binary participants accounted for 2.3% (n =2). In the United States percentages according to the Association of American Medical Colleges census of 2017, there was a greater number of male (10,293) graduating doctors than female (9,260). Nurses are more heavily female with a ratio of 9 to 1, according to the BLS (2019). The target population is 88% female at UNC Rex, therefore the number of respondents being predominantly male could lead to results not typical of the total population. Though neuroscience research has proven no biological differences in male versus female brains other than size, social upbringing can lead to differences in understanding stimuli (Halpern, 2011). The descriptive statistics for gender appear in Table 4.3.

Table 4.3

<table>
<thead>
<tr>
<th>Gender</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>51</td>
<td>58.6</td>
</tr>
<tr>
<td>Female</td>
<td>34</td>
<td>39.1</td>
</tr>
<tr>
<td>Non-binary</td>
<td>2</td>
<td>2.3</td>
</tr>
</tbody>
</table>

Age. The target population age are categorically as follows: 18-29 (20.4%), 30-39 (30.1%), 40-49 (22.8%), 50-59 (18.8%), and 60 + (7.8%), according to the gatekeeper at Rex. Most of the respondents to the survey indicated their age fell between the ages of 36 and 65. Only one participant was listed as younger than 25 and only three stated they were older than 65. This coincides with the target population. These results appear in Table 4.4.
Table 4.4

Frequencies and Percentages for the Age Categories of Respondents.

<table>
<thead>
<tr>
<th>Age Category</th>
<th>Frequency</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>18 to 25</td>
<td>1</td>
<td>1.1</td>
</tr>
<tr>
<td>26 to 35</td>
<td>7</td>
<td>8.0</td>
</tr>
<tr>
<td>36 to 45</td>
<td>24</td>
<td>27.6</td>
</tr>
<tr>
<td>46 to 55</td>
<td>29</td>
<td>33.3</td>
</tr>
<tr>
<td>56 to 65</td>
<td>23</td>
<td>26.4</td>
</tr>
<tr>
<td>66 or older</td>
<td>3</td>
<td>3.4</td>
</tr>
</tbody>
</table>

The researcher included age as a demographic variable as it often coincides with tenure (Oreg, 2003). According to the American Hospital Association (2019), the average age of physicians in America is 46.5 years. The variable was broken into categories of 10-year spans labeled as 1 through 6 (see Appendix C). Since the participants were asked to choose from an age range, frequency and percentage of the age ranges is used but a true median, range, mode, and standard deviation are not. These results indicate the sample population is like the total population of American physicians. As stated in previous sections, the respondents do not mimic the target population by way of race/ethnicity or gender but do follow a similar age breakdown. In the next section, detailed analysis of the research questions includes variances in the last two demographic variables of tenure and education based on the target population.

Research Questions and Findings

This section discusses the data analysis related to the research questions and the relevance to the study. Data were collected using a demographic survey coupled with the RTC Model survey, which includes 17 items distributed into four subcategories of routine seeking, cognitive rigidity, emotional response, and short-term thinking.
Research Question 1

What are the employees ‘in a healthcare organization levels of resistance as measured by Oreg’s Resistance to Change model (Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response)?

Reliability Analysis of the RTC Model. The first analysis conducted involves the reliability of the instrument used in the research. Reliability involves how consistently an instrument produces the same results (Dillman, 2000, Hair et al, 2006). If the instrument cannot produce consistent results, it cannot meaningfully reflect behaviour, thought, or motivation. The RTC Model has been used in numerous research studies in a variety of environments successfully with internal reliability validated (Oreg, 2003; Oreg et al, 2008). In this research project, all the questions in the RTC Model were analyzed using Cronbach’s Alpha to determine reliability in the instrument. Cronbach's alpha is a measure of internal consistency, that is, how closely related a set of items are as a group.

In this study, Cronbach's alpha (α) is .72 for Routine Seeking, .79 for Emotional response, and .82 for Short-term Thinking, which indicates a high level of internal consistency (Table 4.5). Reliability coefficients of .70 or higher are considered “acceptable” in most social science research situations, according to Spicer (2005). The Cronbach’s Alpha for Cognitive Rigidity was .60, suggesting questionable results, according to Cronbach (1951). However, researchers can accept values near of .60 (Hair, 2006), especially if the factor have only few items, which is the case with Cognitive Rigidity.
Table 4.5

*Number of Items per Scale and Cronbach’s Alpha to Estimate of Internal Consistency for RTC Sub-Scales*

<table>
<thead>
<tr>
<th>Model Factors</th>
<th>Cronbach's Alpha</th>
<th>Number of Items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Seeking</td>
<td>.72</td>
<td>5</td>
</tr>
<tr>
<td>Emotional Response</td>
<td>.79</td>
<td>4</td>
</tr>
<tr>
<td>Short-term Thinking</td>
<td>.82</td>
<td>4</td>
</tr>
<tr>
<td>Cognitive Rigidity</td>
<td>.60</td>
<td>4</td>
</tr>
</tbody>
</table>

**Descriptive Analysis of the RTC Model.** The RTC model consists of 17 questions with a Likert scale from 1 to 6, where 1 = Strongly Disagree and 6 = Strongly Agree. The only difference is questions 4 and 14, which are reverse coded before analysis. Routine seeking is questions 1-5, Emotional Response is questions 6-9; Short-term thinking is questions 10-13, and Cognitive rigidity is questions 14-17. Standard deviation shows how much variation or dispersion exists from the average (mean), or expected value (Spicer, 2005). It is a measure of the average distance between the values of the data in the set and the mean. A low standard deviation indicates the data points tend to be very close to the mean; a high standard deviation indicates that the data points are spread out over a large range of values (Creswell, 2013). As seen in Table 4.6, these results indicate a tendency of the respondents to seek routines and lean towards being more rigid in thinking. The sample population responded to having Doctorate level education, largely male, and White; whereas the target population was predominantly at the Bachelorette level, female, and White.
### Table 4.6

**RTC Model Question Mean and Standard Deviation Statistics.**

<table>
<thead>
<tr>
<th>Question</th>
<th>M</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>I generally consider change to be a negative thing.</td>
<td>2.24</td>
<td>1.16</td>
</tr>
<tr>
<td>I will take a routine day over a day full of unexpected events any time.</td>
<td>4.31</td>
<td>1.20</td>
</tr>
<tr>
<td>I like to do the same old things rather than try new and different ones.</td>
<td>2.93</td>
<td>1.18</td>
</tr>
<tr>
<td>Whenever my life forms a stable routine, I look for ways to change it.</td>
<td>4.05</td>
<td>1.14</td>
</tr>
<tr>
<td>I’d rather be bored than surprised.</td>
<td>2.54</td>
<td>1.11</td>
</tr>
<tr>
<td>If I were to be informed that there’s going to be a significant change</td>
<td></td>
<td></td>
</tr>
<tr>
<td>regarding the way things are done at work, I would probably feel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>stressed.</td>
<td>3.90</td>
<td>1.19</td>
</tr>
<tr>
<td>When I am informed of a change of plans, I tense up a bit.</td>
<td>3.39</td>
<td>1.09</td>
</tr>
<tr>
<td>When things don’t go according to plans, it stresses me out.</td>
<td>3.99</td>
<td>1.17</td>
</tr>
<tr>
<td>If one of my supervisors changed the performance criteria, it would</td>
<td></td>
<td></td>
</tr>
<tr>
<td>probably make me feel uncomfortable even if I thought I’d do just as</td>
<td></td>
<td></td>
</tr>
<tr>
<td>well without having to do extra work.</td>
<td>3.18</td>
<td>1.23</td>
</tr>
<tr>
<td>Changing plans seems like a real hassle to me.</td>
<td>3.33</td>
<td>1.16</td>
</tr>
<tr>
<td>Often, I feel a bit uncomfortable even about changes that may</td>
<td></td>
<td></td>
</tr>
<tr>
<td>potentially improve my life.</td>
<td>2.51</td>
<td>1.24</td>
</tr>
<tr>
<td>When someone pressures me to change something, I tend to resist it</td>
<td></td>
<td></td>
</tr>
<tr>
<td>even if I think the change may ultimately benefit me.</td>
<td>2.45</td>
<td>1.19</td>
</tr>
<tr>
<td>I sometimes find myself avoiding changes that I know will be good</td>
<td></td>
<td></td>
</tr>
<tr>
<td>for me.</td>
<td>2.46</td>
<td>1.28</td>
</tr>
<tr>
<td>I often change my mind.</td>
<td>3.71</td>
<td>1.23</td>
</tr>
<tr>
<td>I don’t change my mind easily.</td>
<td>3.43</td>
<td>1.09</td>
</tr>
<tr>
<td>Once I’ve come to a conclusion, I’m not likely to change my mind.</td>
<td>3.26</td>
<td>1.06</td>
</tr>
<tr>
<td>My views are very consistent over time</td>
<td>4.09</td>
<td>.92</td>
</tr>
</tbody>
</table>

The RTC Model was then summed and averaged into four sub-factors, then analyzed, and the descriptive statistics are displayed in Table 4.7. The factors are consistent with each other
except Short-term Thinking, which has the lowest mean for both summated variable ($M = 10.75$, $SD=3.93$) and average score variable ($M = 2.70$, $SD=.98$). Based on the sample educational attainment, the values listed below may not be representative of the target population, which more commonly possesses a Bachelorette (64%).

Table 4.7

*Descriptive Statistics for Summed and Averaged RTC Model Factors.*

<table>
<thead>
<tr>
<th>Sub-Scales</th>
<th>Averaged for Sub-scales</th>
<th>Summated for Sub-scales</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>Routine Seeking</td>
<td>1.20</td>
<td>5.60</td>
</tr>
<tr>
<td>Emotional Response</td>
<td>1.00</td>
<td>5.25</td>
</tr>
<tr>
<td>Short-Term Thinking</td>
<td>1.00</td>
<td>5.00</td>
</tr>
<tr>
<td>Cognitive Rigidity</td>
<td>1.75</td>
<td>6.00</td>
</tr>
</tbody>
</table>

Note. N=87

* Scores from averaged scales can be interpreted as Routine Seeking = moderate levels; Emotional Response = moderate; Short-term Thinking = low levels; Cognitive Thinking = moderate levels.

**Research Question 2**

Is there a relationship between educational attainment and each of the four attributes of Oreg’s Resistance to Change model (*Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response*)?

Based on the responses to the survey, most respondents possessed the educational attainment of MD, JD, or Ph.D. (93.1%, $n =81$). The remaining participants reached educational attainment of Bachelor (2.3%, $n = 2$) and Master’s (4.6%, $n = 4$). According to the data provided by the gatekeeper, this does not match the target population, which has educational attainment of
Associate’s degree (42%), Bachelor’s degree (64%), Master degree (3.5%), and Doctor/MD (.5%). None of the respondents to the survey possessed less than a Bachelor level education, which is inconsistent with the target population at UNC Rex as noted above. The results are displayed in Table 4.8.

Table 4.8

<table>
<thead>
<tr>
<th>Highest Level</th>
<th>Frequency</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bachelor/4 year</td>
<td>2</td>
<td>2.3</td>
</tr>
<tr>
<td>Master Level</td>
<td>4</td>
<td>4.6</td>
</tr>
<tr>
<td>Doctorate/MD/JD</td>
<td>81</td>
<td>93.1</td>
</tr>
</tbody>
</table>

Oreg (2006) found certain employee responses to mandated organizational change affect other response types. Cognitive responses can influence behavioral responses. In such cases, individuals who do not believe in the value of the change (cognitive rigidity) may also behave in ways that run counter to effective change implementation, such as routine seeking behaviors of avoidance of change. The RTC model means were then compared by using the independent variable of education. The results total means of 3.21 for Routine Seeking ($SD= .80$); a mean of 3.61 for Emotional Response ($SD= .91$); a mean of 2.70 for Short-term Thinking ($SD= .10$); and a mean of 3.62 for Cognitive Rigidity ($SD= .73$). Those with a Bachelor degree level varied greater than other degree levels in regard to Emotional Response and Short-term Thinking. These factors focus on inconveniences experienced by individuals involved in change and the amount of stress and uneasiness when confronted with change (Oreg, 2003, 2006). Individuals with less education are presented with less employment options, therefore would react differently to
change then those with greater education and more options. These results are displayed in Table 4.9.

Table 4.9

*Comparison of Means for the RTC Model Factors and Education.*

<table>
<thead>
<tr>
<th></th>
<th>Bachelor</th>
<th>Master</th>
<th>Doctorate/MD/JD</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>M</td>
<td>SD</td>
<td>M</td>
<td>SD</td>
</tr>
<tr>
<td>Routine Seeking</td>
<td>3.00</td>
<td>.85</td>
<td>2.50</td>
<td>.87</td>
</tr>
<tr>
<td>Emotional Response</td>
<td>3.50</td>
<td>2.12</td>
<td>3.25</td>
<td>.79</td>
</tr>
<tr>
<td>Short-term Thinking</td>
<td>2.50</td>
<td>2.12</td>
<td>2.75</td>
<td>1.32</td>
</tr>
<tr>
<td>Cognitive Rigidity</td>
<td>2.88</td>
<td>.53</td>
<td>3.38</td>
<td>.75</td>
</tr>
</tbody>
</table>

Education and the RTC Model factors were analyzed using a Spearman’s rank-order correlation to determine whether there is an association between the variables. Spearman’s is best for this analysis as education is a categorical variable. A Spearman's rank-order correlation analyzed the relationship between Education and the RTC Model Factors. Preliminary analysis showed the relationship to be monotonic, as assessed by visual inspection of a scatterplot. Spearman's rank-order correlation coefficient value measures the strength and direction of the association between the two variables. The correlation coefficient has values from +1 to -1, indicating a perfect positive (+1) or negative (-1) association of ranks with a correlation coefficient of zero (0) indicating no association (Creswell, 2013). There was no statistically significant correlation between Education and the RTC Model Factors, $r_s(85) = .16, p = .13$ for Routine Seeking; $r_s(85) = -.08, p = .48$ for Emotional Response; $r_s(85) = -.01, p = .94$ for Short-Term Thinking; and $r_s(85) = .14, p = .20$ for Cognitive Response. The relationship between
Education and RTC Model Factors was not statistically significant. Therefore, we cannot reject the null hypothesis and cannot accept the alternative hypothesis. The results are also displayed in Table 4.10.

Table 4.10

*Spearman’s Correlations between the RTC Model Factors and Education.*

<table>
<thead>
<tr>
<th></th>
<th>Education</th>
<th>Routine Seeking</th>
<th>Emotional Response</th>
<th>Short-term Thinking</th>
<th>Cognitive Rigidity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Routine Seeking</td>
<td></td>
<td>.16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Emotional Response</td>
<td></td>
<td></td>
<td>.40**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Short-term Thinking</td>
<td></td>
<td>-.08</td>
<td>.40**</td>
<td>.62**</td>
<td>1</td>
</tr>
<tr>
<td>Cognitive Rigidity</td>
<td></td>
<td>-.01</td>
<td>.30**</td>
<td>.24*</td>
<td>.20</td>
</tr>
</tbody>
</table>

* p < .05 level. **p < .01 level.

*Note.* N=87

**Research Question 3**

Is there a relationship between tenure and each of the four attributes of Oreg’s Resistance to Change model (*Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response*)?

On the instrument, tenure requested number of years in their position allowing respondents to free form type the number of years. Tenure for those in professional industries like healthcare, in general, possessed greater tenure of over five years (BLS, 2019). In general, hospitals experience greater turnover rates individually, but employees in the industry possess greater tenure in role, moving from location to location (BLS, 2019).

The Pearson correlation is used to determine the strength and direction of a linear relationship between two continuous variables. The correlation coefficient, which measures the strength and direction of the association between two variables, can take values from +1 to -1. A
correlation coefficient of zero (0) indicates no association (Creswell, 2003). The closer the correlation coefficient is to zero, the weaker the association, and the closer the correlation coefficient is to +1 or -1, the stronger the association. The Pearson’s correlation was run to assess the relationship between Tenure, and RTC Model Factors. There is a low association between Tenure and Routine Seeking, \( r(85) = -.00, p = .10 \); a negligible association with Emotional Response, \( r(85) = -.06, p = .60 \) and Short-term Thinking, \( r(85) = -.04, p = .71 \). There is a low association between Tenure and Cognitive Rigidity, \( r(85) = .17, p = .12 \). The relationship between the variables was not statistically significant. Therefore, we cannot reject the null hypothesis and cannot accept the alternative hypothesis. This shows there is not a relationship between tenure and the RTC model factors for this sample population. The respondents reported being tenured on average 22.80 (\( SD = 10.6 \)) years with the longest tenure being 50 years and the shortest tenure being 1 year. These results are displayed in Table 4.11.

Table 4.11

*Descriptive Statistics and Pearson’s Correlations between the RTC Model Factors and Tenure.*

<table>
<thead>
<tr>
<th></th>
<th>( M )</th>
<th>( SD )</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Tenure</td>
<td>22.80</td>
<td>10.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Routine Seeking</td>
<td>3.21</td>
<td>.80</td>
<td>-.00</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Emotional Response</td>
<td>3.61</td>
<td>.91</td>
<td>-.06</td>
<td>.40**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Short-term Thinking</td>
<td>2.70</td>
<td>.10</td>
<td>-.04</td>
<td>.46**</td>
<td>.68**</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>5. Cognitive Rigidity</td>
<td>3.62</td>
<td>.73</td>
<td>.17</td>
<td>.41**</td>
<td>.18*</td>
<td>.27*</td>
<td>1</td>
</tr>
</tbody>
</table>

* \( p < .05 \) level. ** \( p < .01 \) level.

*Note. N=87*

\(^a\) Descriptors are as follows: .70 or higher = very strong association, .50 to .69 = substantial association, .30 to .49 = moderate association, .10 to .29 = low association, .01 to .09 = negligible association (Cohen, 1998).
**Multiple Linear Regression Analysis**

The research plan included conducting a multiple regression to predict if the dependent variables showed statistical significance on multiple independent variables (Spicer, 2005). This analysis also intended to determine the overall fit of the model and the contribution of each predictor. Since there was no correlation found in the Correlation analysis, the researcher did not conduct the multiple regression on the data as it was not warranted.

**Summary**

Chapter 4 presented findings and data analysis results for the research study consisting of three research questions. Research question one examined the extent which employees’ levels of resistance as measured by Oreg’s Resistance to Change model (*Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response*). Descriptive results were displayed using mean scores and standard deviation. These results indicate a tendency of the respondents to seek routines and lean towards being more rigid in thinking. The findings established resistance is potential with a small association with Routine Seeking (“I will take a routine day”, $M = 4.31$) and Cognitive Rigidity (“My views are very consistent over time”, $M = 4.09$).

Research question two examined the relationship between educational attainment and each of the four factors of Oreg’s Resistance to Change model (*Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response*) using Spearman’s correlation. Research question three examined the relationship between tenure and each of the four factors of Oreg’s Resistance to Change model (*Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response*) using Pearson’s correlation. None of the RTC Model factors showed statistical significance with tenure or education, therefore disproving the theory Education or Tenure was related to Resistance to Change.
Though the literature suggests education and tenure increase the likelihood of resistance to change, the results of this study do not show a correlation. Education level did not increase the resistance as seen in Spearman’s Correlation, however there as little to no variation in reported education level of respondents. Previous studies suggested when educational levels increase; resistance to change is more likely due to greater opportunities available (Oreg, 2003, 2008). Those with increased tenure were more likely to resist due to being set in their ways and fear of failure (Crowley et al, 2010; Foster, 2010; Oreg, 2003). The results of the Pearson’s correlation show no relationship between tenure and resistance to change.
CHAPTER 5: SUMMARY, CONCLUSIONS, DISCUSSIONS, AND RECOMMENDATIONS

This final chapter provides a summary of the study and the subsequent findings. Beginning with a reaffirmation of the purpose of the study, the chapter continues with a recap of study participants and data collection methods. Next, a summary of all five chapters provide a basic overview of the study. A thorough discussion of the findings and conclusions broken down by research question follows. The chapter ends with a discussion of limitations followed by recommendations for future research and applications for practice.

Purpose of the Study

As stated in Chapter 1, the purpose of this study was to gain a better understanding of the relationship between healthcare industry employees’ resistance to mandated change and their tenure, educational attainment level, and RTC model, as proposed by Oreg (2003, 2006; Oreg et al, 2008; 2011). Employees in this field are educated and experience longer tenure in their roles than other fields, such as manufacturing (Holly, 2013; Kunze, Boehm, & Bruch, 2013). When organizations mandate change, affected employees, no matter how educated or senior in tenure, may resist change. This can be due to emotions, such as fear of the unknown, loss of job security, disdain of being told the way they work is obsolete, or an individual’s predisposition to accept change (Kunze, Boehm, & Bruch, 2013; Saksvik, & Hetland, 2009; Van de Heuvel, & Schalk, 2009; Van Duk & Van Dick, 2009). Often, these emotions stem from their perceived social identity, which embodies work, personal values, and social norms or constructs (Turner & Tajfel, 1986). This self-identity is a merging of their education, tenure at work, age, gender, and character traits like a rigid cognitive process prohibiting comfort with change (Crowley et al, 2010; Foster, 2010; Oreg, 2003). For healthcare professionals, change can result in negative
reactions to the altering landscape of their work life. This can be caused by a challenge to their social identity because it violates this perceived notion of self (Crowley et al, 2010; Foster, 2010; Hodson, 1995, 1996 & 1999; Oreg, 2003, 2006).

The goal of this study was to understand factors contributing to resistance to mandated changes in the healthcare industry. Employees’ resistance to change causes many issues during organizational change efforts (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Schwartz, 1994; Van Dam, Oreg & Schyns, 2008). The greatest concern of employee resistance to change in healthcare is the risk to patient safety. Employees’ reactions to mandated change put patients at risk for accidents, medical mistakes, and other dangers. By knowing if employees with greater educational attainment and tenure are more likely to resist changes, major issues, like danger to patient safety, can be addressed by leaders. The study aimed to contribute to the literature related to employee resistance lacking in current research related to healthcare industry workers. Overall, the purpose of this study focused on understanding the causes of resistance to mandated change in the healthcare setting.

**Study Participants Review**

The sample population, which self-selected to take the survey sent via an electronic newsletter, included individuals dedicated to patient care such as doctors, nurses, lab techs, and medical assistants in an outpatient clinical setting. This researcher obtained a cross-section of the 1,500 members of University of North Carolina (UNC) Rex Hospital physicians and outpatient clinic staff (N=87). The sample differed from the target population’s educational levels provided by the gatekeeper. The target population consists of Associate’s degree (42%), Bachelor’s degree (64%), Master degree (3.5%), and Doctor/MD (.5%), but the respondents were predominately Doctoral level (n=81). Most of the sample were White/Caucasian. The racial/ethnic makeup of
the population is White (75.5%), Black (11.1%), Asian (5.9%), Hispanic (1.7%), and Other (5.8%), which coincides with the results of this study. Male respondents slightly outnumbered females with most between 36 and 65 years of age. The tenure of the individuals that responded ranged from 2 years to 65 years, with an average of 22.79 (SD = 10.60) The ages are categorically as follows: 18-29 (20.4%), 30-39 (30.1%), 40-49 (22.8%), 50-59 (18.8%), and 60+ (7.8%) for the population.

**Summary of Chapters**

Below, a brief summary of each of the chapters of the research is presented. These summaries provide a basic overview of each chapter and are not intended to be conclusive in any way. Chapter 1 introduced the study including a detailed discussion of the purpose and problem as well as proposing the research questions. The suggested participants of the study were introduced, and a concise discussion of the proposed instrumentation was provided. The theoretical and conceptual frameworks provided in the chapter form the foundation of the study. Potential limitations of the study were also provided. The chapter ends with a summary and definitions.

Chapter 2 contained a historical overview of organizational development and research of change implementation with a focus on resistance to change as well as identifying gaps in the literature. Additionally, Chapter 2 contains a review of Oreg’s (2003) RTC model and its evolution including the theoretical foundations. The chapter includes a review of literature analyzing the strengths and weaknesses of prior research as well as a synthesis of finding regarding various models of change, cognitive dissonance resistance to change, and the healthcare industry. Finally, Chapter 2 contains an overview of the need for research into resistance to change in the technologically driven health care industry. The summary concluded
the chapter with an explanation of the urgent need for this study in relation to current knowledge of the healthcare industry.

Chapter 3 presented the research methods used to conduct this study. The quantitative, non-experimental explanatory research design selected for this study was discussed with additional sections including the IRB approval process, sample selection, survey instrument selection, design, and modification, as well as data collection methods. A full discussion of the proposed analysis methods included correlation and multiple linear regression analysis. This chapter guided the statistical analysis presented in the findings in the next chapter.

Chapter 4 presented the findings of analyzed data, and each of the three research questions were addressed and answered from the data analysis. The chapter began with an overview of the preliminary data analysis, non-response and response bias, and descriptive statistics including means and standard deviations for both demographics and the RTC Model questions. All the questions in the RTC Model were analyzed using Cronbach’s Alpha to determine reliability in the instrument. All cases processed were determined valid. A full factor analyses using Principal Components Factor analysis and the interpretation of the data was consistent with the attributes the survey was designed to measure. Next, Pearson’s Correlations analysis and Spearman’s Correlation analysis were performed and no correlation in factors was found.

Chapter 5 contains the summary, conclusions, recommendations, and limitations determined from the study. Summaries of findings are offered for the three research questions, and conclusions are then presented for each research question. A synthesis of the findings and pertinent applicable ideas for research and practical application are provided. Limitations of the study are presented, Finally, recommendations for are stated.
Discussion of Findings and Conclusions

As earlier defined, the purpose of this study was to gain a better understanding of the relationship between what leads some healthcare industry employees to resist mandated change more readily based on their tenure, educational attainment level, and RTC model. The instrument examined the target population of employees at a specific hospital in North Carolina regarding their education and tenure as well as their RTC Model responses to determine potential factors that would predict resistance. The three research questions addressed the purpose of the study, with the first focused on determining the potential to resist based on RTC Model. The second focused on education and its relationship to the RTC Model. The third focused on tenure and its relationship to the RTC Model. Through these research questions, the goal was to determine if education and tenure would increase the likelihood of resistance to change.

Demographic data was included in the study (Age, Gender, Race/Ethnicity) to act as mediating variables, which explains the how or why of an (observed) relationship between an independent variable and its dependent variable (Creswell, 2003). An estimate of 1500 employees from the target institution was sent to the electronic survey via their weekly newsletter. A total of 100 responded but 13 did not complete the full survey and were therefore eliminated leaving 87 respondents. The demographic results show largely white and majority male respondents predominantly possessed a Doctorate or MD with tenure averaging over 22 years.

Findings and Conclusions by Research Question

According to Barrett & Stephens (2016), healthcare industry change has consistently elicited employee resistance. Employee resistance to changes varies, but research shows greater educational attainment and tenure tend to produce more resistance to change (Grama &
Employees with greater education know their options for employment increase and those with tenure tend to hold onto previous change effort experienced that failed (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Van Dam, Oreg & Schyns, 2008; Schwartz, 1994). The view of resistance towards change has been validated through Oreg’s (2003, 2006) research studies involving the RTC Model, using samples from multiple industries and countries. According to Giles (2006), resistance to change can be defined as an individual’s desire to maintain consistency when change is unwanted or threatening. These concepts informed the research questions formulated for this study. The three research questions used in this study yielded statistical data allowing for conclusions to be drawn. This section provides a summary of each research question and related literature, the findings associated with the data, and conclusion the researcher drew from the results. The findings are compared to previous studies found in chapter 2 with the goal of augmenting the current knowledge of change resistance in the healthcare industry.

**Research Question 1.**

What are the participants’ level of resistance as measured by Oreg’s Resistance to Change Model (*Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response*)?

The first research question focuses on the relationship between employees’ beliefs regarding resistance to change by using the Resistance to Change Model (RTC). The RTC is a survey which uses a Likert measurement scale from 1 to 6 where the choices ranged from 1=Strongly Disagree to 6=Strongly Agree. The answer of Neutral is not provided to respondents as research suggests when presented with a neutral response option, respondents are more likely to select the option than report their actual opinion (Bishop, 1987). The instrument has 17
questions broken into four-factor categories of Routine Seeking, Emotional Response, Cognitive Rigidity, and Short-Term Thinking. The first objective of the study was to determine levels of employees’ resistance to organizational change via Oreg’s Resistance to Change model (*Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response*) within the healthcare industry.

An extensive literature review provided the rational for using the RTC in this population as dependent variables. Organizational Development research strives to understand, identify, and manage employees or organizations undergoing change initiatives (Foster, 2010; Hodson, 1995, 1996 & 1999; Roscigno & Hodson, 2004; Vidal, 2007). Understanding the catalyst for resistance to change is essential to drawing conclusions about change implementation in healthcare industry settings. Studies using the RTC Model did not focus specifically on the Healthcare industry (Oreg, 2003, 2008, 2011). Only a few dated studies have examined an intersection involving certain components of the RTC model coupled Education and Tenure in the healthcare industry (Burnes, 2012, 2014). A few studies focused on change in the healthcare industry using different conceptual models (Carnevale, Smith, & Strohl, 2010; Jones & Van de Ven, 2016). None of the studies combined education levels and length of tenure in the healthcare industry with the RTC model.

**Conclusion 1.**

All the questions in the RTC Model were analyzed using Cronbach’s Alpha to determine reliability in the instrument. All cases processed were determined valid. In this study, Cronbach’s alpha (α) is .72 for Routine Seeking, .79 for Emotional response, .82 for Short-term Thinking, and .60 for Cognitive Rigidity, which indicates a high level of internal consistency. Higher values of Cronbach's alpha are better according to Spicer (2005) who recommends values are 0.7
or higher. Due to the Cronbach’s Alpha, each of the four factors are deemed reliable. On Table 4.16, the research explains the mean and standard deviation for each of the 17 RTC Model questions. The two questions with the highest mean where “I will take a routine day over a day full of unexpected events any time” (RS, $M=4.31$) and “My views are very consistent over time” (CR, $M=4.09$). Routine Seeking relates to the actions displayed in accordance with resistance, like sabotage or defiance (Crowley, Tope, Chamberlain, & Hodson, 2010). Cognitive Rigidity relates to thought patterns or general unreadiness to change or learn (Oreg, 2003). This data analysis suggests the respondents are more rigid in their readiness for change and more likely to seek routines over uncertainty, which coincides with the theoretical framework of the study.

The theory of cognitive dissonance focuses on how people strive for internal consistency (Brehm, & Cohen, 1962; Festinger, 1957; Festinger, & Carlsmith, 1959; Gawronski, 2011; Jermias, 2001; Wickland, & Brehm, 1976). When mandated change effects routine, standards, or behaviors, cognitive dissonance elicits adverse reactions as the individual struggles with the inconsistencies between their behavior and cognitions (Jermias, 2001; Gawronski, 2011; Gawronski & Strack, 2004, Gawronski, Walther, & Blank, 2005). When inconsistency (dissonance) is experienced, individuals largely become psychologically distressed, therefore more likely to resist changes imposed.

Oreg (2003, 2008) defined resistance to change as an individual inclination to undervalue change by labeling it negative regardless of the reasons. Piderit (2000) studied resistance and conceptualized it as negative responses or cognitions about the change led to resistance from a cognitive standpoint (Piderit, 2000). Armenakis, Harris, and Mossholder (1993) posited cognitive states refer to an unreadiness about change leading to behavioral resistance. Piderit (2000) suggested resistance arose from defensive reactions to a change motivated by frustration.
and apprehension. Oreg (2006) found certain employee responses to mandated organizational change affect other response types. Cognitive responses can influence behavioral responses, like routine seeking. In such cases, individuals who do not believe in the value of the change (cognitive resistance) may also behave in ways that run counter to effective change implementation.

The analysis in this study suggests these respondents might have the potential to resist change based on cognitive rigidity and routine seeking behaviors; however, the analysis was inconclusive on this question. More research should be conducted with this demographic to determine if RTC Model can determine potential resistance to change within the healthcare industry as it has in past studies involving engineering firms and universities (Oreg, 2003, 2008, 2011). Since the majority of respondents were of the highest level of education, results might be different if a variety of education levels participated. Individuals with lower educational levels may not have as many options for employment therefore less likely to resist mandated change.

**Research Question 2.**

Is there a relationship between educational attainment and each of the four factors of Oreg’s Resistance to Change Model (*Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response*)?

Education was one of two independent variables used in the study. An extensive literature review suggested this was a factor in determining resistance. Employees with greater levels of education understand their options for different places of employment increase and tend to focus on failed previous change efforts causing greater resistance to change (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Schwartz, 1994; Van Dam, Oreg & Schyns,
Professionals in the medical industry tend to obtain a greater level of education including advanced technical degrees and certifications (Carnevale, Smith, & Strohl, 2010).

Education plays a large role in employee resistance to change based on their social identity within their work environment (Tajfel, 1974). According to Vithessonthi (2008), individuals with higher educational achievement are more likely to resist changes since they possess a higher self-confidence for learning and personal development, therefore imposed changes pose a greater threat to their autonomy and social identity. Additionally, employees with a higher level of education understand more jobs are available to them. If satisfied with their current situation, change can elicit resistance. Employees who possess higher education can become resistant to change due to possessing advanced knowledge and a fear their way of doing something is wrong (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Reese, 2009; Van Dam, Oreg & Schyns, 2008). The second objective focused on determining the relationship between educational attainment and each of the four factors of Oreg’s Resistance to Change model (Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response) via correlation, and then multiple linear regression analysis.

**Conclusion 2.**

There is low association between Education and Routine seeking, $r(85) = .15, p > .05$ and Cognitive Rigidity, $r(85) = .18, p > .05$. There is a negligible association with education and Emotional Response, $r(85) = .07, p > .05$; and with Short-term Thinking, $r(85) = .02, p > .01$. The relationship between the variables was not statistically significant. Therefore, we cannot reject the null hypothesis and cannot accept the alternative hypothesis. The results are displayed in Table 4.17. A multiple linear regression analysis was determined not to be warranted based on the lack of significance with the correlations no statistical significance with education on any of
the RTC Model factors. Since most of the respondents were the same educational level, this association cannot determine causality since limited information is available.

According to psychologist Edward Thorndike (1923), there are three “laws” regarding learning. Thorndike acknowledges individuals may differ in their readiness as well as influenced by their level of readiness (Thorndike, 1932). One such law is readiness to learn, which implies a degree of concentration and eagerness to learn material and the physical state of readiness. Individuals learn best when they are physically, mentally, and emotionally ready to learn. Adults do not learn well if they see no reason for learning the material or its application to their world. Knowles (1968) postulates adults derive self-identity from educational experiences and consequently affects their decisions on processing new learning or adapting to changes. Individuals with higher levels of education may be less ready to learn due to more learning experiences.

Previous research shows if employees are satisfied with their current situation, change can elicit resistance. Employees who possess higher education tend to resist change more readily due to possessing advanced knowledge and a fear that their way of doing something is wrong (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Reese, 2009; Van Dam, Oreg & Schyns, 2008). Oreg and Sverdlik (2009) used the university in Israel to conduct a resistance to change study. The participants were largely Bachelor’s degree students or employee with a Bachelor’s degree, therefore different demographically from the participants in this current study. The analysis of the data for this research question suggest further research should be conducted as education was not determined to be a factor here but has in other studies.
Research Question 3.

Is there a relationship between tenure and each of the four factors of Oreg’s Resistance to Change Model (Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response)?

The third objective was determining the relationship between tenure and each of the four attributes of Oreg’s Resistance to Change model (Routine Seeking, Cognitive Rigidity, Short-term Thinking, Emotional Response). This was the second independent variable. An extensive literature review suggested tenure was a factor in resistance to change. Employees with shorter tenure tend to resist change less frequently than those with longer tenure (Cole, 2016; Oreg, 2003; 2008). The reason is employees with long-term tenure in an organization or position have more invested. Researchers posit the more years an individual has in a position, the more likely the individual will be resistant to change (Cole, 2016; Koslowski, 2005; Kotter, 1996).

Employees value their contribution to organizations, and those with tenure tend to resist change because of a fear of losing face with fellow employees if they are unable to make the changes like their peers after so many years in their position (Hodson, 1999). The literature on years of tenure and resistance to change in individuals (Koslowski, 2005; Kotter, 1996; O’Reilly & Fish, 1976) suggests increased tenure contributes to resistance to change. Several studies show tenure at a company or in a position elicit greater levels of resistance (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Reese, 2009; Van Dam, Oreg & Schyns, 2008). Employees who have lengthy tenure may fear losing face if unable to cope with the change or learn a new process. Additionally, long-term employees may feel change violates their workplace identity, which ties to their social identity (Tajfel, 1974; Tajfel, Brown, & Turner,
1979). Many with high tenure tend to be satisfied with their current situation and dislike changing the status quo (Van Dam, Oreg & Schyns, 2008).

**Conclusion 3.**

A Pearson’s Correlation determined, in this study, there is a negligible association between tenure and Routine Seeking, $r(85) = -.00, p > .05$; Emotional Response, $r(85) = -.06, p > .05$; and Short-term Thinking, $r(85) = -.04, p > .05$. There is a low association between tenure and Cognitive Rigidity, $r(85) = .17, p > .01$. The relationship between the variables was not statistically significant. Therefore, we cannot reject the null hypothesis and cannot accept the alternative hypothesis. Due to tenure not being an ordinal variable, Spearman’s Correlation was not conducted nor was Multiple Linear Regression as it wasn’t necessary since the Pearson’s correlation found nothing statistically significant.

Tenure on the job is a major factor that affects workplace resistance to organizational change. Vidal (2007) points out some people dislike “jumping around” and prefer to know where they are working each day. Some individuals dislike the added responsibilities inherent with change and prefer simply to do the task that they are best. Many scholars found change increased the level of stress and anxiety people experienced from their daily work (Vidal, 2007).

Employees with shorter tenure tend to resist change less frequently than those with longer tenure as they have less invested in the workplace (Cole, 2016; Oreg, 2003; 2008). Researchers posit increased tenure in a position increases the likelihood the individual will be resistant to change (Cole, 2016; Koslowski, 2005; Kotter, 1996).

The healthcare industry is noted as having one of the greatest levels of turnover or attrition due to a multitude of reasons. However, even though individuals may not stay long term at one hospital or clinic, due to the rigors of education and licensure, they leave for a similar
position elsewhere (Carnevale, Smith, & Strohl, 2010). Several studies show tenure at a company or in a position elicit greater levels of resistance (Crowley, Tope, Chamberlain, & Hodson, 2010; Oreg et al, 2011; Reese, 2009; Van Dam, Oreg & Schyns, 2008). Employees who have lengthy tenure may fear losing face if unable to cope with the change or learn a new process. Additionally, long-term employees may feel change violates their workplace identity, which ties to their social identity (Tajfel, 1974; Tajfel, Brown, & Turner, 1979). The analysis of the data for this research question suggests further research should be conducted, as tenure has been determined to be a factor in resistance in other studies even if not found to be a factor in this current research.

**Limitations**

*Access.* During the collection of data, access to the survey may have been impacted as the link was sent during the weekly newsletter. This medical facility is very busy, and respondents may not have participated in this study as setting aside time to complete the survey would impact their work schedule and time with patients. Additionally, some potential participants may not have read the newsletter as not all employees find value in non-mandatory news.

*Participant Interpretation.* The participants answered each of the survey questions through their own socio-cultural lenses of interpretation. Based on that lens, questions can and will be interpreted differently. The data were collected utilizing a self-reporting survey, which is limited to comfort of sharing, lack of knowledge, understanding, and/or interest, and the honesty of those who completed the survey. Self-reporting can lead to reporting answers as those perceived as wanted or what is desired by the reporter, versus true beliefs and feelings.

*Technology.* Participants were invited to partake in this survey study based upon an electronic weekly newsletter. If any of the participants lacked the technological skills necessary
for completing the online survey instrument, or checking email accounts, data collection could have been impacted. Further, the fear of computer viruses and spam folders might have lowered the overall response rate due to the survey’s availability via an electronic hyperlink.

*Time Frame.* The findings of this study are bound by this one sample, in one hospital system, and one geographic region. This study is confined to a specific time during part of the 2019 calendar year with a narrow window of time to partake in the survey before it closed.

**Recommendations**

Traditional research studies conclude by recommending additional research. These recommendations are generally based upon what the current study has revealed that is still unknown. In addition to recommendations for future research, this section includes recommendations for future practice.

**Recommendations for Future Research**

This researcher sought to fill gaps in the literature about the relationship between tenure and education with resistance to change in the healthcare industry. While this study advances scientific knowledge about these matters as no statistically significant results found, more research is needed for this profession to ensure change initiatives are implemented without resistance and risk to patient safety. It is recommended to conduct this research using a larger sample size of healthcare industry employees to validate or invalidate the conclusions of this present study as other researchers found correlations between resistance to change, education, and tenure. The respondents possessed a larger span of years of tenure ranging from 1 year to 50 plus, but limited differences in regards to education as most of the respondents were Ph.D, MD, or Doctorate level. This might be a result of concern about who will see results were those at the Doctorate level may have more security in their roles. By either looking to expand the target
population or framing the request to participate differently, researchers may gain more respondents of varying educational levels. By sending the survey out in different ways, perhaps not using a gatekeeper known to the potential respondents might reduce concern of retaliation or answers becoming known to others.

Due to the small sample size in this current study, recommendations for future research include expanding studies to multiple healthcare facilities to incorporate regional, state, or nationwide coverage. In addition to including a more diverse geographic sample, including other employees within the organization, such as those with potentially less education or tenure to participate in the study. This would include clinic managers, front desk staff, medical technicians, and similar roles. The current study included only Medical Doctors and Nursing staff, whereas nearly all that responded were the later. Additionally, including the demographic of position would increase knowledge. The educational level of MD, Ph.D., and JD could have a variety of positions with that level including Nurse Practitioner. The functions of a job could change the level of resistance to change.

A more robust sample size is vital as small sample sizes lead to low statistical power, which undermines the purpose of the research by reducing the chances of detecting true effects (Spicer, 2005). The current study only produced 87 respondents, which could lead to skewed results. Results of online surveys may suffer if important respondents are left out of the research. Hard-to-reach respondents may be easier to reach using more traditional methods such as paper surveys or face-to-face interviews. Therefore, a blended research model incorporating both quantitative and qualitative methods could lead to greater understanding. Additionally, the length of time in order to participate should be lengthened to no less than eight weeks to allow time for individuals with busy schedules to take the survey. By providing two reminders, participants can
be increased as often greater numbers of participants partake in the survey directly after a reminder. Another alternative, utilize a two phased approach conducting the survey before and after the change to see if there is a difference in the responses.

Using a different theoretical framework could increase understanding for this industry. Di Fabio and Gori (2016) used the Acceptance of Change model (ACS) in their study, which looked at acceptance of change initiatives more so than overall resistance. Acceptance of change (AC) is the propensity to embrace change versus avoid change because it is regarded as positive for a person’s well-being (Di Fabio & Gori, 2016). Research on change largely focuses on reasons for resistance, but Di Fabio and Gori (2016) explain assessing the acceptance of change frames it as a mechanism of growth using positive psychological constructs versus negative attributes. Self-determination theory (SDT) is an internal process theory specifying people are motivated to seek experiences to satisfy innate psychological needs such as a need for competence, a need for relatedness, and a need for autonomy (Ryan & Deci, 2000). By using either of these theoretical frameworks versus cognitive dissonance creates the foundation of a positive study focused on change acceptance instead of resistance.

By looking at different variables as catalysts for change resistance, the knowledge of health care industry resistance can be augmented. Personality traits of certain specialties could play an additional role in the perception of change resistance. According to research, despite high variability within disciplines, there are moderate, reproducible differences between surgical and medical specialties (Stienen, Scholtes, Samuel, et al, 2018). Adding in an additional personality-based survey component might allow for a better understanding of healthcare professionals’ resistance to change. Schwartz’s Portrait Values was previously combined with Oreg’s RTC Model for research with academic and engineering employees (Oreg, 2003).
Numerous researchers studied resistance to change in the healthcare industry through the last eight to ten years. Some researchers are focused on the organizational context, like communication of changes and leadership, as reasons for resistance to change more than individual disposition or personality (Burnes, 2012, 2014; Choi & Ruona, 2011; Coch & French, 1948). One such study examined the relationships between change resistance and if it strengthened or weakened over time during an extended duration of organizational change (Jones & Van de Ven, 2016). Jones and Van de Ven (2016) found during significant organizational changes, that resistance to change became increasingly negative over time, therefore, conducting a longitudinal study may elicit more concrete data by giving the survey at the beginning, middle, and end of the change process.

**Recommendations for Applications for Practice**

The results of this study are valuable to leaders and change managers in healthcare organizations as the research suggested underlying factors as the catalyst to resist change. Although no statistical significance was found with tenure and education, a slight to moderate correlations to resistance was found with the research participants. In the continued climate of rapid change in the wake of healthcare reform precipitated by the American Care Act, this research can provide avenues for better management when implementing mandated change.

The first recommendation for leaders is to ensure proper communication of change especially to those who are at the highest levels as there was a slight association toward routine seeking behaviors. The second recommendation is to focus on ensuring individuals with greater tenure are empowered to accept the changes by communicating the reasons for the change and the steps toward the implementation. Those with greater tenure can resist change more readily as they might fear failure at learning new tasks. Providing adequate training can alleviate this fear.
Summary of Chapter

The goal of this research endeavor was to determine if education and tenure played a role in resistance to change in the healthcare industry during times of imposed technological changes. Previous resistance to change research indicated that these variables played an important role in predicting resistance. Although the research study did not statistically prove either variable to be factors, the body of healthcare industry change literature is informed. The variables of education and tenure, at least in this case, do not indicate a resistance to change. However, it is recommended to continue research in this field as well as with the variables of education and tenure with a larger/diverse subject pool, added variables, varying instruments, and theoretical underpinning.
REFERENCES


for research on teaching. In N. L. Gage (Ed.), Handbook of research on teaching (pp. 171–246). Chicago, IL: Rand McNally.


Appendix A: Permission to Use RTC Model

Re: Dissertation on Employee Resistance to Organizational Change

To: Elizabeth O'Day

Please feel free to use the scale for your research. All the best.

Shaul

Sent from my mobile phone. Please excuse brevity and typos.

On Jul 9, 2016, at 17:23, Elizabeth O'Day <elwentze@ncsu.edu> wrote:

Dr. Shaul Oreg:

I am in the process of conducting research for my dissertation at North Carolina State University in Raleigh, North Carolina, USA.

I intend to examining the prevalence of employee resistance to organizational change within the healthcare fields based on their workplace tenure and educational attainment. I am wondering if I may have permission to use your Resistance to Change scale in the study as it is the best instrument for my needs and purpose.

--
Best Regards,

Elizabeth O'Day (nee Wentzel), MSL
elwentz@ncsu.edu
206-454-0858
## Appendix B: Resistance to Change Model

<table>
<thead>
<tr>
<th>Statement</th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Inclined to disagree</th>
<th>Inclined to agree</th>
<th>Agree</th>
<th>Strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I generally consider changes to be a negative thing.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>2. I'll take a routine day over a day full of unexpected events any time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3. I like to do the same old things rather than try new and different ones.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>4. Whenever my life forms a stable routine, I look for ways to change it.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>5. I'd rather be bored than surprised.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>6. If I were to be informed that there's going to be a significant change regarding the way things are done at work, I would probably feel stressed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7. When I am informed of a change of plans, I tense up a bit.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>8. When things don't go according to plans, it stresses me out.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>Statement</td>
<td>Strongly disagree</td>
<td>Disagree</td>
<td>Inclined to disagree</td>
<td>Inclined to agree</td>
<td>Agree</td>
<td>Strongly agree</td>
</tr>
<tr>
<td>--------------------------------------------------------------------------</td>
<td>-------------------</td>
<td>----------</td>
<td>---------------------</td>
<td>------------------</td>
<td>-------</td>
<td>----------------</td>
</tr>
<tr>
<td>9. If one of my supervisors changed the performance criteria, it would probably make me feel uncomfortable even if I thought I'd do just as well without having to do extra work.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>10. Changing plans seems like a real hassle to me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>11. Often, I feel a bit uncomfortable even about changes that may potentially improve my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>12. When someone pressures me to change something, I tend to resist it even if I think the change may ultimately benefit me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>13. I sometimes find myself avoiding changes that I know will be good for me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>14. I often change my mind.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>15. I don’t change my mind easily.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>16. Once I’ve come to a conclusion, I’m not likely to change my mind.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>17. My views are very consistent over time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
## Appendix C: Resistance to Change Coding

<table>
<thead>
<tr>
<th>VARIABLE DESCRIPTION</th>
<th>QUESTION # and ORIGINAL RESPONSE</th>
<th>CODING for ANALYSIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Routine Seeking</td>
<td>5 questions using a 6-point Likert model ranging from 1 (strongly disagree) to 6 (strongly agree)</td>
<td>RSSUM, RSAVG</td>
</tr>
<tr>
<td>Short-Term Thinking</td>
<td>8 questions using a 6-point Likert model ranging from 1 (strongly disagree) to 6 (strongly agree)</td>
<td>STSUMP, STAVG</td>
</tr>
<tr>
<td>Emotional Response</td>
<td>8 questions using a 6-point Likert model ranging from 1 (strongly disagree) to 6 (strongly agree)</td>
<td>ERSUM, ERAVG</td>
</tr>
<tr>
<td>Cognitive Rigidity</td>
<td>4 questions using a 6-point Likert model ranging from 1 (strongly disagree) to 6 (strongly agree)</td>
<td>CRSUMP, ERAVG</td>
</tr>
<tr>
<td>Gender</td>
<td>“Are you…” Male; Female; Nonbinary</td>
<td>3 = Nonbinary, 2 = Female, 1 = Male</td>
</tr>
<tr>
<td>Age</td>
<td>Which age group best describes you? a. 18-25 b. 26-35 c. 36-45 d. 46-55 e. 56-65 f. 66 or older</td>
<td>1= 18-25, 2=26-35, 3=36-45, 4=46-55, 5=26-65, 6=66 plus</td>
</tr>
<tr>
<td>Length of Employment (Longevity)</td>
<td>In what year did you start working in a healthcare related field? Response = year listed.</td>
<td>Numerical continuous variable</td>
</tr>
<tr>
<td>Highest Degree</td>
<td>Single Item. An ordinal model (0 to 5). 5 categories: 0=NA; 1=High School/GED; 2=Associate’s; 3= Bachelor’s; 6=Master’s; 7= Beyond Masters</td>
<td>0 = No Degree, Associate’s, Bachelor, 1 = Master’s Or Higher</td>
</tr>
</tbody>
</table>
Appendix D: Initial Email to Participants

Dear Participant,

You are invited to participate in a research study designed to evaluate the tenure and educational differences on resistance to change of medical staff at UNC Rex Physician Network. This form is part of a process called “informed consent” to allow you to understand this study before deciding whether to take part. Please read this form and ask any questions before participating in the study. This study is being conducted by Elizabeth Lynley Wentzel, doctoral candidate at North Carolina State University.

Background Information:
The purpose of this study is to evaluate the potential tenure and educational differences on resistance to change among professionals in the Healthcare industry. A quantitative survey design will be used. Healthcare constantly experiences changes in technology and legislation. This study focuses on resistance to these mandated changes based on the individuals’ tenure within their position as well as educational attainment.

Procedures:
If you agree to be in this study, you will be asked to take a brief electronic survey. The survey is strictly anonymous and will take approximately 10 minutes to complete.

Voluntary Nature of the Study:
Your participation in this study is strictly voluntary. Your decision whether to participate will not affect your relations within the organization in which you are employed. If you decide to join the study now, you can still change your mind during the study.

Risks and Benefits of Being in the Study:
This study presents no foreseeable risks to you; participant identification will not be collected, and your identity and responses will be completely anonymous. You will be asked for demographic information such as gender, age, length of employment, and education, etc. to allow for a more complete analysis of the data. Electronic submissions are SSL encrypted. The data collection and analysis will be conducted by me. Raw data will be electronically stored for a period of five years. Individual participants may benefit from this study to the extent that the findings provide information on the development of strategies leading to improved job satisfaction for the healthcare industry experiencing changes.

Confidentiality:
Any information you provide will be anonymous. No one, not even the researcher, will know who participated. A copy of the informed consent form will be available for you to keep from of this email. The researcher will not use your information for any purposes outside of this research project.
Contacts and Questions:
The researcher conducting this study is Lynley Wentzel. The researcher’s dissertation chairperson is Dr. Chad Hoggan and Dr. James Bartlett, II. North Carolina State University’s IRB approval number for this study is 6658. You may print this form to keep for your records. If you have questions, the contact information is:

Lynley Wentzel

To protect participants’ privacy, individual signatures of consent are not being collected; the first question of the survey will indicate participant consent.

Statement of Consent:
The statement of Consent will be included in the survey. Should you choose to participate, you will be taken to the questions immediately. If you chose not to participate, you will be closed out of the survey tool.

Survey Link: https://ncsu.qualtrics.com/jfe/form/SV_9SvtDhI1qq4tLAF
Appendix E: Follow up Email to Participants

REMINDER!
Dear Participant,

If you have not yet done so, please read this email and take the survey if you choose to participate. You are invited to participate in a research study designed to evaluate the tenure and educational differences on resistance to change of medical and professional staff at UNC Rex Physician Network. This form is part of a process called “informed consent” to allow you to understand this study before deciding whether to take part. Please read this form and ask any questions before participating in the study. This study is being conducted by Lynley Wentzel, doctoral candidate at North Carolina State University.

Background Information:
The purpose of this study is to evaluate the potential tenure and educational differences on resistance to change among professionals in the Healthcare industry. A quantitative survey design will be used. Healthcare constantly experiences changes in technology and legislation. This study focuses on resistance to these mandated changes based on the individuals’ tenure within their position as well as educational attainment.

Procedures:
If you agree to be in this study, you will be asked to take a brief electronic survey. The survey is strictly anonymous and will take approximately 10 minutes to complete.

Voluntary Nature of the Study:
Your participation in this study is strictly voluntary. Your decision whether to participate will not affect your relations within the organization in which you are employed. If you decide to join the study now, you can still change your mind during the study.

Risks and Benefits of Being in the Study:
This study presents no foreseeable risks to you; participant identification will not be collected, and your identity and responses will be completely anonymous. You will be asked for demographic information such as gender, age, length of employment, and education, etc. to allow for a more complete analysis of the data. Electronic submissions are SSL encrypted. The data collection and analysis will be conducted by me. Raw data will be electronically stored for a period of five years. Individual participants may benefit from this study to the extent that the findings provide information on the development of strategies leading to improved job satisfaction for the healthcare industry experiencing changes.

Confidentiality:
Any information you provide will be anonymous. No one, not even the researcher, will know who participated. A copy of the informed consent form will be available for you to keep from of this email. The researcher will not use your information for any purposes outside of this research project.
Contacts and Questions:
The researcher conducting this study is Lynley Wentzel. The researcher’s dissertation chairperson is Dr. Chad Hoggan. North Carolina State University’s IRB approval number for this study is 6658. You may print this form to keep for your records. If you have questions, the contact information is:

Lynley Wentzel

To protect participants’ privacy, individual signatures of consent are not being collected; the first question of the survey will indicate participant consent.

Statement of Consent:
The statement of Consent will be included in the survey. Should you choose to participate, you will be taken to the questions immediately. If you chose not to participate, you will be closed out of the survey tool.

Survey Link: https://ncsu.qualtrics.com/jfe/form/SV_9SvtDh1qq4tLAF
Appendix F: IRB Application

NORTH CAROLINA STATE UNIVERSITY
INSTITUTIONAL REVIEW BOARD FOR THE USE OF HUMAN SUBJECTS IN RESEARCH
SUBMISSION FOR NEW STUDIES

Protocol Number 6658

Project Title
Resistance to Mandated Organizational Change in a Healthcare Setting

IRB File Number:

Original Approval Date:
03/04/2016

Approval Period
03/04/2016 -

Source of funding (if externally funded, enter PIMS or RADAR number of funding proposal via 'Add New Sponsored Project Record' button below):
None

NCSU Faculty point of contact for this protocol NB: only this person has authority to submit the protocol
Hoggan, Chad David; Educational Leadership, Policy, and Human Development (ELPHD)

Does any investigator associated with this project have a significant financial interest in, or other conflict of interest involving, the sponsor of this project? (Answer No if this project is not sponsored)
No

Is this conflict managed with a written management plan, and is the management plan being properly followed?
No

Preliminary Review Determination

Category:
Exempt b.2

In lay language, provide a brief synopsis of the study (limit text to 1500 characters)

Employee resistance to organizational change is an issue that challenges all businesses. In health care, this resistance can lead to negative outcomes for patients. Therefore, studying the reasons employees in health care settings might be more likely to resist organizational change can lead to better change implementation programs and, thus, might influence positively patient safety and health outcomes.

This study uses the Resistance to Change scale developed by Dr. Shaul Oreg, which has previously been used in research into resistance at universities and engineering firms. The 17 question survey will be coupled with a demographics survey which includes questions related to educational attainment and tenure at work. The hypothesis for the study proposes that individuals with greater educational attainment and tenure at work are more likely to resist change when imposed. The study will enhance the knowledge of the field of Organizational development.
Appendix G: IRB Approval

From: IRB Administrative Office <pins_notifications@ncsu.edu>
Date: Thu, Mar 28, 2019 at 4:11 PM
Subject: Hoggan - 6658 - IRB Protocol renewal/amendment approved
To: <cdhoggan@ncsu.edu>

Dear Chad Hoggan:

Date: 03/28/2019

Project Title: Resistance to Mandated Organizational Change in a Healthcare Setting

IRB#: 6658

PI: Hoggan, Chad David

The renewal/amendment request for the project listed above has been approved in accordance with policy under 45 CFR 46. If your application was to amend your study protocol, and your study received expedited or full board review, this letter does NOT change the expiration date for your study. If you applied to renew your expedited or full board protocol, your new expiration date is shown above.

1. This board complies with requirements found in Title 45 part 46 of The Code of Federal Regulations. For NCSU the Assurance Number is: FWA00003429.
2. You must use the approved documents which have the status "approved" in the document viewer in the eIRB for your study.
3. Any changes to the protocol and supporting documents must be submitted and approved by the IRB prior to implementation via amendment request.
4. If any unanticipated problems or adverse events occur, they must be reported to the IRB office within 5 business days by completing and submitting the unanticipated problem form on the IRB website: http://research.ncsu.edu/sparcs/compliance/irb/irb-forms/
5. Any unapproved departure from your approved IRB protocol results in non-compliance. Please find information regarding how to avoid non-compliance here: http://research.ncsu.edu/sparcs-docs/irb/non-compliance_faq_sheet.pdf

Please let us know if you have any questions.

Jennie Ofstein
NC State IRB Office
919.515.8754 (email is best)