

DENTAL PROFESSIONALS' PREPAREDNESS TO MANAGE BEHAVIORS OF PATIENTS
WITH AUTISM SPECTRUM DISORDER DURING DENTAL TREATMENT:
A PHENOMENOLOGICAL STUDY

by

Kelli A. Trenga

Liberty University

A Dissertation Presented in Partial Fulfillment

Of the Requirements for the Degree

Doctor of Education

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ABSTRACT

The purpose of this transcendental, phenomenological study was to explore the preparedness of dentists and dental hygienists to manage the behaviors of patients with ASD during their dental treatments. The research focused on 12 participants who were novice or experienced dentists or dental hygienists, representatives of three states, and chosen from snowball and criterion sampling. The study was grounded in the adult experiential learning theory and the disability model. Data collection included long interviews face-to-face or via phone, open-ended-online surveys, and document analysis. The data was analyzed through the process of Epoche, transcendental-phenomenological reduction, imaginative variation, synthesis of meanings, and essences (Moustakas, 1994). Seven themes emerged in the data: varying knowledge of ASD; empathy, gratification; establishment of rapport and trust, and the influence of preparedness. One unexpected theme surfaced that was indirectly related to the research questions—caregiver involvement. The participants revealed their preparedness was influenced by their hands-on personal experiences, reflection, recall from previous patients, mentors and colleagues. Some novice dentists were provided opportunities to treat patients with ASD during their predoctoral training. The participants emphasized individualization and desensitization techniques with visual, auditory, tactile, olfactory, and gustatory adaptations.

Keywords: Autism Spectrum Disorder, dental treatment experiences, dentists, novice, preparedness, sensory tools, Special Care Dentistry

Dedication

I dedicate my dissertation to my husband, Vincent and my sons, Santino and Blaine.
May you remember the abundance of work I put into my studies, yet forget the amount of time
my studies took away from you.

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I cannot recall how many times I said aloud, “Thank you, Jesus!” as I recruited my participants one by one or searched for the perfect words to write in my dissertation. My trust in Him grew as I developed my patience and trusted in His perfect timing.

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List of Abbreviations

American Dental Association (ADA)

Autism Spectrum Disorder (ASD)

Commission of Dental Accreditation (CODA)

Sensory Adapted Dental Environments (SADE)

Special Care Dentistry (SCD)

CHAPTER ONE: INTRODUCTION

Overview

Many challenges exist for people with Autism Spectrum Disorder (ASD) including barriers with socialization, communication, and sensory integration that could significantly interfere with successful dental treatment (Stein, Lane, Williams, Dawson, Polido, & Cermak, 2014). It is imperative that dental professionals have the knowledge and skills to manage the behaviors of people with ASD to provide successful treatment, thus exploring the preparedness of dentists and dental hygienists is essential. Chapter one serves as an introduction to the qualitative, transcendental-phenomenological study of the influence of preparedness of dental professionals to manage the behaviors of patients with Autism Spectrum Disorder (ASD) during dental treatment experiences. I discuss the historical, social, and theoretical background of the study using support from current literature. Next, I provide a problem and purpose statement, followed by the significance of the study. I state the research questions that are aligned with the problem and purpose statement.

Background

Autism spectrum disorder is a prevalent childhood disorder, often considered a lifelong disorder with a formal diagnosis— “persistent deficits in social communication and social interaction across multiple contexts” (American Psychiatric Association, 2013). People with ASD exhibit social and communication deficits or impairments, along with repetitive and unusual behaviors that may cause difficulty with common daily life (National Institute of Neurological Disorders and Stroke, 2017). Since the first psychological diagnosis in the 1940’s (Silverman, 2014), many advances in understanding the disorder and various treatment options have occurred (Kuhaneck & Watling, 2015; Rickson, Molyneux, Ridley, Castelino, & Upjohn-

Beatson, 2015; Chou, Feng, & Lee, 2016). The historical, social, and theoretical background of ASD is grounded in current literature and presented to explain how the problem has evolved over time and the social contexts that exist.

Historical

In 1943, child psychologist, Doctor Leo Kanner first described a child with very unique characteristics. Upon a case study of 11 children with similar characteristics, the psychologist eventually diagnosed the children with autism (Silverman, 2014). Knowledge of ASD has evolved over the years with significant research conducted in the 1990's (Lai, Lombardo, & Baron-Cohen, 2014). Centers for Disease Control and Prevention (2017) confirmed one out of 68 children have been diagnosed with ASD. Not only is the prevalence statistically high, but the amount of services and medical treatment that people with ASD require is considerable (Zablotsky, Pringle, Colpe, Kogan, Rice, & Blumberg, 2015).

Interdisciplinary interventions should be provided for people with ASD (Lai et al., 2014) using effective therapies consisting of occupational (Kuhaneck & Watling, 2015), music (Rickson et al., 2015), and art (Chou, Feng, & Lee, 2016). Little research on equestrian therapy has been conducted, though the activity has shown to benefit people with ASD (García-Gómez, Rodríguez-Jiménez, Guerrero-Barona, Rubio-Jiménez, García-Peña, & Moreno-Manso, 2016). Professionals in therapeutic services have substantial training working with people with ASD. With the multitude of therapies available, the experiences of trained professionals, and the research on the effectiveness of those services, dental care is perhaps one area that may be overlooked as a vital sector needing trained professionals on appropriate interactions with people with ASD.

Murshid (2015) suggested dental care for children with ASD may not have an equal priority because of the many other health and behavioral concerns that typically exist. The importance for routine oral care from dental professionals who are highly qualified and who are aware of the interventions required to treat a patient with ASD is dually significant (Muraru, Ciuhodaru, & Iorga, 2017). The need for dentists to receive continuing education on how to effectively treat patients with ASD is necessary (Mochamant, Fotopoulos, & Zouloumis, 2015). Research to understand dentists' and dental hygienists' preparedness is essential to ensure patients with ASD are receiving appropriate care.

Social

The American Dental Association (ADA) asserted the frequency a person needs to visit the dentist is unique to individual needs. Some people require one to two visits per year and other people require a greater frequency to maintain dental health. The importance of dental health care is indicative to overall good health. Regular dental visits assist in identifying current problems prior to the concerns becoming serious, and reducing future problems from occurring (American Dental Association, 2017). Studies have shown people with ASD suffer from gingival recession, as well as reduced saliva which causes a risk in oral health (Blomqvist, Bejerot, & Dahllöf, 2015). In addition to the slight increased dental concerns, dentists must also manage the behavioral challenges during the treatment of patients with ASD (Weil & Inglehart, 2011). Dentists must possess the skills and knowledge to effectively manage and treat patients with ASD (Mochamant et al., 2015).

Dentists have confirmed that their greatest challenges in treating patients with ASD are the characteristics that make up the disorder including difficulty with social and communication skills, the need for repetitive behaviors, and other sensory integration needs (Weil & Inglehart

2011). Not surprisingly, 94% of patients with ASD who participated in a dental study exhibited challenging behaviors (Jang, Dixon, Tarbox, & Granpeesheh, 2011). Elmore, Bruhn, and Bobzien (2016) discussed the reality that sensory difficulties and communication concerns cause many dentists to rely on restraints or sedation during treatment. Advocates for people with special needs focus on the least restrictive ways professionals across disciplines could effectively treat patients with ASD. Thus, because of the global rise in patients with ASD and the likelihood of dentist treating patients with ASD (Mochamant et al., 2015), dental professionals need to be prepared to individually treat and manage the behaviors of patients with ASD (Nelson, Sheller, Friedman, & Bernier, 2015).

Another barrier dentists face is the increased anxiety that patients with ASD experience (Blomqvist, Dahllöf, & Bejerot, 2014). Creating a dental experience where people with ASD are able to trust their provider is essential, as well as providing socio-communication and behavioral guidance that limits the amount of stress and anxiety that is provoked during and for future appointments (Elmore et al., 2016). Perhaps the obvious barriers that patients with ASD possess, which are the guiding diagnostic behaviors of the disorder may never be completely removed, but more importantly it is possible for dentists to gain understanding and awareness on how to collaborate with their patients to effectively assist them in coping with their behaviors and unique needs (Muraru et al., 2017).

Theoretical

Providing fair treatment for people with special needs is not a new concept and has a pattern for promoting continued increased understanding, tolerance, and acceptance in society backed by legislation and human rights acts with specific legislation through the American with Disabilities Act that “prohibits discrimination against people with disabilities in several areas,

including employment, transportation, public accommodations, communications and access to state and local government' programs and services" (United States Department of Labor, 2017). The disability theory, which does not have one central theorist, yet has been developed over time by several researchers has discussed the discrimination, disadvantages, and barriers people with disabilities experience (Watson, 2012; Abberley, 1987). Although the disability theory is referenced as a theory throughout literature, a more accurate depiction is a model (Oliver, 2009; Watson, 2012). The disability model was originated in Britain by advocates for disabilities to explain disabilities in a social aspect, and then progressed to a sociological model (Watson, 2012).

Since the 1970's, the theory has been debated with regard to medical and social aspects, considering the positive and negative effects of a disability on an individual (Scambler, 2005). In 1981, Michael Oliver developed the term "social model of disability" (McNulty, 2017). Oliver (1990) claimed if a disability is regarded negatively, then the actual experience of having the disability will be considered negative because of the phenomenon of people creating meanings for social encounters. Likewise, for a disability to be viewed in a positive manner, the meaning of the disability must be construed positively (Oliver, 1990). Abberley (1987) contributed to the disability theory by suggesting disabilities are common among cultures and not confined to gender, race, or socio-economic status.

Watson (2012) discussed that the disability model does not focus on the impairments of the individuals, rather it emphasizes the exclusion of people due to facing the effects of the disability and the challenges that they encounter in society. Preston (2010) asserted that the disability model exists primarily because of the barriers within the environment that people

encounter, rather than the disability. There is much ambition for society to integrate people with disabilities (Preston, 2010).

New post-modern ideas on disability have a more positive connotation with the desire for inclusion of people with disabilities. If the barriers that exist that separate people with disabilities from normal functioning people were removed or changed, then there is a notion that disabilities would disappear altogether (Abberley, 1987). Preston (2010) claimed that the importance for the disability theory is to focus on all disabilities including those that are obvious as well as disabilities that may not be readily observed.

Creswell (2013) highlighted the work that has been done through the “disability interpretive lens,” which views disabilities as differences among people and not merely an imperfection (p. 34). Advocacy groups, such as Autism Speaks have worked tirelessly to create equity for people with ASD in correspondence to the American Disabilities Act (Itkonen & Ream, 2013).

Several important variables underpin this research. Dougall, Pani, Thompson, Faulks, Romer, and Nunn (2013) suggested that reports have indicated healthcare professionals are not prepared with the required skills to treat patients with disabilities. Special Care Dentistry (SCD) is an emerging field, that is “concerned with the supply and facilitation of oral care for individuals with an impairment or disability” (Valle-Jones, & Chandler, 2015).

Much research has been focused on the attitudes of pre-doctoral dental students and dentists toward treatment of patients with special needs (Ahmad, Razak, & Borromeo, 2015; Alkahtani et al., 2014; Al-Zboon & Hatmal, 2016; Weil, Bagramian, & Inglehart, 2011; Weil & Inglehart, 2010). Research indicated the quality of pre-doctoral students’ SCD program had correlation to the students’ confidence and willingness to treat patients with special needs in their future

practices (Dougall et al., 2013). Undergraduate dental students believe SCD needs more attention during their studies (Yeaton, Moorthy, Rice, Coghlan, O'Dwyer, Green, Sultan, Guray, Mohamad, Aslam, & Freedman, 2016).

Studies have been geared toward preparatory training for dentists and dental hygienists to treat patients with special needs (Chavez, Subar, Miles, Wong, LaBarre, & Glassman, 2011; Kim, Bang, Kim, Lee, & Choi 2014; Salama, Al-Bakhi, & Abdelmegid, 2015), though there are limited studies on dental preparatory training with regard to just ASD (Weil et al., 2011). A few studies have discussed SCD programs with specific attention on curriculum factors (Mac Giolla Phadraig, Nunn, Tornsey, & Timms, 2014; Kim et al., 2014). Research specifically focusing on the preparedness of dentists and dental hygienists to treat patients with ASD was not available at the time of my research. My proposed research may enhance the body of knowledge of SCD and may provide a fresh lens into how and why dental professionals are prepared to treat the specific population of people with ASD. Dental school professors may use this research to refine their curriculum and provide time to ensure graduates are adequately prepared to treat patients with ASD (Dougall et al., 2014).

Situation to Self

As a little girl, I remember having a curiosity for people with disabilities. The curiosity developed into a powerful passion that led me to university studies in special education and a career as a special education teacher. An opportunity arose to provide continuing education for my county's dental hygienists and their dentists. The parallels of best practices for teaching children with ASD and the behavior management strategies that dental professionals could employ to create individualized and successful dental treatments were strikingly similar. I realized the influence that I could have on the interdisciplinary collaboration with the dental

world. I began to ponder whether or not dental professionals felt underprepared to treat patients with ASD. The genuine love I have for people with ASD, the advocacy role about which I am passionate, and the interest in the interdisciplinary collaboration all influenced my study. My proposed research study sought to explore the preparedness of dentists and dental hygienists to manage the behaviors of patients with ASD during dental treatment experiences.

My philosophical assumption was ontological because I sought the reality through my multiple participants by reporting themes that I discovered, which were described as characteristics and implications by Creswell (2013). Furthermore, I had a constructivist paradigm that helped guide this study. Rubin and Rubin (2012) explained constructivist perspectives seek to understand how people interpret their experiences, which was the underlying goal of my study. I wanted to understand and develop meaning by learning the views of my participants as I engaged in social interaction with them, all of which were described by Creswell (2013) as components of constructivism. People's backgrounds greatly influence what they believe and hold valuable, yet interactions with others may help transform their thinking collectively as they attempt to create meaning in their life.

Problem Statement

Global attention has been given to ASD because of the rise in prevalence (Mochamant et al., 2015), which may be attributed to an increased awareness (Wright, 2017). Many dentists are now treating patients with ASD in their offices (Mah & Tsang, 2016), while many dentists are not specialized in SCD, do not possess a comprehensive understanding of ASD, nor possess the required skills to individualize the dental experience per patient (Mochamant, Fotopoulos, & Zouloumis, 2015). Individualizing the dental treatment for patients allows the dentist to manage the dominant behaviors that are characteristic to people with ASD (Mochamant et al., 2015).

The problem is people with ASD need dental professionals who effectively manage their behaviors during the dental visit to produce a successful dental treatment experience. An unsuccessful dental appointment may cause anxiety for a patient with ASD (Blomqvist, 2014). A refusal for future dental treatments may cause greater unmet health concerns (McKinney, Nelson, Scott, Heaton, Vaughn, & Lewis, 2014). Norwood and Slayton (2013) confirmed unmet dental concerns could lead to systemic illness. Dental professionals at the Mayo Clinic (2016) explained good oral health will limit the overgrowth of microbial that may cause a role in endocarditis (infection of the inner lining of the heart), cardiovascular disease, and low birth weights and premature babies for pregnant women. Schaffer, Perry, and Dollin (2015) described the urgency for the support of dental care for patients with ASD. When the dental care experience for people with ASD is improved, and they are provided with the opportunity to have care, an increase in oral health may occur (Elmore et al., 2016).

With the extensive literature on SCD, the available research on barriers that patients with ASD possess, and the limited research on dentists' and dental hygienists' attitudes toward treating patients with ASD, a gap exists specifically in studies that explores the preparedness of dentists and dental hygienists to manage the behaviors of patients with ASD during dental treatment experiences. A qualitative, transcendental-phenomenological study was needed to give a voice to dentists and dental hygienists about their preparedness to manage the behaviors of patients with ASD.

Purpose Statement

The purpose of this phenomenological study will be to explore the preparedness of dentists and dental hygienists to manage the behaviors of patients with ASD during dental treatments. Preparedness was defined as the feelings of readiness due to knowledge and/or

experience (Katz, Nekorchuk, Holck, Hendrickson, Imrie, Effler, 2006). Novice dentists were defined as practicing dentists who still need continued professional development in their general practice with less than four years of experience (Fricker, Kiley, Townsend, & Trevitt, 2011). The dental treatment experience included all aspects of a patient's dental visit. The theory guiding this study was the adult experiential learning theory (Dernova, 2015), because it was relative to the focus of inquiry to understand how experiences of adult learners in treating patients with ASD may transfer into a greater knowledge that affects future treatment.

Significance of the Study

This study was significant in enhancing the body of knowledge that already existed pertaining to treating patients with disabilities in dental offices. A significant amount of literature examined the importance of pre-doctoral dental students' and dentists' attitudes toward treatment of patients with special needs in general (Ahmad, Razak, & Borromeo, 2015; Alkahtani et al., 2014; Al-Zboon & Hatmal, 2016; Chavez et al., 2011; Kim et al., 2014; Salama et al., 2015; Weil et al., 2011). A positive attitude from dental professionals is needed when treating all patients with disabilities (Alkahtani et al., 2014, Chavez et al., 2011; Kim et al., 2014).

There was literature describing best practices for the successful treatment of patients with special needs, including patients with ASD (Nelson et al., 2015; Weil et al., 2011). Cermak, Stein Duker, Williams, Lane, Dawson, Borreson, and Polido (2015) researched benefits of Sensory Adapted Dental Environments (SADE) to enhance the treatment of patients with sensory disorders, including those with ASD. Literature on the barriers or challenges with treating patients with ASD have been explored (Weil et al., 2011; Lai, Milano, Roberts, & Hooper, 2011; Mochamant et al., 2015; Blomqvist, et al., 2014; Stein, Lane, Williams, Dawson, Polido,

Cermak, 2014; Limeres-Posse, Castaño-Novoa, Abeleira-Pazos, & Ramos-Barbosa, 2014; Rada, 2010). There was literature on the challenges for dentists whom have limited training to treat patients with special needs (Dougall et al., 2014a). Literature existed on the importance of dentists individualizing treatment for patients with special needs, including patients with ASD (Brown & Brown, 2014; Delli et al., 2013; Mochamant et al., 2015).

The current research depicted what dentists could employ to provide successful care for people with ASD, often using common educational best practices (Nelson et al., 2013) and employing various therapeutic approaches such as Social Stories™ and video modeling (Nelson et al., 2015). Researchers examined the need for dentists to increase their knowledge and skill sets for treating patients with developmental disorders (Alkahtani et al. 2014). There was also literature on the importance of dentists individualizing treatment for patients with special needs (Mochamant et al., 2015).

My research filled a gap in the literature by specifically delving into one aspect of SCD involving patients with ASD. A wider gap was filled by describing the preparedness of novice dentists and dental hygienists to manage the behaviors of patients with ASD after they have had some experience in the field working with patients with ASD. Research was not available at the time of this study on the preparedness of dentists and dental hygienists to manage the behaviors of patients with ASD during dental treatment. This research was practical because many dentists and dental hygienists may treat patients in their practice with ASD because of the high prevalence of the disorder (Mah & Tsang, 2016).

This study may benefit seven populations—patients, dental students at various dental universities, practicing dentists, dental hygienists, curriculum developers, dental instructors, and other medical professionals. The patient population may benefit from this study because the

study will highlight preparedness of dental professionals, which influences the treatment of patients with ASD. All patients have the right to have their dental needs met (Wiener, Vohra, Sambamoorthi, & Madhavan, 2016). The better prepared a dentist is to treat a patient, the greater success a patient could have during a treatment (Weil et al., 2010). Pre-doctoral dental students believe more time is needed to learn how to treat patients with special needs (Delli, Reichart, Bornstein, & Livas, 2013). Dental students at various universities may benefit by learning about the preparedness of novice dentists to treat patients with ASD. Dental school instructors, administrators, and curriculum directors may be interested in this study to learn about the preparedness of novice dentists to manage the behaviors of patients with ASD. Practicing dentists and dental hygienists may benefit from this study by reflecting upon their own preparedness to treat patients with ASD, seeking additional training if needed, or sharing practical applications and behavioral management strategies that work in their own practice. Other medical professionals may benefit from this study by reflecting on their own preparedness to treat patients with ASD. Broad generalizations will not be possible due to the limitations of the study.

Over the last three decades the interest in ASD has grown rapidly (Rice & Lee, 2017). Various organizations and advocacy groups have created an awareness of ASD that has generated acceptance and attention worldwide (Autism Speaks, 2017; Autism Society, 2017). The need for equality across all aspects of one's life is evident with the push for people to learn how to socialize, communicate, and interact with people with ASD (Autism Speaks, 2017 & Autism Society, 2017).

There were theoretical contributions from this study. Models of interdisciplinary collaboration may be advanced through this research, which has been a current trend in

developing solutions (Duda & Wall, 2015). Whereas in the dental setting, interdisciplinary collaboration typically consisted of collaboration among various dental professionals (Chinn, 2016), or a current movement toward collaborating with medical providers (Uppoor, 2016 & Yellowtitz, 2016). Nelson et al., (2015) described the similarities that could be employed with educational behavioral approaches and behavioral techniques in dental offices.

Research Questions

My study included one central question relative to the inquiry. Three sub questions followed the central question. The central question and sub questions were all grounded in literature.

Central Question

How does dentists' and dental hygienists' preparedness affect their manageability of behaviors for patients with ASD during dental treatment experiences?

People with ASD exhibit many challenging behaviors that could be difficult to manage during dental appointments (Jang et al., 2011). The challenging behaviors could become barriers to completing a successful dental treatment. Dentists believe the most challenging aspect of treating patients with ASD are the actual behavioral characteristics of the disorder (Alkahtani, Stark, Loo, Wright, & Morgan, 2014). Other challenges include impairments in communication, social interactions, and exhibiting repetitive and unusual behaviors (National Institute of Neurological Disorders and Stroke, 2017). Dentists confirmed the behavior management strategies used in their dental practices, may in fact not be the most beneficial in combatting difficult behaviors during treatment (Weil & Inglehart, 2010). Patients with ASD often require individualized behavioral techniques to manage their behaviors (APA, 2013; Mochamant et al., 2013). It is imperative dental professionals are prepared to treat patients with unique needs in

much the same manner as healthcare providers who need knowledge and the necessary skills to work with patients with ASD (Nicolaidis et al., 2015). An understanding of ASD is essential to being able to treat the patients and their behaviors (Mochamant et al., 2015).

Sub questions

1. How do the experiences of treating patients with ASD, previous trainings and prior knowledge influence the dental environment? Patients with ASD exhibit common, characteristic behaviors that may include repetitive and unusual behaviors (National Institute of Neurological Disorders and Stroke, 2017). Sensory impairments are also common to patients with ASD that may cause a patient difficulty during treatment (Green & Flanagan, 2008). Mochamant et al. (2015) insisted the treatment for each patient should be individualized. The atmosphere and environment could be specifically tailored to patients with ASD that mimic educational practices for managing the behaviors of students with ASD in the classroom (Elmore et al., 2016; Nelson et al., 2015; Kuhaneck, 2012; Hernandez & Ikkanda, 2011). Some examples of educational tools that may be utilized in the dental office include Social Stories™, video modeling (Nelson et al., 2015), video peer modeling, video goggles (Isong et al., 2014), and other visual pedagogies (Delli et al., 2013). Adaptations to the dental environment referred to as Sensory Adapted Dental Environment (SADE) are used to make dental treatment more pleasant for patients with ASD and include visual, auditory, and tactile changes (Cermak, et al., 2015).
2. What are dentists' and dental hygienists' personal reactions to the behaviors exhibited by people with ASD during dental treatment experiences? There was favorable research that indicated that dentists have a positive attitude toward treating patients with special needs

when categorized broadly (Al-Zboon & Hatmal, 2016). There was limited research on attitudes of dentists toward treatment of patients with ASD at the time of my study. Weil et al (2010) discussed dentists' specific attitudes toward treating patients with ASD and confirmed their attitudes need improved. Special care dentists have a more favorable attitude and claimed a genuine liking for treating patients with ASD (Weil et al., 2011). Dentists' low comfort level for treating patients with special needs could be attributed to the behaviors the patients displays (Ahmad et al., 2015)

3. How do pre-doctoral dental school educational experiences and dental hygiene trainings prepare dentists and dental hygienists to treat patients with ASD? Pre-doctoral dental experiences help prepare pre-doctoral students to treat patients with disabilities because dental schools must follow specific standards that target dental competencies to treat patients with disabilities (American Dental Education Association, 2008). The American Dental Education Association (2008) defined "Competencies for The New General Dentist" with regard to treating patients with disabilities. The competency standard did not include the specificity for treating patients with ASD. Dental hygiene training standards included the treatment of patients with developmental disorders and sensory impairments (CODA, 2019a). The instruction during training must include managing patients with special needs whose social abilities cause the provider to need to modify the procedures during treatment (CODA, 2018c). Dentists confirmed the quality of their dental education for treating patients with ASD was correlated to the number of patients they treated during their pre-doctoral studies. Most dentists did not believe their dental program prepared them to provide treatment to patients with ASD (Weil et al., 2010).

Dentist have expressed the need for continuing education for treating patients with special needs (Nagendra & Jayachandra, 2012; Weil et al., 2011).

Definitions

There are several terms pertinent to this study.

1. *Autism Spectrum Disorder* – “a group of developmental disabilities that can cause significant social, communication and behavioral challenges” (CDC, 2016)
2. *Caries* – tooth decay (Selwitz, Ismail, & Pitts, 2007)
3. *Intravenous conscious sedation* – “achieved by titration of appropriate drugs in a clinically monitored environment. Patients will experience drowsiness and reduced anxiety but remain aware of their surroundings and able to respond to verbal commands. This level of sedation preserves protective airway reflexes” (Mawhinney & Hope, 2017, p. 423).
4. *Novice dentist* – a practicing dentist, with less than three to four years of experience who still needs continued professional development in his/her general practice (Fricker, Kiley, Townsend & Trivett, 2011)
5. *Preparedness* – feelings of readiness due to knowledge and/or experience (Katz, Nekorchuk, Holck, Hendrickson, Imrie, Effler, 2006)
6. *Special Care Dentistry* – “concerned with the supply and facilitation of oral care for individuals with an impairment or disability” (Valle-Jones, & Chandler, 2015)
7. *Typically Developing* – people without autism, a developmental disorder, or intellectual disability (MacDonald, Green, Mansfield, Geckeler, Gardenier, Anderson, Holcomb, & Sanchez, 2007)

Summary

Chapter one included an overview of relevant literature for the purpose of this study. The problem of this study is the prevalence of ASD and the global implications that have resulted. The treatment of people with ASD requires equality and a comprehensive understanding of how to best interact with this special population. Dentists and dental hygienists need to be prepared to treat patients with ASD, exhibit knowledge, and provide individualized care. The purpose of this transcendental-phenomenological study was to explore the preparedness of dentists and dental hygienists to manage the behaviors of patients with ASD during dental treatments. The personal motivation for the study was my passion advocating for people with special needs and my experience providing training for the dental community. The research questions were centered around the preparedness of dentists and dental hygienists to treat patients with ASD. The significance of the study may enhance the dental literature for patients with ASD and may offer contributions to patients, dental students, novice dentists, more experienced dentists, advocates, and organizations focused on ASD. Research questions were presented and discussed in relation to supporting literature. Chapter two will include a discussion of the theoretical framework and the literature review.

CHAPTER TWO: LITERATURE REVIEW

Overview

I situate chapter two with one theoretical framework- the adult experiential learning theory. Next, I discuss the background on ASD with an overview of the diagnosis, prevalence, and treatment, followed by dental concerns for treating patients with ASD, which include the physical dental needs and behavioral barriers of communication, sensory processing, and social interaction. I present dental accreditation standards, dental competency standards, and provide information on special care dentistry with a discussion on the need for continued education for dentists and dental hygienists. I explore the attitudes and preparedness of pre-doctoral students and practicing dentists with relation to treating patients with disabilities and then specifically treating patients with ASD. I discuss therapeutic strategies, sensory tools, and sensory adapted dental environments which are current approaches that dental professionals may employ. I conclude the chapter with parallels to preparatory teacher training and continuing education for teachers in inclusive practices.

Theoretical Framework

There was one theory that underpinned my study—the adult experiential learning theory. The adult experiential learning theory was relative to my study to explain how adults experience learning. The adults who engage in experiential learning are pre-doctoral dental students and dental hygiene students who are in training, and practicing dentists and dental hygienists who participate in continued education opportunities.

Adult Experiential Learning Theory

The adult experiential learning theory (Kolb, 2014) was the guiding theory that underpinned my study. The theory grew in popularity as theorists understood adults' experiences and their development of knowledge (Dernova, 2015). The adult experiential learning theory is developed from the past work of Dewey, Piaget, and Lewin (Kolb, 2014). Experiential learning is considered a cognitive process where knowledge is derived from an experience rather than from typical instruction (Bergsteiner, Avery, & Neumann, 2010). Experiential learning is a specific cycle of learning that begins with an action-experience, followed by reflection, and the integration of the knowledge (Dernova, 2015). The learner gains the new knowledge through the experience, then subsequently interprets the experience through reflection and acts upon it (Kolb, 2014).

Reflection is a vital component to experiential learning. Reflection during the process is what causes the transformation to occur (Kolb, 2014). Jordi (2011) proposed nine elements: seeking integration, construct meaning through relations, develop an awareness for the present, intrinsically motivated by moving forward, centered around the learner, ability to listen, and emerging in the experience (193-194).

The adult experiential learning theory is unique from other forms of learning, as its distinct characteristic is that the knowledge is gained through a direct experience (Kolb, 2014). Because of the interactions that occur during the experience, adult experiential learning is considered a social process. The knowledge the person gains is influenced by the culture in which the experience occurs (Kolb, 2014).

Kolb (2014) asserted experiential learning is a life-long process that may occur in any setting. "Human adaptation" occurs as a result of experiential learning. The adaption that occurs

is associated with many concepts such as thinking, flexibility, solving problems, and seeking solutions (Kolb, 2014). The concepts that Kolb (2014) describes may assist dentists in their learning with how to best manage the behaviors of patients with ASD during dental treatment.

There are several features of adult learners that accompany the theory—the needs of learners to solve problems, to be self-directed, the experiences of adults during learning and teaching situations, focusing on accomplishing goals, the learning should be immediately put into practice, a partnership between the learner and teacher, and the consideration of past experiences that cause barriers (Dernova, 2015). Kolb (2014) discussed the popularity of institutions offering field experiences to students to provide real-life experiences within students' studies. The experiences provided for the students is then transformed into learning for the student and the knowledge gained is presumed to be reliable (Kolb, 2014).

The adult experiential learning theory links three aspects in one's life which are applicable to this study: personal development, education, and work (Kolb, 2014). Dentists are able to use the experiential learning methods in their workplace. Kolb (2014) describes the workplace as an environment where a professional could be a life-long learner. Dentists may enhance their practice with special regard to managing the behaviors of patients with ASD through continuing their education in life-long learning.

Related Literature

Autism spectrum disorder has received global attention over the years. Parents of children with ASD are no longer left alone to advocate for their children's needs. Networks and advocacy organizations are established to help families with the many needs of people with ASD (Itkonen & Ream, 2013). Advocacy groups, such as Autism Speaks (2017) work tirelessly to support people with ASD, promote acceptance and understanding, and advance research.

Advocacy has increased throughout time with legislative actions to promote equality for people with ASD (Autism Speaks, 2017). In the literature review that follows, I report on my findings about ASD, consider implications on the dental field, relate best practices used in educational settings to the dental office, and examine pre-doctoral dental students' and practicing dentists' attitudes toward treatment of people with ASD. My literature review concludes with comparisons to teacher training and the need for continuing education.

Autism Spectrum Disorder

Child psychiatrist, Leo Kanner, first diagnosed ASD in 1943 (Yates & Le Couteur, 2016). Since then, great strides have been made to understand and help treat the disorder. Autism spectrum disorder is an umbrella term combining, autistic disorder, pervasive developmental disorder, not otherwise specified, and Asperger syndrome (CDC, 2017). Autism spectrum disorder is defined as a developmental disorder causing persistent social, communication, and behavioral impairments with intellectual abilities ranging from intellectually disabled to giftedness (CDC, 2017). Characteristics of ASD include behavior deficits, communication abnormalities, difficulty in reciprocal play, repetitive behaviors, and preferred interests and activities (Yates & Le Couteur, 2016).

Diagnosis. Doctors diagnose ASD by observing behaviors through medical screening tools (CDC, 2017). According to Centers for Disease Control and Prevention (2017), the symptoms that often lead to an eventual diagnosis are as follows: not pointing at objects of interest, not looking at the direction of someone pointing, no interest in people, avoidance of eye contact, preference to be alone, difficulty understanding and communicating feelings, avoidance of cuddling, unaware when people talk, but will respond to sounds, inability to play with others or relate, echoing or repeating phrases, difficulty expressing needs, no engagement in pretend

play, engagement in repetitive actions, difficulty adapting to changes in routines, non-typical reaction to senses, and a loss of a skill once acquired.

Though there are many signs and symptoms related to ASD, challenges exist in diagnosing patients due to differences in the severity of behaviors, language abilities, and intellectual deficits (CDC, 2017). As social demands increase, behaviors may develop that once were non-existent and repetitive behaviors may decrease during maturation and social development (DSM-5, 2013). Symptoms that lead to a diagnosis are often screened by the age of two (Tsuchiya, 2016). Forty-three percent of children receive a formal evaluation by age three (CDC, 2017).

Prevalence. Autism spectrum disorder does not discriminate among genders, races, socio-economics, or any other distinguishing factors (CDC, 2017). The prevalence of ASD is alarming with one out of 68 children diagnosed with the disorder (CDC, 2017) and more common than any other developmental disorder (Nelson et al., 2015). Boys aged eight and older have a significantly higher prevalence with 23.6 per 1,000 cases, whereas girls aged eight and older have a prevalence of 5.3 per 1,000 children (CDC, 2017). Race prevalence varies as well, with non-Hispanic white children accounting for 15.5 per 1,000 compared to 13.2 per 1,000 for non-Hispanic black children (CDC, 2017).

Treatment. Currently there is no cure for ASD. There are many treatment options available to help manage the symptoms of ASD (CDC, 2017). Early screening for children at risk for developmental disorders are beneficial (Preeti, Srinath, Seshadri, & Girimaji, 2017). Occupational, physical, music, and art therapies are related services that provide treatment for people with ASD (Green and Flanagan, 2008).

Dental Concerns and Barriers

Dental care is the greatest unmet health concern for all children. In addition to unmet dental needs, children with autism have unique behaviors that cause barriers to dental treatment (Lai et. al, 2011).

Physical Dental Concerns. Routine dental health care is a prerequisite for sustaining overall good health for all people. People with ASD exhibit some oral health concerns to a greater extent than typically developing people. Some studies have indicated children with ASD have caries similar to the general population, though in a study conducted by Jaber (2011), more children with ASD experienced dental caries, than typically developing peers. The National Institute of Dental and Craniofacial Research (2014) suggested the risk for caries increases for patients that have a sugary food preference. Patients with ASD often have selective food preferences (Mequid, Anwar, Zaki, Kandeel, Ahmed, & Tewfik, 2015) and sweet treats are often given as incentives or rewards for good behavior (University of Washington School of Dentistry, 2010). In addition to the selective food preferences, a lack in overall nutrition is possible because people with ASD may have aversions to fruits, vegetables, or other food groups (University of Washington School of Dentistry, 2010), which may affect oral health. Jaber (2011) also concluded overall oral hygiene was poorer for people with ASD.

Tooth trauma or injury to the mouth may occur in people with ASD (National Institute of Dental and Craniofacial Research, 2014). Specifically, tooth trauma may happen as the result of a fall during a seizure. The University of Washington School of Dentistry (2010) confirmed that over 30% of people with ASD have experienced a seizure by the time they reach adolescence. Between seven and 10 percent of people with ASD suffer from epilepsy as a co-existing, diagnosed condition (Interactive Autism Network, 2009).

People with ASD may suffer tooth trauma during manifestations of a trauma or resulting from self-injurious behavior. Many people with ASD experience self-injurious behavior, including head-banging (Minshawi, Hurwitz, Morriss, & Mcdougale, 2015). Another oral concern for people with ASD is pica, which is the “recurrent ingestion” of items or substances that are not considered food and often inedible (Call, Simmons, Mevers, & Alvarez, 2015, p. 2105). Pica could cause damage to the teeth and oral cavity. Other self-injurious behaviors causing damage to the mouth are mouth ulcerations caused from picking at gingiva or biting of the cheek or lips (University of Washington School of Dentistry, 2010).

Side effects from various medicines that are prescribed to treat symptoms of ASD could cause oral concerns too (Nagendra & Jayachandra, 2012). Medicine may be prescribed to people with ASD who present with hyperactivity and repetitive and aggressive behaviors.

Methylphenidate and Clonidine are prescribed to reduce hyperactivity. These medications could cause side effects such as xerostomia (dry mouth, which may cause dental caries), dysphagia (difficulty swallowing), and sialadenitis (inflammation of the salivary gland) (University of Washington School of Dentistry, 2010).

Doctors prescribe antidepressants, such as Fluoxetine and Sertraline, to treat patients with repetitive behaviors. These antidepressants also have the same side effects as the medicine used to treat hyperactivity, but also may cause dysgeusia (distortion of taste), stomatitis (inflammation of the lining of the mouth which may cause canker sores and cold sores, gingivitis (inflammation of the gums), glossitis (inflammation of the tongue), bruxism (grinding teeth), sialorrhea (excessive production of saliva), as well as discoloration of the tongue (University of Washington School of Dentistry, 2010).

Doctors prescribe anticonvulsants and antipsychotics to treat aggressive behaviors, and patients may experience some of the same side effects. Carbamazepine and Valproate may cause xerostomia, stomatitis, glossitis, and dysgeusia, whereas the medication Olanzapine and Risperidone may cause xerostomia, sialorrhea, dysphagia, dysgeusia, stomatitis, gingivitis, tongue edema, glossitis, and a discolored tongue. Sedation is a management technique often used in extreme cases of ASD. The use of sedation medication may also interact with daily medicine intake (University of Washington School of Dentistry, 2010).

Although similar oral health concerns are prevalent with people who have ASD and the general population, it is still indicative of dental professionals to be knowledgeable about the specific issues people with ASD experience. Understanding the disorder allows for dentists to treat patients effectively with an awareness into potential concerns and challenges patients may face. Insight into oral health concerns that are not reported for lack of parental awareness, or patient communication are also necessary for dentists to be cognizant of (University of Washington School of Dentistry, 2010).

Barriers. Treating patients with ASD is possibly unlike treating any other subpopulation in dentistry because of challenges that are presented from behavior. The uncooperative behaviors during dental treatment are present among 50-70% of children with ASD (Stein et al., 2014; Brickhouse, Farrington, Best, & Elsworth, 2009, Loo, Graham, & Hughes, 2009; Marshall, Sheller, Williams, Mancl, & Cowan, 2007). Dentists confirm that the greatest barrier to treating patients with ASD, or other developmental disorders are the characteristics of the disorder itself, including the behavior of the patient (Alkahtani, Stark, Loo, Wright, & Morgan, 2014).

In the following section, I discuss three characteristics of ASD that may interfere with the treatment of a patient with ASD: communication, sensory processing, and social interaction.

Communication. Deficits in communication, which are common among people with ASD (APA, 2013) create a barrier between the patient and dentist. People with ASD have difficulty communicating expressively and gesturally (Mochamant et al., 2015). One of the greatest reasons that parents do not seek dental care for their children is due to the child's difficulty in communication (Thomas, Shetty, Sowmya, & Kodgi, 2016).

Stein et al. (2014) discovered in their study that children with ASD experienced greater behavioral and emotional distress than typically developing children when having dental treatment. The distress may be caused from language barriers in expressive and receptive language. Children with ASD who experienced distress also displayed uncooperative behaviors. Typically developing children who displayed uncooperative behavior were younger, suggesting their age was the factor in their uncooperative behavior rather than psychological distress. The study proposed that typically developing children may be able to use coping strategies to handle distress, whereas children with ASD may not possess coping strategies.

People with ASD use literal expressive communication posing a barrier during dental treatment (Green & Flanagan, 2008). Explicit communication is necessary without the use of idiomatic phrases (Green & Flanagan, 2008; Nelson, et al., 2015). The use of communication devices, more specifically the Picture Exchange Communication System (PECS) has been proven to improve the communication between dentists and patients with ASD during dental appointments (Zink, Diniz, Rodrigues dos Santos, & Guaré, 2016).

Sensory processing. Sensory input may be perceived differently for people with ASD. People with ASD may experience challenging sensory issues that could affect the success of dental appointments. The sensory sensitivities may range from loud sounds of dental drilling equipment, fluorescent bright lights, various smells, discomfort of the dental instruments in the mouth, as well as leaning back in the patient chair (Green & Flanagan, 2008). Pain during dental treatment is also a concern (Blomqvist et al., 2014).

Adults with ASD have reported greater intensity of pain during dental experiences than typically developing people (Blomqvist et al., 2014). Pain thresholds differ among people with ASD with abnormal hypersensitivities or hypo-sensitivities (Green & Flanagan, 2008; Gomot & Wicker 2012). Experiencing pain, or the lack of experiencing pain is dually problematic. The oversensitivity to pain may cause the patient to require sedation and the use of restraints, which is not the least restrictive means to accomplish dental procedures, and may result in other medicinal complications (Green & Flanagan, 2008; Nelson et al., 2015). Whereas, on the contrary, people with ASD who do not experience pain normally may not be aware of dental concerns such as caries and dental lesions (Green & Flanagan, 2008). Sensory processing impairments coupled with experiencing pain during dental procedures may cause fear in people with ASD (Isong et al., 2014).

Fear is a common emotion experienced by people with ASD in the dental office (Isong et al., 2014). People with ASD have reported feeling forced to have dental treatment more so than typically developing people (Blomqvist et al., 2014). Polido, Stein, and Cermak (2017) revealed parents who have children with ASD confirmed their children had fears of the sensory integration features during dental treatment far more than typically developing children.

Fear may also be attributed to deficits in prediction making and flexibility. People with ASD may have difficulty expecting the response to new sensory inputs. Repetitive behavior may contribute to the lack of prediction making skills and ultimately cause stress to occur (Gomot & Wicker, 2012). Kuhaneck and Chisholm (2012) asserted the patients' understanding of the anticipated sensory aspect of the treatment will increase the patients' cooperation toward a successful dental visit.

Social interactions. Dental treatment for people with ASD is especially difficult because of impairments in social interactions (Limeres-Posse et al., 2013). Stein, Polido, and Cermak (2012a) revealed through their study that parents of children with ASD perceive the dental cleanings to be “moderately to extremely difficult,” (p. 74). More parents with children who have ASD than parents of typically developing children report dental experiences as negative (Stein, Polido, Najera, & Cermak, 2012b).

One of the challenges that patients with ASD and the dentist experience is the difficulty in making personal connections. Lack of personal connections paired with the absence of social responses make the dental experience challenging. Past negative experiences at dental appointments may trigger future negative appointments; therefore, a predictable appointment with a routine oriented structure is preferred (Nelson et al, 2015).

Behavioral distress has been found to complicate dental treatment in patients with ASD (Limeres-Posse et al., 2014, Mochamant, 2015; Stein et al., 2014;). Jang et al. (2011) confirmed the greater deficits a person with ASD has, the greater challenging behaviors exist. Parents explained their child's uncooperative behaviors were exacerbated while at the dentist and included greater incidence of self-stimulation (Stein, Polido, & Cermak, 2012a). Common behaviors have been cited in substantial literature (Jang et al., 2011) and a non-exhaustive list

was provided by Stein et al. (2014) as “hyperactivity, quick frustration, short attention span, impulsivity, agitation, anger, self-stimulatory, self-injurious, repetitive, aggressive, and disruptive behaviors as well as temper tantrums” (p. 1). Jaber (2011) discussed self-injurious behaviors may be minimized for people with ASD if dental professionals employ strategies to assist the patient.

Researchers cited that anxiety over a dental experience affects up to 20% of adults (Blomqvist, Dahllöf, & Bejerot, 2014; Wide Boman, Carlsson, Westin & Hakeberg, 2013). Forty percent of children with ASD are subsequently diagnosed with an anxiety disorder which intensifies the challenging behaviors of ASD (Kerns, Kendall, Berry, Souders, Franklin, Schultz, Miller, & Herrington, 2014). Older children who present with anxiety and ASD may make the treatment extremely complicated (Lai et al., 2011). The anxiety may occur prior to the commencement of the dental examination. The anxiety occurs in people who have regular and irregular dental visits (Blomqvist et al., 2014). The anxiety may be caused from the perception of the anticipated dental experience (Armfield, 2006).

The complicated presence of many impairments with communication, sensory integration, and social deficits cause dental providers to spend more time combating the challenging behavior exhibited, rather than focus on the skills that need acquired (Jang et al., 2011). Many therapeutic approaches exist to break through the barriers and achieve successful treatments for people with ASD (Marion, Nelson, Sheller, McKinney, & Scott, 2016).

Therapeutic Strategies and Sensory Tools

Therapeutic strategies are proposed to help patients with ASD during dental treatment experiences (Marion et al., 2016). Patients with ASD endure dental experiences when expectations are provided and predictable (Kuhaneck & Chisolm, 2012). Communication

impairments common among people with ASD (APA, 2013) result in the dentist needing to use behavioral management strategies that are individualized to the patient. Often the behavior management strategies that work to achieve compliance among typically developing people, do not work with people with ASD because of communication deficits (American Academy of Pediatric Dentistry, 2015).

Specific behavioral management strategies for people with ASD are necessary to use during dental treatment (Mochamant et al., 2015; Nelson et al., 2015). Applied Behavioral Analysis (ABA) methods may be used during dental treatment and has the potential to improve patients' challenging behaviors, while limiting the need for measures to restrain or use sedation medication (Herandez & Ikkanda, 2011; Elmore et al., 2016).

Proven educational models to assist in managing challenging behaviors have been used in the dental setting and have marked success (Elmore et al., 2016; Nelson et al., 2015; Kuhaneck & Chisholm, 2012; Herandez & Ikkanda, 2011). Examples of the research-based strategies that may be beneficial include Social Stories™, video modeling, (Nelson et al., 2015), video peer modeling, video goggles (Isong et al., 2014), and other visual pedagogies (Delli et al., 2013). People with ASD desire a routine and often resist change resulting in the inability to be flexible with unpredictability (Law, 2015).

Social Stories. Law (2015) and Marion et al., (2016) suggested introducing a patient with ASD to the dental environment through a social story. Social Stories™ were developed by Carol Gray and are used as an intervention to describe a situation a person will encounter that may be perceived to be socially difficult. The premise for the creation and utilization of a Social Story™ is to assist people with ASD in developing a greater understanding of social situations that ultimately encourages social success (Gray, 1998). Social Stories™ are utilized as an

intervention with the intent to improve concerning behaviors (Gray, 1998) by describing expected behaviors that are desired (Law, 2015). Situations that are socially difficult for a person with ASD are discussed in simplistic terms and written in the perspective of the first or third person (Gray, 1998).

Social Stories™ that are used in the dental setting are called dental stories with written words and/or illustrations that describes everything that will occur at the dental appointment including the staff, instruments, expectations for procedures, and details describing the atmosphere (Law, 2015). The use of dental stories may reduce a patients' anxiety. The anxiety experienced by a patient with ASD often presents as challenging behaviors. Dental stories serve as guidelines or expectations for the patient and may reduce anxiety, thus decreasing or eliminating concerning behaviors (Nelson et al., 2015). Digital dental stories are a new trend and an option that may be preferred by patients (Marion, 2016). Marion (2016) suggested dental stories are an effective, easily producible, low cost intervention to use with patients with ASD.

Video Modeling and Visual Methods. Video modeling is a strategy that is widely used for children with ASD to learn how to perform an expected behavior by watching a video of the exact behavior desired (Al-Namankany, Petrie, & Ashley, 2014; Popple, Wall, Flink, Powell, Discepolo, Keck, Douglas, Mademtzi, Volkmar, & Shic, 2016). Al-Namankany et al. (2014) confirmed through their study that video modeling may reduce children's dental anxiety and specific needle phobia. Typically developing children who participated in video modeling prior to dental treatment were able to tolerate local anesthesia compared to the control group who were not provided with video modeling.

Fakhruddin and Batawi (2017) discovered audio-visual strategies to prepare patients with autism for their dental treatment. Children with autism benefited from watching an audio-visual

presentation that was used as a distraction for the patients during their successful dental treatment. Other audio-visual strategies suggested by Fakhruddin and Batawi (2017) included watching a video projected on the ceiling or wearing video eyewear. Video eyewear is a set of glasses that projects a movie through the lens similar to watching a movie at a theater (Zhang, Hou, Zhou, Kong, Ding, Qin, Hu, Xu, & He (2012;2011). Isong et al. (2014) determined patients with ASD had decreased anxiety when watching a video on a portable DVD player or wearing video eyewear during dental treatment compared to previous visits when no video eyewear was provided. Providing patients with the distraction of a movie through a portable DVD player or visual eyewear is a useful strategy for dentists to use to treat patients with autism (Fakhruddin & Batawi, 2017; Isong et al., 2014).

Desensitization. Techniques to desensitize a patient to the dental experience are often needed for patients with ASD to increase behavioral compliance (Nelson et al., 2015). Desensitization programs have proven success for patients with ASD (Nelson et al., 2015; Wood, Drahota, Sze, Har, Chiu, & Langer, 2009; Wood, Drahota, Sze, Van Dyke, Decker, Fujii, Bahng, Renno, Hwang, & Spiker, 2009).

Fakhruddin and Batawi (2017) allowed patients with ASD to play with toy drills and syringes filled with water to desensitize the children to their dental treatment. The desensitization strategy helped make the patients comfortable with the dental equipment and reduced the patients' anxiety prior to dental treatment. A systematic approach was also used during the three sessions to fully desensitize the patient, encourage cooperative behavior, and allow for communication between the patient and dental provider.

Nelson, Chim, Sheller, McKinney, and Scott (2017) conducted a desensitization intervention study with children who had ASD. Most of the children were able to be

desensitized to the dental environment. The desensitization sessions ranged from one to five sessions, with the majority of the patients requiring one to two sessions to be fully desensitized.

In addition to the frequency of appointments required to desensitize patients to the dental environment and procedures during treatment, Nelson et al. (2015) conveyed the amount of time needed per appointment may be considerable and unique to each patient for success. Dentists may also consider using familiar reinforcers for the patient to create the seamless integration of reinforcers in the dental environment with the exclusion of sugary treats.

Nelson et al. (2017) discovered that children who could engage socially with the dental staff and had independent self-help skills were two factors related to children's ability to be desensitized to the dental environment. Children who met the behavior profile of having mild ASD were more successful with the desensitization approach, whereas children considered severely autistic may need other behavioral approaches. Desensitization techniques may be a possible strategy for dentists to perform to create a comfort level for children with ASD to have successful dental treatment (Fakhruddin and Batawi, 2017; Nelson et al., 2017). There is currently not a billable insurance code for desensitization appointments.

Tell-Show-Do. The Tell-Show-Do modeling approach may be used to desensitize patients to dental procedures (Fakhruddin & Batawi, 2017; Virupaxi, 2016). It is a technique that is grounded in the "principle of learning theory" (Virupaxi, 2016). An explanation of the Tell-Show-Do model was explained in a reference manual published by the American Academy of Pediatric Dentists (2015) and also referenced by Law and Blain (2003), Feigal (2001), and Fletcher (2013).

The technique commences with a verbal explanation of what the dental provider will do. The verbiage is explicitly stated in a way that the patient may understand. Next, the dental

provider shows the patient through a visual, auditory, and tactile demonstration in a “nonthreatening setting” (p. 250). Finally, the dental professional completes the procedure remaining consistent with the verbal explanation and visual demonstration.

The goal of the Tell-Show-Do approach is to decrease undesirable behaviors (Appukuttan, 2016). Additional goals of the Tell-Show-Do approach are to teach the patient what to expect, allow the patient to become comfortable in the dental office, and desensitize the patient to the procedures (American Academy of Pediatric Dentists, 2015). In a study conducted by Brahm, Lundgren, Carlsson, Nilsson, Hultqvist, and Hägglin (2013) more than seventy-five percent of the dentists employed the Tell-Show-Do strategy into their general practices to help reduce patients’ anxiety during dental treatment.

Visual Pedagogies. Visual techniques may be used to help prepare patients with autism for dental experiences (Nilchian, Shakibaei, Jarah, 2017). A visual schedule with picture cues may be helpful during a dental treatment experience to provide a framework of the steps that will occur during the dental treatment experience (Law, 2015x). The visual pedagogy could be shared with parents of a patient with autism prior to treatment. Parents could practice the procedures displayed on the pictures with their children to help with more cooperation during appointments (Deli et al., 2013, Nilchian et al., 2017). Mah and Tsang (2016) observed boys aged four through eight with ASD to evaluate the use of picture schedules. The visual cues on the picture schedule were moved upon the completion of each step. The results showed that patients with ASD were able to complete more steps during a dental treatment with less behavioral distress with the use of the visual schedule. The visual schedules assisted the patients with progressing through the dental steps at a quicker rate. An additional benefit of the visual schedule was the ease of implementation within one appointment (Mah & Tsang, 2016).

Nelson et al. (2015) asserted that using actual pictures of the patients with ASD throughout the dental experience may help to depict the “dental schema” (p. 110). Wibisono, Suharsini, Wiguna, Suriroatmodjo, Budiardjo and Auerkari (2016) discovered that children with ASD may be able to better accept dental treatment if pictures were presented prior to treatment that displayed all of the dental procedures and routines. The type of visual representation used may influence the understanding of what the picture is showing. Cartoon pictures may require abstract thinking and difficulty for patients with ASD to understand.

Wibisono et al. (2016) utilized parental input to determine the type of visual representations that may be helpful to children with ASD. The parental input revealed realistic pictures rather than cartoon pictures may help children with ASD understand the relevance of the pictures to a dental experience. The parents suggested side by side pictures may be better understood than complex pictures that would cause a child the need to infer. Pictures that could be imitated, such as a picture of a boy covering his ears because the dental sounds are loud, may also need to be carefully considered. The parents were concerned their children may imitate the picture and cover their ears once in the actual dental environment.

The outcomes from using visual pedagogies to prepare patients with ASD for dental treatment are promising. Mah and Tsang (2016) discovered through their pilot study that patients with ASD were able to complete more steps and at a quicker rate during a dental experience while displaying less behavioral distress. Nilchian et al. (2017) found the use of visual representation for more complex dental routines such as administering fluoride treatment may be needed for children with ASD compared to more simplistic expectations such as sitting in a dental chair. The use of visual representation may be helpful for parents to use at home to prepare their children for a dental visit Wibisono et al. (2016).

Additional Strategies. Dentists may employ various strategies for patients with ASD in preparation for future appointments and during appointments. Utilizing strategies may increase the success for patients with ASD (Nelson et al., 2015).

Preparing for appointments. Nelson et al. (2015) provided several suggestions that caretakers may want to consider prior to taking their child with ASD to a dental appointment. Completing a questionnaire prior to the first visit that “may include personal medical information, oral habits, physical function, communication, vision, hearing, behavior, sensory sensitivities, emotions, and a thorough record of the patient’s limitations and reactions to previous dental and medical services” will help the dental staff understand the needs of the patient (p. 107). Parents may want to consider scheduling appointments that will have minimal wait time for their children (Loo et al., 2009; Nelson et al., 2015).

During appointments. There are several strategies dentists may use to create and maintain successful dental appointments for patients with ASD. Mawhinney and Hope (2015) recommended dentists developing a rapport with patients with ASD to gain their trust. Dentists who employ the same routine for children with ASD during each dental treatment experience may elicit greater success for their patients (Nelson, et al., 2015; Nilchian et al., 2017). Nilchian et al. (2017) discovered through their dental trial that cooperation among patients with ASD increased when the dental routine was repeated in the same manner for each dental visit. Nelson et al. (2015) suggested dental staffs may consider the use of a calm voice, speak with literal language, and use concrete examples throughout the dental visit (Nelson, et al., 2015).

Kuhaneck and Chisholm (2012) suggested effective interventions dentists may utilize to assist patients with sensory processing issues such as providing verbal warnings prior to new sensory input while counting to a number. The verbal warnings and method of counting prepares

the patient with ASD for what will occur. The dental staff might consider the use of as little human touch to the face as possible during the dental treatment experience (Kuhaneck & Chisholm, 2012; Nelson et al., 2015).

Deep pressure through the use of weighted vests and blankets or the use of the X-ray vest is recommended for patients with ASD (Kuhaneck & Chisholm, 2012; Nelson, et al., 2015). Cermak et al. (2015) utilized a tactile intervention for children with ASD to measure the effectiveness of deep pressure during dental treatment to decrease pain intensity and physical discomfort during dental treatments. The use of the butterfly wrap was created to mimic a papoose. The butterfly wrap slipped over the dental chair and the wings wrapped around the child mimicking a butterfly hug. Cermak et al. (2015) concluded that the parents of children with ASD confirmed their children accepted the dental treatment better with the tactile intervention than previous dental appointments. The patients also confirmed a more relaxed experience with the use of the deep pressure that the butterfly wrap offered. Other suggestions to increase the cooperation of patients with ASD included hand fidgets and stress balls (Kuhaneck & Chisholm, 2012) or other coping toys to hold (Nelson et al., 2015).

Sensory adapted dental environments. The dentist office has sensory challenges for patients with ASD (Kuhaneck & Chisholm, 2012). As a result of the over stimulating experience of dental treatment for patients with ASD, sensory adapted environments may be used to adapt the environment to allow for a more comfortable experience (Delli et al., 2013). Noise, bright lights, and uncomfortable seating may all cause a person with ASD to become agitated. Nelson et al. (2015) suggested asking if a child has sensory sensitivities on a pre-visit questionnaire (Nelson, et al., 2015). The dental staff could use strategies and tools to reduce the sensory discomfort for patients with ASD (Delli et al., 2013; Elmore et al., 2016; Green & Flanagan,

2008, Loo et al., 2009; Myers et al., 2016; Nelson et al., 2015). The dental staff may also adapt the dental environment for sensory stimulants which may reduce the need for patients to need sedation (Shapiro, 2009).

In the past, the use of SADE's were only suggestions by leading experts and not fully implemented into studies that would help patients with ASD have successful dental appointments (Kuhaneck & Chisholm, 2012 & Nelson et al., 2015). Current research by Cermak et al. (2015) tested the use of Sensory Adapted Dental Environments (SADE) for children with ASD to reduce the sensory aspects that are detrimental to a patient's cooperation and the successful treatment by a dental professional. Cermak et al. (2015) implemented the SADE for patients with sensory disorders. The modifications to the SADE included visual, auditory, and tactile changes. Visual modifications included altering the lighting to provide a darker atmosphere; projecting visual color effects on the ceiling, and providing a headlamp for the dentist to wear. Auditory modifications included rhythmic music to produce a calming effect. Tactile modifications included the butterfly wrap that mimicked a hug, and a weighted vest. The SADE provided less behavioral stress for patients, limited the number of dental professionals assisting the patient, and increased the number of completed dental cleanings without the use of sedation.

Published studies involving SADEs are limited because the concept is new to the dental field. According to participating dentists in a controlled pilot study, the SADE was easy to implement, had minimal costs, and renovations to the dental office were not needed (Cermak et al., 2015). At the time of the study, literature was unavailable on the comparative ease of implementation between small and large dental practices.

Patients with ASD may have varying levels of need during dental treatment. Mochamant et al. (2015) discussed the necessity for dentists to understand the individuality of patients with

ASD and recognize the many variations of abilities in intellect and performance (Mochamant et al., 2015). Kuhaneck and Chisholm (2012) asserted that an understanding dentist who makes the treatment comfortable for the patient, and attempts to try new methods toward seeking success will affect the success of the appointment. Each patient may respond differently to modifications to the dental environment. Consulting with caregivers may prove effective in determining the strategies that will enable a child with ASD to have a successful dental appointment.

Sedation

Sedation during dental treatment may be used for patients with anxiety, ASD, learning disabilities, and other intolerances to dental treatment. Intravenous conscious sedation may be recommended for some patients with ASD. The advantage to using intravenous conscious sedation for patients with ASD is the removal of the patient's anxiety. The disadvantage of using intravenous conscious sedation is that the patient's cooperation may not be improved (Mawhinney & Hope, 2017).

Nitrous oxide gas with oxygen gas may be used by inhalation as a sedative agent for patients with ASD. Dentists have used this method of sedation throughout the world. The benefits for the patient include a fast-acting agent and decreased pain during dental treatment. The combination of nitrous oxide and oxygen gas is considered safe for patients who need their behavior controlled and less invasive than general anesthetics (Zanelli, Volpato, Ortega, Borges, Aranha, 2015).

Dental Standards

The Bureau of Labor Statistics reported that the national estimate of the number of general dentists is 110,400 (United States Department of Labor, 2018a). This number excludes prosthodontists, orthodontists, oral and maxillofacial surgeons, and specialist dentists. The

Bureau of Labor Statistics reported that the national estimate of dental hygienists is 211,600 (United States Department of Labor, 2018b). To understand dentists' and dental hygienists' preparedness to manage the behaviors of patients with ASD, it is first imperative to delve into the standards to which dental schools must adhere, as well as the competencies pre-doctoral dental students must achieve to become a practicing dentist.

Accreditation standards for predoctoral dental education. The Dental Commission on Dental Accreditation (CODA, 2018e) serves as a national accreditation agency that monitors the quality of dental education programs. An accredited dental education program must have evidence to support the principles that are listed as standards are ultimately adhered to. With respect to pre-doctoral dental students working with special needs patients, standard 2-25 serves as the guiding principle. Standard 2-25 is defined as “graduates must be competent in assessing the treatment needs of patients with special needs” (CODA, 2018b). The intent that accompanies the standard is defined as:

An appropriate patient pool should be available to provide experiences that may include patients whose medical, physical, psychological, or social situations make it necessary to consider a wide range of assessment and care options. The assessment should emphasize the importance of non-dental considerations. These individuals include, but are not limited to, people with developmental disabilities, cognitive impairment, complex medical problems, significant physical limitations, and the vulnerable elderly. Clinical instruction and experience with the patients with special needs should include instruction in proper communication techniques and assessing the treatment needs compatible with the special need. (p. 31)

The adoption of the standard regarding special need patients for accreditation occurred in 2004, and implementation was required by the year 2006 (Waldman, Gadbury-Amyot, Fenton, & Perlman, 2016). The intent of the standard does indicate dental programs should provide opportunities for students to treat patients with special needs. The standard does not mandate which specific types of disorders pre-doctoral students should be exposed to. The standard does indicate the need for students to assess non-dental considerations. The non-dental considerations could include the management of behaviors for people with ASD, though the wording is ambiguous.

However, there is a proposed revision to competency standard 2-25 that will be discussed in the summer of 2019 (CODA, 2018f, p.2). The revision emphasizes the need for predoctoral students to learn how to manage the treatment of patients with special health care needs. If the revision is adopted, it will state “Graduates **must** be competent in assessing and managing the treatment of patients with special needs (CODA, 2018f, p.2). The CODA (2018f) has proposed a revision to the intent of the competency standard. If the revision is adopted its new version will state:

An appropriate patient pool should be available to provide experiences that may include patients whose medical, physical, psychological, or social situations make it necessary to consider a wide range of assessment and care options. These individuals include, but are not limited to, people with developmental disabilities, cognitive impairment, complex medical problems, significant physical limitations and the vulnerable elderly. The assessment should emphasize the importance of non-dental considerations, including use of respectful nomenclature and supported decision making. Clinical instruction and experience with the patients with special needs should include instruction in proper

communication techniques, assessing the treatment needs compatible with the special need, and provided services or referral as appropriate. (p. 2)

Accreditation standards for advanced specialty programs. There are seven additional specialty programs that have accreditation standards. The pediatric dentistry program has several standards that discussed treating patients with special needs. Part of the didactic instruction competency standard 4-15 included the instruction must be in-depth for treating patients with special health care needs. The complimentary clinical experience standard 4-16 by CODA (2018a) indicated:

a. Diagnosis and treatment planning for infants, children, adolescents and those with special health care needs; and b. Provision of comprehensive dental care to infants, children, adolescents and those with special health care needs in a manner consistent with the dental home. (p. 29)

Competencies 4-18 and 4-19 pertain exclusively to the treatment of patients with special health care needs. The competency standard 4-18 stated by CODA (2018a):

Didactic instruction **must** be at the in-depth level and include: a. Formulation of Treatment plans for patients with special health care needs. b. Medical conditions and the alternatives in the delivery of dental care that those conditions might require.

c. Management of the oral health of patients with special health care needs, i.e.:

1. Medically compromised; 2. Physically compromised or disabled; and diagnosed to have developmental disabilities, psychiatric disorders or psychological disorders.

3. Transition to adult practices. (p. 30)

The intent of standard 4-18 is listed by CODA (2018a) as:

(a) The student/resident learns how and when to modify dental care options as required by a patient's medical condition; and (c.3) Patients with special health care needs include those with medical, physical, psychological or social circumstances that require modification in normal dental routines to provide dental treatment. These individuals include (but are not limited to) people with developmental disabilities, complex medical problems and significant physical limitations. Management should be understood to include consideration of social, educational, vocational and other aspects of special health care needs. (p. 30)

The clinical experiences competency 4-19 stated "Clinical experiences **must** enable advanced students/residents to achieve competency in: a. Examination, treatment and management of infants, children, adolescents and adults with special health care needs (CODA, 2018a, p.30). The intent of the competency standard stated "Pediatric dentists often remain providers of oral health care for special needs patients into adulthood and should be able to render basic dental services to adults with special needs" (CODA, 2018a, p. 30).

The competency standard 4-24 written by CODA (2018a) specifically discussed treating patients with developmental disabilities. The standard did not elaborate on the term developmental disabilities, nor sensory impairments. The standard is written by CODA (2018a) with regard to pediatric medicine and stated:

Didactic instruction **must** be at the understanding level" and "Fundamentals of pediatric medicine including those related to pediatric patients with special health care needs such as: 1. Developmental disabilities; 2. Genetic/metabolic disorders; 3. Infectious disease; 4. Sensory impairments; and 5. Chronic disease (p. 32-33).

Competency standard 4-25 written by CODA (2018a) is the final standard that discussed treating patient with special health care needs during clinical experiences:

Clinical experiences must expose students/residents to pediatric medicine: a. Advanced education students/residents in pediatric dentistry must participate in a pediatric medicine rotation of at least two (2) weeks duration which is the student's/resident's principal activity during this scheduled period 1. This rotation may occur in a variety of settings i.e., Emergency Department, subspecialty clinics, multi-disciplinary team clinics and general pediatrics; and 2. The rotation must include exposure to obtaining and evaluating complete medical histories, parental interviews, system-oriented physical examinations, clinical assessments of healthy and ill patients, selection of laboratory tests and evaluation of data, evaluation of physical, motor and sensory development, genetic implications of childhood diseases, the use of drug therapy in the management of diseases, and parental management through discussions and explanation. (p. 33)

Accreditation standards for dental hygiene programs. Accreditation standards are mandated for dental hygiene institutions' education programs for treating patients with special health care needs. Competency standard 2-8d written by CODA (2018c) stated:

Dental hygiene science content must include oral health education and preventive counseling, health promotion, patient management, clinical dental hygiene, provision of services for and management of patients with special needs, community dental/oral health, medical and dental emergencies, legal and ethical aspects of dental hygiene practice, infection and hazard control management, and the provision of oral health care services to patients with bloodborne infectious diseases. (p. 22)

The CODA (2018c) stated that the intent of the competency was:

Dental hygiene sciences provide the knowledge base for dental hygiene and prepares the student to assess, plan, implement, and evaluate dental hygiene services as an integral member of the health team. Content in provision of oral health care services to patients with bloodborne infectious diseases prepares the student to assess patients' needs and plan, implement and evaluate appropriate treatment. (p. 22)

Competency standards 2-12 stated "Graduates must be competent in providing dental hygiene care for the child, adolescent, adult, and geriatric patient. Graduates must be competent in assessing the treatment needs of patients with special needs" (CODA, 2018c, p. 23). The intent that accompanies the standard written by CODA (2018c) is defined as:

An appropriate patient pool should be available to provide a wide scope of patient experiences that include patients whose medical, physical, psychological, or social situations may make it necessary to modify procedures in order to provide dental hygiene treatment for that individual. Student experiences should be evaluated for competency and monitored to ensure equal opportunities for each enrolled student. Clinical instruction and experiences with special needs patients should include instruction in proper communication techniques and assessing the treatment needs compatible with these patients. (p. 23-24)

Proposed revisions are being reviewed in the summer of 2019 that pertain to treating patients with special health care needs. If the revision is adopted, it will state "Graduates must be competent in providing dental hygiene care for the child, 18 adolescent, adult, geriatric, and special needs patient populations" (CODA, 2018d). There is a revision to the intent of the standard. If the revised intent is adopted according to CODA (2018d), it will state:

An appropriate patient pool should be available to provide a wide scope of patient experiences that include patients whose medical, physical, psychological, developmental, intellectual or social conditions may make it necessary to modify procedures in order to provide dental hygiene treatment for that individual. Student experiences should be evaluated for competency and monitored to ensure equal opportunities for each enrolled student. Clinical instruction and experiences should include the dental hygiene process of care compatible with each of these patient populations (p. 2)

Special Care Dentistry

Salama, Al-Balkhi, and Abdelmegid (2015) confirmed people with special needs have the greatest prevalence of dental diseases than any other subpopulation. The Special Care Dentistry (SCD) field, interchangeably referred to as Special Needs Dentistry (SND), is a unique field asserting that not all people with a disability require SCD, and the individuals that require SCD may not need it their entire life. There is an obligation for professionals treating people with disabilities to provide care that assists in removing barriers and discrimination while providing equal access to healthcare (Ahmad et al., 2015).

Experts in SCD are required to research barriers that people with disabilities encounter (Faulks, Freedman, Thompson, Sagheri, & Dougall, 2012). The content delivered during SCD classes differs widely among dental schools, therefore consistent curriculum should be taught at all dental schools so the standardization of content may occur (Dougall, Thompson, Faulks, Ting, & Nunn, 2014).

Albino, Inglehard, Habil, and Tedesco (2012) claimed there needs to be specific attention given to SCD to produce dentists that are able to treat people with disabilities. The researchers' claims were developed through the examination of oral health disparities in the United States.

Vainio et al. (2011) conducted a study that reported only 64% of dental schools offered a course on treating patients with special needs, even though accreditation and competency standards dictate the curriculum that should be followed.

Dentistry and Autism

A substantial amount of literature is available on treating patients with ASD in the dental office. Current literature on best practices surround this topic with parallels to the education world. Educational approaches that teachers employ in the classroom have been suggested and proven to work in the dental office (Nelson et al., 2015). The literature is abundant on what dentists and dental hygienists could do to successfully manage the behaviors of patients with ASD, but a gap exists regarding the influence of dentists' and dental hygienists' preparedness to manage the behaviors of patients with ASD during dental treatment.

It is imperative to consider the dentists' and dental hygienists' attitudes and preparedness to treat the specific disorder of ASD, as well as consider the research that has already been done on the best practices of effective management of behaviors. Some studies have investigated the attitudes of dentists and pre-doctoral students regarding the treatment of people with all disabilities, including those with developmental disabilities. There have been limited studies in the past decade that specifically assessed the attitude of dentists and dental students toward treatment of people with ASD (Weil & Inglehart, 2010; Weil et al., 2011). Considering the preparedness of dentists to manage the behaviors of patients with ASD, it is also essential to consider the attitudes of dentists and pre-doctoral students.

Dentists' Attitudes and Preparedness to Treat Patients with Autism. The incorporation of research conducted by Weil and Inglehart (2010) and Weil et al. (2011) are being included in my study because it is the most current literature available, and situates the study with respect to dental education and dentists' attitudes and their preparedness specifically toward treating patients with ASD. All other literature incorporates treatment of people with disabilities in a broad manner, or combined with ASD. However, literature narrowing in on the specificity of just ASD is essential to include.

Weil and Inglehart (2010) discussed the overall attitudes of dentists toward treatment of people with ASD needs improved. The attitudes of pediatric dentists were perceived to be more positive than those of general dentist practitioners toward treating patients with ASD. There are not enough pediatric dentists in the United States to treat all of the children with special needs. Dentists confirmed the quality of their dental education in training for treating patients with ASD was correlated to the number of patients they treated during their studies. Most dentists did not believe their dental program prepared them to provide treatment to patients with ASD. Dentists confirmed the behavior management strategies used in their dental practices, may in fact not be the most beneficial in combatting difficult behaviors during treatment.

Similarly, Weil et al., (2011) concluded dentists of the Special Care Dentistry Association (SCDA), who treat patients with ASD, confirmed they genuinely like treating the ASD population. Their attitudes were positive. The positive attitude of dentists was suggestive as a result of their positive educational experience.

Attitudes

Limited time occurs between a pre-doctoral dental student's clinical experience and practicing dentistry in private practice. Analyzing research pertaining to students and dentists is applicable because novice dentists will be used in my study. Dental hygiene students' attitudes are also essential to discuss because there is limited research on practicing dental hygienists' attitudes toward treating patients with disabilities (Parker & Hew, 2013). The consideration of the attitudes of dentists, dental hygienists, pre-doctoral students, and dental hygiene students toward treatment of people with all special needs is an important factor in improving treatment for patients with ASD. It is imperative to acknowledge the attitudes of pre-doctoral students and dental hygienist students as they transcend into their dental profession.

Prejudices and discriminations exist for people with disabilities in many countries around the world (Kim, Bang, Kim, Lee, & Choi, 2014). Unfavorable attitudes toward treating patients with special needs is presented in Eastern cultures (Lee, Jung, Kim, Kim, Doh, & Lee, 2015). Dental schools in the United States enroll students from countries where biases are present. The influence of the prejudice from cultures may affect the treatment of patients as a result of their biases. Understanding attitudes may shed light on novice dentists' preparedness to manage the behaviors of people with ASD.

Attitudes of pre-doctoral students. Conflicting results have been reported on the attitudes of pre-doctoral dental students toward the treatment of patients with disabilities. The difference in attitudes may have a direct correlation to the varying experiences students obtain treating people with special needs during their pre-doctoral work (Alkahtani, 2014). Alkahtani et al. (2014) discovered a link between the students' preparedness and their attitude. Students who claimed they were prepared to treat patients with developmental disorders, such as ASD, down

syndrome, intellectual disability, or cerebral palsy also reported positive attitudes toward their training program.

Level of comfort was also a resulting factor from training with conflicting claims. Ahmad et al. (2015) identified that pre-doctoral students are not comfortable treating patients with special needs because of their insufficient training. Perusini, Llacuachaqui, Sigal, and Dempster (2016) revealed that students confirmed treating patients with special needs was their “most enjoyable aspect of their experience at the clinic” (p. 308). Clinical experiences resulted in students having a realistic expectation for treating patients with special needs, the time that would be required for treatment, and their ability level to treat the patients.

Limited studies have been conducted to compare attitudes of students after targeted trainings for treating patients with special needs was provided. Mac Giolla Phadraig, Nunn, Tornsey, and Timms (2015) reported dental students had a neutral attitude toward people with disabilities even after a special needs training. The conflicting research indicates a lack in understanding of pre-doctoral students’ attitudes toward treating patients with disabilities.

Attitudes of dental hygiene students. Parker and Hew (2013) researched dental hygiene students’ attitudes toward treating patients with disabilities. The data confirmed that the dental hygiene students had positive feelings toward treating patients with disabilities. The specific disabilities that were compiled in the data were: deafness, blindness, paraplegic/quadruplegic, body or facial abnormalities or amputees, epilepsy, cerebral palsy, intellectually disabled, and emotionally disturbed. There was no current literature on dental hygiene students’ attitudes toward treating patients with ASD at the time of my study.

Attitudes of dentists. The attitude of dentists is important to consider when working with any subpopulation that is considered disparaged. Early dental care for children with special needs is essential for stressing good oral care (Mushid, 2015), and the attitude of the dentist may make the experience pleasant for the patient. Al-Zboom and Hatmal (2016) researched the attitudes of dentists who treat patients with intellectual disabilities. Their research indicated dentists have a positive attitude toward treating patients with intellectual disabilities. No correlation to the dentists' age or gender were contributing factors for a positive attitude. Dentists' attitudes may be a factor related to dentists' willingness to treat patients with special needs. Ahmad et al. (2015) attributed one reason for a low comfort level of treating patients with special needs is due to the patients' exhibiting behaviors.

Autism spectrum disorder is not the only disorder that may cause challenging behaviors. The patient's uncooperative nature is indicative of dentists' willingness to treat patients with special needs because of the barrier that it presents (Vozza, Cavallè, Corridore, Ripari, Spota, Andrea, Brugnoletti, Orlando, Guerra, & Fabrizio, 2015). A patient's behavior could positively or negatively affect the attitude of the dentist, so much the success of the treatment could be at stake. From a healthcare perspective, Nicolaidis, Raymaker, Ashkenazy, McDonald, Dern, Baggs, Kapp, Weiner and Boisclair (2015) emphasized the importance of the providers' attitude when treating patients with ASD.

Preparedness of pre-doctoral students and dentists.

Education serves a distinct role in the preparedness of dentists and pre-doctoral students in treating patients with special needs. It is imperative to consider the pre-doctoral training and clinical experience that are provided to investigate the preparedness, and hence the comfort level of dentists in treating people with special needs. There is a gap in the literature regarding

specific studies on novice dentists' preparedness to manage the behaviors of patients with ASD during dental treatment.

Ahmad, Razak, & Borromeo (2015) surveyed dental students at various universities in Malaysia and discovered their training on special health care needs was not positive. A study from Malaysia is valuable to discuss because Malaysia is acquiring recognition for special care dentistry. The results of the survey indicated that undergraduates believed their training was inadequate and the curriculum needed to become more patient oriented with clinical exposure. Responses to the survey also revealed a correlation to students' comfort level and their likelihood to treat patients with special health care needs upon entering a practice. Adequate training at the undergraduate level for treating patients with special needs may be essential to prepare dental students for their transition into treating patients in their future practice.

Many researchers claim that patient's lack of cooperation during dental treatment may be compounded by the reported inadequate training received by dentists to address challenges, leading to many dental practitioners being unwilling to treat children with ASD (Casamassimo et al., 2004; Dao et al., 2005; Nelson et al., 2011; Weil & Inglehart, 2010). Although the research has shown the need for preparedness, many dental schools are not providing the necessary training to assist with special needs subgroups (Ahmad et al., 2015).

Preparedness of pre-doctoral students. Competency standards are in place to ensure pre-doctoral students graduate with the skills to provide treatment to people with special needs. Clemetson, Jones, Lacy, Hale, and Bolin (2012) conducted a study after the new accreditation standards were passed to ensure competency of students for treating patients with special needs. Clemetson et al. (2012) confirmed 63% of the dental schools surveyed were in full compliance with the standard allowing for pre-doctoral students to have experience treating patients with

special needs. Ninety percent of the participants confirmed their belief that class time should be provided to train students in treating patients with special needs.

However, dental schools do not all possess a clinic that specializes in SCD. Clemetson et al. (2012) exposed that less than 75% of the dental schools used in the survey had students working with patients with special needs in clinical settings, posing insight into the lack of preparedness of novice dentists. Dental schools must be prepared to provide approaches to prepare graduates to treat patients with special needs (Waldman et al., 2016).

Alkahtani et al. (2014) reported through surveying senior dental school students that one of the greatest concerns of pre-doctoral students for treating patients with developmental disorders was their degree of training. Other concerns included the patients' behavior, severity of disorder and dental disease. Dougall et al. (2014a) discussed that pre-doctoral students need to be trained with skills in SCD that could be generalized to various patient subgroups. For example, when a typically developing patient presents with anxiety, a dentist could use similar techniques with a person with anxiety who has ASD. The training for SCD needs to be assimilated to the degree students are prepared to treat all symptoms of disabilities.

Ahmad et al. (2015) asserted the need for early inclusion of SCD into the undergraduate curriculum to ensure competency upon graduation to treat patients with special needs. Delli et al. (2013) discussed in a synopsis of literature that increased pre-doctoral training on effective behavioral management strategies may lead to the transfer of skills when students transcend into private practice (Delli et al., 2013).

Herandez and Ikkanda (2011) conducted a search of management strategies to use for patients with ASD and discovered that the incorporation of Applied Behavior Analysis (ABA) within the dental curriculum would permit the learning of specific behavioral principles that

could guide dentists in managing the behaviors of patients with ASD. One limitation to the suggestion was the limited time within dental school curriculums to allow for the opportunity to apply the principles of ABA to practice.

Dougall et al. (2014a) disclosed from a panel of dental educators that there is not enough time to teach SCD at the undergraduate level due to a full curriculum. Dougall et al. (2014a) suggested the integration of skills across the curriculum would focus on the individual needs rather than specific disabilities. The areas considered essential teachings of SCD were identified to already be included in the general dental curriculum. Salama et al. (2015) found several areas of focus that pre-doctoral students believed would enhance their ability to work with special needs patients: additional training on oral care, training on specialized equipment, modifications to presented curriculum, and case study presentations.

There is a gap in the literature detailing the specific inadequacies of the curriculum in pre-doctoral dental programs to sufficiently prepare students to treat the overall subpopulation of patients with special needs (Ahmad et al., 2015). Though, it is noted there is a need for enrichment of the curriculum for treating people with special needs (Mohebbi, Chinipardaz, & Batebi, 2014). A larger gap exists regarding the curriculum to teach pre-doctoral students how to manage the behaviors of people with ASD during dental treatment.

Preparedness of dentists. Nicolaidis et al. (2015) referenced healthcare providers when stating success of “interactions largely depend on the providers’ knowledge, attitude, skill, and behaviors in working with patients on the spectrum” (p. 829). The knowledge and skills are often gained during pre-doctoral training; therefore, novice dentists are challenged treating patients with special needs when they have had limited or no training (Dougall et al., 2014a).

Alves, Cardoso, Cavalcanti, and Padilha (2017) conducted a cross-sectional study of dentists and determined there is a need for professional courses to teach dental professionals on management skills when treating patients with special needs. Patients with autism require dentists who are able to implement specific management skills as well. Dentists must be prepared to treat the manifestations of autism and the many behavior challenges that result to maximize the patient's cooperation (Friedlander, Yagiela, Paterno, & Mahler, 2006, Nagendra & Jayachandra, 2012).

Mochamant et al. (2015) asserted dentists must be prepared to individualize the behavioral techniques for each patient with ASD because of the varying abilities and behavioral challenges that present. Brown and Brown (2014) interviewed parents of children with ASD and found parents rated positive dental experiences when their child's dental experience was individualized. Negative dental experiences were attributed to the parents' perception of the dentists' ignorance to ASD or the unwillingness to change the dental environment to meet the needs of their child.

The challenge exists even with research based best practices that explain how to adapt dental environments, because dentists often have to sort through various strategies that have conflicting proven results and clinicians' theories to find strategies that will work (Rada, 2010). Delli et al. (2013) and Brown and Brown (2014) explained that preparedness may be enhanced for future patients when dentists engage in routine professional development.

Continued Education for Dentists

Albino et al. (2012) conducted a review of literature and claimed healthcare professionals need to possess the skills to effectively treat patients with disabilities through an interdisciplinary approach. More specifically, Albino et al. (2012) discussed the importance for dental educators

to possess the knowledge of working with disparaged populations and viewing the opportunities to treat patients with special needs in a positive light. The dental educators have the obligation to help future dentists develop their commitment and expertise to treat patients with special needs. The humanistic model of professional education is explained as a framework to ensure dental educators have the awareness, skills, and knowledge to transfer their teaching to dental students to develop an awareness of special needs, and the skills and knowledge to treat patients with special needs (Albino et al., 2012)

Waldman et al. (2016) discussed that dental educators who are trained in providing didactic and clinical educational programs are lacking, though programs are available to aid schools wanting to develop special needs programs. Improving the quality of dental programs for managing the behavior of people with ASD is a professional and curricular decision. Fricker, Kiley, Townsend, and Trevitt (2011) suggested continued professional development is an indication of professionalism that will improve the relationship between the patient and dentist. Maintaining professionalism requires life-long learning to sustain skills and knowledge.

Preservice Teacher Training

The education field is surrounded by training for future teachers in preparatory programs and continued education for novice and veteran teachers. The training never ceases as new models and best practices develop to meet the needs of all learners. Continued education guidelines and laws have been enacted to standardize the preparatory training new teachers require, though individual states have the authority that governs their policies to regulate the teacher preparatory training. Within individual teacher preparatory programs, there is flexibility in the requirement for what is taught to future teachers (Blanton, Pugach, & Florian, 2011). As a result of the differences that states and preparatory programs mandate, some programs may only

require future regular education teachers to enroll in one special education course for preparation in educating students with special needs (Blanton, Pugach, & Florian, 2011), resulting in concerns for teacher preparedness.

Sanz-Cervera, Fernández-Andrés, Pastor-Cerezuela, and Tárraga-Mínguez (2017) revealed that institution training for pre-service teachers may not adequately prepare all future teachers for educating children with ASD. The study examined first-year and fourth-year regular education teachers and showed although there was a significant difference in knowledge gained on ASD, the results were still considered weak overall. Many of the misconceptions of preservice teachers were a lack in basic understanding of ASD, diagnostic information, and behavioral challenges. Sanz-Cervera et al. (2017) also discussed that special education preservice teachers have a greater understanding of ASD than general education preservice teachers. The differences in knowledge exposed an inclusive educational concern where specialized preservice teachers are more knowledgeable than general education teachers. General education preservice teachers feel less competent to teach children with ASD than special education preservice teachers (Talib and Paulson, 2015).

Teacher Preparedness

Preparing teachers to educate students with various needs is imperative to successful inclusion practices. Regular education teachers need more knowledge on teaching students with ASD and how to appropriately accommodate instruction in the classroom (Able, Sreckovic, Schultz, Garwood, & Sherman, 2015). Regular education teachers described their greatest challenge when teaching in an inclusive setting is adapting the material to match the students' individual needs (Cameron, 2014; Zagona, Kurth, & MacFarland, 2017). The United States Department of Education (2015) confirmed that as students with disabilities are included in the

general education setting, the behaviors of the students are mostly left up to the regular education teacher to manage. Scott (2017) declared the purpose of classroom management is not to educate teachers on how to manage and control behaviors. Rather, the purpose of management training is to educate teachers on how to shape student behaviors to maximize student success. Corona, Christodulu, and Rinaldi (2017) suggested teacher knowledge of ASD is simply not enough. Direct coaching and feedback are needed to assist teachers in educating students with ASD.

Summary

The adult experiential learning theory guided the foundation necessary for pre-doctoral students, dentists, and dental hygienists acquiring knowledge through experiences to treat patients with ASD. The prevalence of people with ASD is alarming, and as a result of the significant behavioral challenges that exist, the communication, sensory processing, and social concerns all may cause barriers to dental treatment. Pre-doctoral students, general practicing dentists, dental hygienists lack preparedness for treating patients with special needs, and literature on attitudes and preparedness treating patients with ASD is limited. Substantial literature is available on the behavioral techniques that have parallels to educational strategies and sensory adapted dental environments that dentists may implement to produce successful dental treatment. Increased training is necessary at the pre-doctoral and dental hygiene training level and through continued education at the practicing dentists' and dental hygienists' level. A gap exists with research focusing on the preparedness of practicing dentists and dental hygienists to manage the behaviors of people with ASD.

CHAPTER THREE: METHODS

Overview

Chapter three details the methods of my study of the influence of dentists' and dental hygienists' preparedness to manage the behaviors of patients with ASD during dental treatment. I introduce the qualitative transcendental-phenomenological design. I describe the setting, the participant qualifications, and the selection criteria. I present data triangulation in the form of interviews, open-ended surveys, and document analysis. I identify the data analysis procedures. Finally, I conclude the chapter with a discussion on trustworthiness and ethical considerations.

Design

A qualitative research design was implemented for my study of dentists' and dental hygienists' preparedness to manage the behaviors of patients with ASD during dental treatment. Creswell (2013) described that qualitative research commences with the researcher's assumptions and uses interpretive frameworks to understand meanings or social, human problems. The study was qualitative because I interacted with the study, and I sought to subjectively understand the perceived reality of people (Dodgson, 2017).

I used a phenomenological method. Moustakas (1994) described the purpose of phenomenological studies is to determine the meaning of an experience that people have experienced and explain "a comprehensive description of it" (p. 13). My study followed a transcendental-phenomenological approach. The goal of a transcendental-phenomenological study is to derive at an essence, or make meaning of the experience of the common, shared experience of human participants (Moustakas, 1994). I developed an essence for the common shared experience of the influence of dentists' and dental hygienists' preparedness to manage the behaviors of people with ASD during dental treatment.

The specific design for my study was a phenomenological model that was developed by Moustakas (1994). Moustakas (1994) recognized the work of several philosophers- Descartes, van Kaam, Stevick, Colaizzi, and Keen who contributed to the development of his transcendental-phenomenological approach. Edmund Husserl is considered the founder of phenomenology and sought to understand the human conscience. He developed the concept of phenomenological reduction as a way to openly and purely view human experience without presumptions (Hanna, Wilkinson, & Givens, 2017).

An important element, and the first necessary step of transcendental phenomenology is to engage in the Epoche process, which implies to free the conscience from all preconceived notions, prejudgments, beliefs, or any other limiting factor that would influence the mind from being able to naively listen to the participants share their experiences (Moustakas, 1994). Moustakas (1994) asserted it is challenging to achieve the Epoche because the conscience must become clear and allow for receptiveness to occur. I engaged in the process of Epoche and bracketed out personal experiences. Once I bracketed out my personal experiences, it was possible to objectively make sense of the lived experience of the participants (Creswell, 2013). It was imperative that I fully engaged in the Epoche process. Throughout my study, I memoed my presumptions and preconceived notions. I bracketed out my own experiences through memoing so that I purely viewed the participants' experiences through their interpretive lens, without any bias from my own beliefs, experiences, or thoughts.

A transcendental-phenomenological method was the best qualitative method for understanding the influence of preparedness of dentists and dental hygienists to manage the behaviors of patients with ASD during treatment. A transcendental approach was necessary to view the participants' experiences through a fresh lens without prejudgments (Moustakas, 1994).

The transcendental approach permitted me to bracket out my own experiences and form a clear conscience to truly understand the participants' experiences. A transcendental-phenomenological method was the best choice for the study because it allowed me to reveal the preparedness of dentists and dental hygienists through the analysis of their common, shared experiences through examining their thoughts, beliefs, and expressions to generate an overall representative essence for the participants. When I revealed an essence for the common, shared experiences, a greater understanding of the preparedness of dentists and dental hygienists revealed a unique perspective to generalize the essence to other practicing dental providers, though broad generalizations will not be able to be made due to the limitations of my study. Qualitative data allowed me to analyze the emotional aspects and personal feelings of the participants which divulged the true conscience of the participants. I also analyzed data within the dental office which permitted me to investigate how the dentists and dental hygienists prepare to treat patients with ASD.

Research Questions

Central Question

How do dentists' and dental hygienists' preparedness affect their manageability of behaviors for patients with ASD during dental treatment experiences?

Sub questions

1. How do the experiences of treating patients with ASD, previous trainings, and prior knowledge influence the dental environment?
2. What are novice dentists', experienced dentists', and dental hygienists' personal reactions to the behaviors exhibited by people with ASD during dental treatments?

3. How do pre-doctoral dental school educational experiences and dental hygiene training prepare novice dentists, experienced dentists, and dental hygienists to treat patients with ASD?

Setting

The preferred setting for my study was the dental offices of my participants. I conducted seven interviews at the participants' dental offices. I conducted the interviews in the dental offices because it allowed the participants to be in their natural setting where they treat patients with ASD. Using the participants' natural setting also allowed me to conduct a document analysis of the dental environment and permitted the participants to show me tangible factors that influence the preparedness of managing the behaviors of patients with ASD during dental treatment. Moustakas (1994) suggested open ended methods may be used to explore the setting, environment, and atmosphere. The open-ended methods allowed me to understand how the participants prepare to treat patients with ASD.

I also conducted phone interviews with four participants. One dentist lived outside of my travel jurisdiction. Rubin and Rubin (2012) confirmed sites may be chosen for practicality reasons such as travel considerations. The remaining three interviews were conducted via phone for various reasons. One dental hygienist invited me to her house to complete the face-to-face interview because of conflicting schedules, time constraints, and comfort levels.

Participants

My study commenced with different participant qualifications than it ended with as a result of extreme difficulty securing participants. Initially, to qualify as a participant, the participant had to be 18 years or older, considered a novice dentist, experienced the phenomenon

of treating at least one patient with ASD and live within 120 miles of my home. The search for participants yielded 4 qualified participants after several months of searching.

My participant qualifications were expanded and included experienced dentists and the option to complete phone or skype interviews if the participants lived outside of the 120-mile radius of my home. The new criteria generated 2 experienced dentists. Finally, my study was opened to dental hygienists and dental assistants. I was able to secure 3 dental hygienists.

By the end of my data collection period, I was able to secure 3 more experienced dentists.

Polkinghorne (1989) suggested a participant range of five to 25 people for a qualitative study. My study included 9 dentists—four novice dentists and 5 experienced dentists, in addition to 3 dental hygienists who treated children and adults with ASD. A total of 12 participants were used in my study. The participants practiced dentistry in three states with 11 participants from Pennsylvania, 1 participant from Massachusetts, and 1 participant from Ohio.

I choose my participants through two methods that I conducted simultaneously. I used snowball sampling, which was used to select all of my participants except one. The use of snowball sampling allowed me to select participants through referrals. Olsen (2011, 2012) claimed a tight geographic area may be used to extend the network of the participants to obtain more participants. In addition to the snowball sampling, I also utilized the method of criteria sampling to secure one participant through the mass mailings. All of my participants worked in driving distance from my residence, though four participants opted for phone interviews.

Procedures

The procedures for the proposed study of dentists' and dental hygienists' preparedness to manage the behaviors of people with ASD during dental treatment commenced with permission from the IRB (Institutional Review Board) from Liberty University on April 15, 2018.

(Appendix A) I had great difficulty securing participants for my study. A discussion of the delimitations are presented in Chapter 5. I revised my consent form three times, totaling four approved IRB consent forms throughout the duration of my data collection.

My first revision was approved on June 6, 2018. I amended the length of time for the face-to-face interview from 1 hour 30 minutes to 30 minutes. I added to the letter the statement, “The purpose of the audio recording is for transcription purposes, and the recording will not be viewed by anyone except you.” I also included the sentence “I can be flexible with days, evenings, or weekends to conduct the face-to-face interview.” I revised the method to recruit participants. I added the use of criterion sampling to obtain dentists' contact information from the dental boards in three states. I also stated that I would sort the contacts by counties and send letters to dentists in counties that I was able to drive to in order to conduct the face-to-face interviews. Lastly, I removed the 120-mile radius for my driving distance to allow me to drive further distances to interview participants.

Once permission was granted, I emailed the Ohio Department of Administrative Services (DAS) and requested a list of licensed dentists. The DAS emailed me a list of 7,031 licensed dentists that I downloaded into an Excel spreadsheet. I scoured the spreadsheet for dentists who worked within a three-hour driving distance from my home. I googled each dentist's name to determine if the dentist had a webpage for their dental office. If the dentist had a webpage, I then looked for the dentist's biography on their site. I read the biography to determine if the dentists were of novice range. If the dentist was of novice age, I sent a recruitment letter.

(Appendix C)

I emailed the Office of the Professions for New York State and requested a list of licensed dentists. I was provided an Excel list of 2,408 dentists. I followed the same procedure

for narrowing the list of New York dentists that I did for Ohio. I found 37 dentists who lived within 3 hours of my home and were considered novice dentists in Ohio and New York combined. I did a google search on online yellow book pages for multiple cities in Ohio and New York. I found 21 additional dentists who fit my criteria. I sent a total of 58 initial recruitment letters.

I emailed the Commonwealth of Pennsylvania Department of State Bureau of Professional and Occupational Affairs and requested a list of novice dentists. I was provided a list of 9,970 dentists in Pennsylvania for a fee. I narrowed the list of dentists to licensed years from August 2013 through 2018. Next, I searched through the narrowed list for dentists who lived within 3 hours of my home. I found 254 dentists who fit my preliminary criteria of living within 3 hours of my home and were considered a novice dentist. I recognized that the addresses listed of some of the dentists from my hometown were their home addresses. I sent recruitment letters to the 254 dentists and inserted an Address Disclosure (Appendix C) of how I received their contact information in case the letter was sent to their home address. I sent a total of 312 recruitment letters to novice dentists in Ohio, New York, and Pennsylvania. I was able to secure one participant from the recruitment letters. The response rate for participants with a novice level of experience was 0.003%.

I decided to revise the consent form a second time because novice dentists were not willing to participate in my study. I received IRB approval on July, 25, 2018. I broadened my study to permit dentists with any level of experience to participant in my study. I included that interviews could be conducted via phone, Skype or Facetime and a virtual tour of the dental office could be provided if the dental office was located beyond three hours of my home. I also included that I would allow the participants to send digital pictures of their offices. I added a

statement that the dentists did not need to be experts in autism. I included the word ‘non-confidential’ to describe the documents that I would collect. I altered the time it would take to provide me with an office tour and to complete the survey. Finally, I included a closing sentence thanking the dentists for their consideration in helping me contribute to the growing field of dentistry.

I continued to have difficulty securing enough participants for a phenomenological study. I revised my consent form a third time. I received IRB approval on August 8, 2018. I broadened my study to allow dental assistants and dental hygienists to participate in my study. Overall, roughly 350 letters, emails or phone calls were made to dentists and/or dental offices.

(Appendices D & E) I followed up with recruitment letters and emails. (Appendices F & G) Many potential participants confirmed their interest and stated in writing their willingness to participate in my study through snowball sampling. Though my concluding participant response rate was three percent.

I began the data collection process once consent was provided by the participants. An agreement of consent is needed when conducting ethical research (Moustakas, 1994). Although interviews were the primary and first data source, the participants were asked to journal their experiences managing the behaviors of people with ASD during dental treatment throughout the duration of the study. I asked the participants to journal their experiences to seize the opportunity to capture their thoughts prior, during, and after treatment of a patient with ASD. I sent journaling directions (Appendix H) via email to participants after they confirmed their participation in my study. I accepted journal entries as soon as the participants signed their consent form. Participants were permitted to handwrite, scan, and email to me their journal entries or compose them through an email.

I set up the individual interviews at the participants' convenience. I conducted face-to-face interviews at the participants' dental offices, phone interviews, and one interview at a participant's home. I audio recorded each interview via an iPad and voice recorded via Google. Upon completion of the formal interview, I asked the participants if it was a convenient time to take photographs of the dental offices, including any artifacts pertaining to the treatment of patients with autism, sensory tools, as well as the SADE if the office was equipped. I photographed six dental offices. One participant did not permit me to take photographs. I requested pictures from two of the participants who completed phone interviews, but I did not receive any pictures. One participant did not feel there would be anything I would want to take pictures of, so no pictures were requested. I also collected and/or viewed online blank patient forms that the participants used in their offices. I was able to collect and/or view ten blank patient forms. I thanked the participants for their time at the conclusion of the interview.

I transcribed the recording of the interviews in their entirety. Rubin and Rubin (2012) suggested transcribing immediately after an interview to recall missing material and add in what is remembered. I was able to use Google Voice Activation on several of the interviews, though the app was not perfect in recording. With the help of the recording app on the iPad, I was able to transcribe the interviews accurately. I sent the online open-ended surveys (Appendix I) via email with a copy of the participants' transcriptions within four days of their interviews. I thanked the participants for their time again and reminded the participants to complete journaling.

The Researcher's Role

I was the human instrument that collected, reduced, and analyzed the data in the transcendental-phenomenological study to explore the preparedness of dentists and dental hygienists to manage the behavior of patients with ASD during dental treatment. I had no

relationship to the participants. I am friends with one of the participants. My children recently started going to one of the dental offices that was used in my study. I did not have a connection to any of the other dental offices where the interviews took place.

I bracketed my thoughts in preparation for my data collection. Moustakas (1994) referred to bracketing as the *Epoche*, which requires a researcher to remove pre-judgements and assumptions to view the experiences of the participants through a clear lens. According to van Manen (1990), the researcher brings personal assumptions to every study. Rubin and Rubin (2012) asserted a researcher does not need to be neutral, but needs to recognize one's own biases. It was imperative that my biases and assumptions were disclosed. I have been honored to provide one training to a local orthodontic staff and one continuing education in-service for dentists, dental hygienists, and an orthodontist's staff in the county where I reside. I had preconceived notions on the preparedness of dentists and dental hygienists for treating patients with ASD as a result of the dentists and dental hygienists sharing their personal experiences with me. I had not provided training for novice dentists, nor discussed the topic of autism and dentistry with novice dentists.

Two of my participants attended one of my trainings. I disclosed that I provided dental trainings on autism to two of my participants at the conclusion of the interview. I did not share with any of the other participants that I have provided continuing education to dental professionals on treating patients with autism. I did not want the participants to view my knowledge as more superior to their knowledge or practice.

I was forthright with my participants and disclosed several elements about my research study and myself. All of my participants knew that I was a teacher and have taught children with autism. It was imperative that I did not agree nor disagree with the dentists' opinions in a

gestural or verbal manner to prevent my bias from influencing the participants. The questions that I posed were derived from current literature.

Bracketing my thoughts were vital throughout the entire dissertation process. I began bracketing my thoughts in preparation for my data collection. Moustakas (1994) referred to bracketing as the *Epoche*, which requires a researcher to remove pre-judgements and assumptions to view the experiences of the participants through a clear lens. It was essential to memo my experiences, reflecting when I was a novice educator who was teaching students with ASD.

Data Collection

A triangulation method of data collection was used in this study consisting of interviews, open-ended surveys, and data analysis. Triangulation is an essential part of data collection to gather evidence from multiple sources, thus establishing validity (Creswell, 2013). Three methods were formally conducted and controlled and a unique fourth method within the document analysis collection method was encouraged.

Interviews

The primary form of data collection for qualitative research is in-depth interviews (Rubin & Rubin, 2012). Rubin and Rubin (2012) discussed in-depth interviewing allows a researcher to investigate the perspective of the experiences of others through focused research questions. I used a semi-structured interview approach with specific areas of focus, prepared questions, and follow-up questions (Rubin & Rubin, 2012). The technique of responsive interviewing (Rubin & Rubin, 2012) was utilized during the interviews that permitted me to change questions throughout the interviews in response to what I learned. Interviews are the most common form of data in phenomenological studies where the researcher participates interactively with the

participant while asking open-ended questions. Interviews are designed to understand an interviewee's ideas, thoughts, and beliefs on a particular topic (Moustakas, 1994).

All of my research questions were answered by the long-interview data collection method. I piloted the interview questions with five veteran dentists to determine clarity of the wording and ease in understanding for my prospective participants. I used 80% as my benchmark for ease in understanding the interview questions. One question received a 60% clarity of understanding—Please share your overall knowledge of ASD. I decided to keep this question, but had an alternate wording if participants were confused. I reworded the question—Tell me what you know about people with autism. I did have a few participants who needed the rewording of the question during the interviews. All of the other questions were easily understood by the participants.

I memoed immediately after each interview. I memoed about my perceptions of how the participants felt treating patients with ASD, the overall interview experience, and the responses that supported literature. Memoing helped me clear my assumptions and prejudices.

The interview consisted of all open-ended questions. Most of the questions were the same for dentists and dental hygienists. Questions number four and 18 varied depending if the participant was a dentist or dental hygienist.

Standardized Open-Ended Interview Questions

1. Please take a moment to introduce yourself.
2. How did you become interested in dentistry?
3. Tell me about your schooling.
4. Please share with me anything that you learned in your pre-doctoral training about managing the specific behaviors of people with ASD during dental treatment.

Please share with me anything that you learned in your dental hygiene training about managing the specific behaviors of people with ASD during dental treatment.

5. Please share your overall knowledge of ASD.
6. Please describe your experiences in treating patients with ASD in your dental office. Use as much detail as possible.
7. Please describe your most challenging patients with ASD. Please share any difficulties you had. Please describe a specific incident that you can remember that was challenging. What was your personal reaction during the treatment? Describe your personal reaction toward treating the same patient again.
8. Please describe your pleasant experiences treating patients with ASD. Please share what you did to assist the patient in having a successful appointment. What were your personal reactions during the treatment? Describe your personal reactions toward treating the same patient again.
9. Please list three words that describe your overall feelings when you treat a patient with ASD.
10. What challenges do you encounter when treating patients with ASD?
11. What personal rewards do you experience when treating a patient with ASD?
12. What has influenced your preparedness in managing the behaviors of people with ASD during dental treatment?
13. How do you prepare to treat a new patient with ASD?
14. How do you prepare to treat a returning patient with ASD?
15. Who has impacted your preparedness in managing the behaviors of people with ASD during dental treatment?

16. How have personal experiences with people who have ASD outside of your dental practice influenced your professional experiences in treating patients with ASD? Please also consider any influence from professional development experiences.
17. What has been the best advice you have received in treating patients with ASD? Have you been able to apply that advice? Why or Why not?
18. Imagine you are talking to a dentist who has never treated a patient with ASD. What would you tell him or her?

Imagine you are talking to a dentist or dental hygienist who has never treated a patient with ASD. What would you tell him or her?
19. How has continuing education training influenced your level of preparedness to treat patients with ASD?
20. I truly appreciate your time today. Is there anything else that you would like to share about managing the behaviors of people with ASD during dental treatment?

I began the interview with a casual conversation for questions one through three to ease the participants' comfort level to be able to engage in the interview and to give an opportunity to share background information. Moustakas (1994) asserted it is imperative to create a calming and trusting environment where the participant feels comfortable talking honestly about experiences.

I asked question number four for the participant to explain his or her pre-doctoral experience or dental hygiene training specific to managing the behaviors of people with ASD. The American Dental Education Association (2008) provided a competency standard for treating patients with special needs, though the standard did not delineate if pre-doctoral students must be competent in managing the behaviors of people with ASD. Therefore, it was imperative that I

asked question four to evaluate the quality of knowledge the participant possesses with regard to ASD as a result of their pre-doctoral education. Question five was related to question four, but allowed the participant to discuss overall knowledge that may or may not have been due to their pre-doctoral or dental hygiene training.

I invited the participant to share experiences treating patients with ASD in questions six through nine. Because the prevalence of ASD is significant, dental professionals are likely to treat patients with ASD in their offices (Muraru et al., 2017), therefore asking the participants a broad question to discuss their overall experience is pertinent. Rubin and Rubin (2012) suggested that broad research questions may be asked. Dentists reported there are many barriers when treating patients with ASD as a result of deficits in communication and social interactions, as well as displaying repetitive behaviors (Weil et al., 2011). I asked question seven for the participant to think deeply and to specifically describe patients that were challenging to treat in their dental office. I also asked the participants about their personal reactions to the challenging behaviors. The question also allowed the participants to think of the most challenging incident with a patient and reflect on his or her personal reaction during treatment while pondering the emotions to treat the same patient in the future.

I asked question eight to provide the participant with a neutral and balanced question. I asked the participant to reveal a pleasant experience treating a patient with ASD. Weil and Inglehart (2010) discussed the overall attitudes of dentists toward treatment of people with ASD needs improved. The attitudes of pediatric dentists were perceived to be more positive than those of general dentist practitioners toward treating patients with ASD. I posed question nine for the participant to list adjectives describing the overall experience of treating patients with

ASD. Because Weil and Inglehart (2010) suggested the overall attitudes of dentists need improved, a list of adjectives may provide data to support or contradict the literature.

The topic of preparedness was the focus of questions 12 through 14. I asked the participants to think broadly and reflect on his or her overall preparedness, followed by reflecting specifically on their preparation for a new patient with ASD and a reoccurring patient with ASD. Friedlander, Yagiela, Paterno, and Mahler (2006), as well as Nagendra and Jayachandra (2012) conveyed the importance of the preparedness of dentists to treat the manifestations of autism and the challenges that exist. Mochamant et al. (2015) asserted the need to individualize the behavior techniques that are employed for patients with ASD. I concluded the focus of preparedness with question 14 and asked the participants to think of who has influenced his or her preparedness to manage the behaviors of people with ASD during dental treatment. This question aimed to discover the origin of the preparedness by asking if a particular person has assisted in helping to prepare the participant to treat people with ASD.

I asked the participants to think globally about ASD in question 15 and consider outside influences that had affected the preparedness to treat patients with ASD. I posed the question so the participant considered interactions with people outside of their dental office. Once again, the prevalence of ASD among people is significant (Muraru et al., 2017). It was important for the participants to consider personal implications and experiences with people outside of the dental office that may have influenced the participants' preparedness to treat patients with ASD inside the dental office. An additional component that I considered when analyzing the participants' knowledge and preparedness was continuing education on ASD. There is a need for dentists to engage in continuing education with regard to treating people with disabilities (Mochamant, 2015; Nagendra & Jayachandra, 2012; Weil et al., 2011). The question helped me to understand

if the participants have had continuing education on ASD, and the influence of their continuing education on their preparedness.

Lai et al. (2011) discussed the need for all dental professionals to have knowledge of how to treat patients with ASD. I had an interest in revealing if dental professionals seek greater knowledge in treating patients with ASD. Questions 17 and 18 were unique. I asked the participants to think of advice that has been shared with them, or that the participants have shared with other dental professionals. I created the questions to reveal a qualitative level of investment with concern to improving the preparedness of treating patients with ASD. Similarly, with regard to the aspect of level of investment, I asked question 19 to have the participant discuss continuing education experiences. Mochamant (2015), Nagendra and Jayachandra (2012), and Weil et al. (2011) discussed the necessity of continued education for dentists. I concluded the interview with question 20 that allowed the participants to offer remaining valuable insight that was not previously discussed.

Surveys/Questionnaires

I utilized open ended surveys as the second data collection method. This data collection method was used to gather information from multiple participants using the exact same questionnaire format centering around the related topic (Czaja & Blair, 2005). The development of the survey was considered a process because the instrument took time to construct (Czaja & Blair, 2005). I generated the open-ended questions relative to the topic of the influence of preparedness of dental professionals to manage the behaviors of patients with ASD during dental treatment, as well as sensory tools, knowledge of SADE, and the implementation of sensory integration techniques during dental treatment. I emailed the open-ended survey within four days following the individual interviews. Czaja and Blair (2005) suggested online surveys are

more advantageous than mail-in surveys for opened ended response formats. Nine of my participants completed the open-ended survey. I sent a follow-up email reminder to the three participants who did not complete the survey. The participants did not complete the survey for unknown reasons. Rubin and Rubin (2012) expressed the importance of offering gratitude to participants. I thanked each participant for their time in the email that linked the open-ended survey.

Document Analysis

I utilized three sources of document analysis in my study to explore the participants' preparedness to treat patients with autism. I asked the participants to journal about their experiences treating patients with autism. The second source of documentation was photographs. I asked permission to take photographs of the participants' dental offices at the conclusion of the interview. I accessed blank copies of new-patient forms as my final source of documentation.

Journaling. I welcomed journaling from all of the participants. Journaling is the process of writing out feelings and ideas (Hayman, Wilkes, & Jackson, 2012). Hayman et al. (2012) confirmed journaling may "promote constructive and valuable participation" (p.31). The journaling procedures were sent via email to all of the participants once their consent form was signed. Journaling procedures are described in Appendix (H). I asked for journaling entries immediately before and after the participants treated a patient with ASD. The use of journaling in my study allowed for intimate thoughts to be recorded, that otherwise may not have been verbally disclosed. The immediacy of journaling allowed an opportunity for my participants to provide personal reactions and an imminent recall of the experience with details that may otherwise be lost over time.

Journaling was a challenging way to collect data in my study, because this method was reliant on a participant treating a patient with ASD during the data collection period. One dentist participated in journaling. One dental hygienist participant verbally shared what she would have journaled during our phone interview, because she treated a patient with ASD the same day as our interview. I was hopeful I could gather insightful perceptions with this method; therefore, this option was included in my study. Hayman et al. (2012) suggested there may be negative connotations associated with journaling, including poor participation, feeling exposed during writing, and staying focused throughout the entry. Rubin and Rubin (2012) described a downfall of journaling. It is possible a participant may exaggerate their experience positively or negatively to create a different persona than the actual reality.

It was essential that I cross checked the journal entry with the in-depth interview transcriptions. Combining the journal entries with the in-depth long interview allows for the participant to discuss what was written in a journal entry (Rubin & Rubin, 2012). Journaling was an optional data method in my study.

Photographs. I was permitted to take photographs of six dental offices after the conclusion of the interviews. I photographed six dental offices. I photographed the dental offices, equipment, waiting rooms, and sensory tools at the conclusion of each interview. Rubin and Rubin (2012) stated that document analysis may include photographs. I used the photographs to analyze the dental environment and the contents within to compare and contrast the evidence with research based SADEs and suggested tangible items that may be helpful in managing the behaviors of people with ASD.

Blank patient forms. I asked for blank new-patient forms from all of my participants after the conclusion of the interview. I was given a blank patient form, or access to the online form from 10 of my participants. One of my participants did not have new-patient forms because of his retirement status and position at a higher education institution. Another participant could not provide me with access. I evaluated the blank patient forms by examining the questions that may pertain to an ASD diagnosis or sensory needs that would notify the dental staff prior to treatment. Rubin and Rubin (2012) explained that document analysis may include any documents that are in written form. I bracketed out my own thoughts as I collected the document for analysis.

Data Analysis

The data analysis procedures outlined by Moustakas (1994) was used in my study of dental professionals' preparedness to manage the behaviors of patients with ASD. The data analysis included "Epoche, Transcendental-Phenomenological Reduction, Imaginative Variation, Synthesis of Meanings, and Essences" (Moustakas, 1994, p.41). Moustakas (1994) modified the procedures from van Kaam's (1959, 1966) method. Part of my data analysis also included modifications of the Stevick (1971), Colaizzi (1973), and Keen (1975) method of analysis of phenomenological data. The purpose of the data analysis was to answer the research questions centered around the focus of my study of dental professionals' preparedness to manage the behaviors of patients with ASD.

Transcription

I personally transcribed the interviews after the conclusion of each interview. Rubin and Rubin (2012) suggested that transcription should occur after each interview rather than waiting until the data collection is completed. I typed the data into separate Google documents for each

participant in complete, accurate wording. Each participant was given a number that signified the order that their interview occurred. Moustakas (1994) confirmed that the analysis process should begin after the individual interviews are transcribed in their entirety. I waited until I conducted and transcribed all of the interviews before I began my data analysis.

Epoche

It was imperative that I bracketed out my own thoughts as I began to analyze the data. I memoed my own ideas and thoughts, so that I could free my mind from my own assumptions and pre-judgements as suggested by Moustakas (1994) prior to analyzing the expressions of the participants. I memoed on a Google document. It was essential that I was able to view the participants' experiences through their personal lens without clouded perceptions from my own lens as recommended by Moustakas (1994). I documented my reactions to the interviews and the judgements that I possessed after each interview, while I carefully considered my own knowledge that I brought forth into the interview. I remained transparent by documenting what best practices the dentists engaged in and what best practices that could be considered to possibly enhance the management of patients with ASD in their dental office.

Phenomenological Reduction and Imaginative Variation

Moustakas (1994) described the next step of my analysis as the horizontalization of the relevant statements. I read through the entire transcription to obtain a sense of what the participants' experienced, as suggested by Bengtsson (2016) which was an important step in the process of content analysis. Every statement that related to the central phenomenon that discussed a moment from the experience, or that could be labeled, was kept as my invariant constituents. There were two testing requirements to determine invariant constituents (Moustakas, 1994). Firstly, I kept expressions if a moment from the experience was discussed

that helped makes sense of the phenomenon. Secondly, I considered expressions that could be labeled.

I labeled each expression that met the two testing requirements with the participant's unique participant number within a parenthesis at the end of the expression. I copied and pasted statements that did not meet the testing requirements at the bottom of the transcription.

Next, I clustered the statements into meaning units, which was a modification to the analysis method of Stevick (1971), Colaizzi (1973), and Keen (1975). I condensed the statements into meaning units that were representative of the experience of the participant (Moustakas, 1994) by removing unneeded words that distracted from the meaning. I wrote the meaning units as codes that were directly related to the context of the transcription. I underlined and bolded the codes to use as headings during the analysis. The statements that did not meet the conditions, or were repeating statements were reduced or discarded as suggested by Moustakas (1994). All of the reduced statements that I encountered remained on the bottom of the Google Document. I kept the repeating statements for consideration to discuss greater descriptiveness as suggested by Moustakas (1994).

Next, the "Individual Textural Descriptions" with specific and exact examples from the transcription for each participant were constructed (Moustakas, 1994, p. 121). Textural descriptions were defined by Creswell (2013) as what the participant experiences. I constructed the "Individual Structural Descriptions" from each participant that were "based on the individual Textural descriptions and Imaginative Variation" that were developed (Moustakas, 1994, p. 121). Creswell (2013) described structural descriptions as how the participant experienced the experience.

I followed the same procedure of finding the invariant constituents, labeling each expression with the participant's unique number, and coding the expressions for each participant. I also completed the process by reducing the inapplicable statements for each participant. I continuously memoed as I completed this process so that I was able to link the themes that I discovered with the data from the interviews and open-ended surveys. I memoed the themes that I discovered above the memoing from each interview and used headings to separate the types of memos.

Once I had the meaning units translated and coded from each participant with individual textural and structural descriptions, I looked for similar codes and clustered them together into themes (Moustakas, 1994). The themes were typed as headings in a new Google Document. The supporting codes from each transcription were copied and pasted under the corresponding themes. The themes were checked carefully to ensure validity from the original transcription as recommended by Moustakas (1994). It was imperative that I ensured the themes were explicitly stated or compatible to the transcription. I also ensured my themes were directly related to my research questions.

Synthesis of Meaning and Essence

The final process described by Moustakas (1994) in the phenomenological data analysis model was to combine textural and structural descriptions for each participant using the themes and invariant constituents to develop an essence of the experience (Moustakas, 1994). I concluded the data analysis process with an overarching meaning of the phenomenon that was representative of the group of participants. I revealed a composite essence of the experiences of all of the participants that was suggested by Moustakas (1994).

Analysis of Remaining Data

I analyzed the open-ended survey data, document analysis, and journal entry in the same manner as the long interviews. I analyzed the data for central themes and merged them with the existing data from the long interviews. Next, I coded the new themes that emerged in italics to separate the new themes from the existing themes. I conducted a content validity check against the open-ended survey responses and the journal entry. I analyzed the document analysis data with the central themes constructed, and compared and contrasted it with the literature review simultaneously. I was able to compare the data with the literature simultaneously, using headings, because some of the themes that emerged were directly supported by the literature. I memoed throughout the entire data analysis process to assist in identifying repetitive themes. I continuously bracketed my own thoughts through journaling as suggested by Creswell (2013). Bracketing helped me sustain the Epoche through a non-judgmental lens which is suggested by Moustakas, 1994.

Trustworthiness

Trustworthiness or validation was an integral part of qualitative research throughout all phases of my study (Creswell, 2013). Credibility, dependability, transferability, and confirmability made my research study trustworthy. I discuss various methods to achieve trustworthiness to ensure that my study may be completely trusted.

Credibility

Credibility for my research study was important and related to the idea that the research is based on facts, and others may base decisions on the knowledge gained from my study (O'Leary, 2007). Lincoln and Guba (1985) suggested member checking is an ideal validation strategy and considered to be the most critical strategy (1985). In my study, member checking

occurred after the analysis to validate I have understood what the participants have expressed. Creswell (2013) discussed the importance of reviewing the initial analysis with the participants and the themes that were uncovered. I presented each participant with the themes that I discovered from their analysis in a composed email. I allowed the participants one week to read over my initial analysis and confirm their approval. Eisner (1991) discussed the study should be persuasive, convince the reader, and ultimately allow the researcher to have confidence with the study.

Dependability

The aspect of dependability was crucial in my research study. Dependability ensured the methods were thoroughly documented systematically and included measures to protect against subjectivity (O’Leary, 2007). One way that I safeguarded subjectivity in my study was utilizing debriefing measures. Creswell (2013) confirmed that debriefing occurs throughout the research process. I had a peer reviewer analyze the data collection methods, specifically the questions I asked the participants to make certain the questions were not leading the participants to my assumptions. In addition, I piloted the long-interview and open-ended survey questions with five veteran dentists to ensure the questions were easily understood. I provided rich details about the framework and setting of my study.

Transferability

The aspect of transferability is considered to be the results or lessons of the study that may be applicable to larger populations (O’Leary, 2007). I used triangulation of multiple sources of data collection as outlined with the methods of the long interview (Moustakas, 1994), open-ended survey, and document analysis, which encompassed journaling, photographs, and blank new-patient forms that increased the transferability of my study. I used rich, thick

descriptions of the participants and settings, so the reader may transfer the information (Erlandson et al., 1993; Lincoln & Guba, 1985; Merriam, 1988; Creswell, 2013).

Confirmability

I established a confirmable study. Creswell (2013) suggested the importance of confirmability rather than objectivity. In addition, Creswell (2013) stated confirmability may be achieved through the auditing process. Once again, it was essential for my study to depict the participants' true phenomena, as opposed to my assumptions. Documentation on my findings were detailed in writing, as well as my process to discover the findings. An auditor was influential throughout my entire data analysis process to corroborate confirmability.

Ethical Considerations

Throughout my entire study, ethical consideration were applied to every phase of the process, including prior to the actual study occurring, during data collection and analysis, reporting the results, and in the final product (Creswell, 2013). It was necessary to obtain approval from Liberty University's Institutional Review Board (IRB). I filed revisions with the IRB to record changes to my study to enhance the acquisition of participants. All of my participants signed the consent form before they were interviewed and prior to my collection of data. Due to the sensitive nature of the topic, it was imperative that the discussion of people with ASD remained respectful of their disability at all times. Ethical considerations with regard to my writing was used. I properly cited all sources used in my literature review and thoughtfully paraphrased to maintain the original authors' work.

Confidentiality was also an essential consideration. I used pseudonyms for the participants' names to providing anonymity. I protected the dental universities by not disclosing the names of the universities that the participants attended and discussed. I needed to disclose

the purpose of my study, which was to explore the preparedness of dentists and dental hygienists to manage the behaviors of patients with ASD during dental treatment, rather than to evaluate the dental schools' special needs curriculum. Although, the curriculum itself was positively and negatively disclosed in my results section. I used four data collection methods. The participants had the option to refuse to participate in any method of data collection, or drop out of my study at any time.

Additional ethical considerations during the data collection stage of my study included respecting the site, as suggested by Creswell (2013). I needed to schedule the interviews at the convenience of the participants. When interviewing during normal dental office hours, it was imperative that we met in a private room so that the participants did not disclose personal information in front of the office staff or patients. Throughout the data collection stage and analysis, I kept my laptop locked and secured. I also used Google Documents which required a password to access.

Creswell (2013) explained the risks in going native. I had strong assumptions surrounding my proposed study, hence it was imperative to the credibility of my study that I did not side with the participants gesturally or verbally. Although this was difficult to do because of my passion for people with autism. I did not discuss my specific experiences working with children with ASD, beyond that I have taught special education as that could have persuaded the participants to falsely elaborate. Moreover, I did not reveal prior to the interviews that I have provided continuing education for dental professionals, as my experiences may cause false elaboration from the participants, a sense of insecurity, or refusal to participate in my study. Two of my participants attended my continuing education. It was documented in the

transcription if the participants' knowledge was influenced from my teaching. The participants were also forthcoming if their knowledge was a result of my teaching.

I believe in the importance of gratitude. I thanked the participants after taking interest in my study, and after each method of data collection. I shared my results with the participants as a final thank you for their participation. I also shared the results with the five veteran dentists who reviewed by interview questions.

Summary

My transcendental-phenomenological study was designed to explore the influence of preparedness of dental professionals to manage the behaviors of people with ASD during dental treatment. The participants were dental school and dental hygiene graduates from various dental schools in the United States who were practicing dentists and dental hygienists at the time of my study. One participant was a preceptor and instructor at a higher education institution. I selected the participants using snowball and criterion sampling. The criteria included experience as a dentist or dental hygienist, 18 years or older, and treated at least one patient with ASD in their office. I used the participants' dental offices for the sites and also conducted phone interviews.

The research questions focused on the dentists' and dental hygienists' preparedness and personal reactions to managing the behaviors of people with ASD. The questions that guided my study were used to develop the interview questions and open-ended survey questions. The data analysis model was constructed from Moustakas (1994) which included the process of "Epoche, Transcendental-Phenomenological Reduction, Imaginative Variation, Synthesis of Meanings, and Essences" (p. 41).

Trustworthiness was employed throughout my entire study with relation to credibility, dependability, transferability, and confirmability. The ethical considerations included ensuring

confidentiality of universities and participants, revealing my special education background, and sharing the results with all of the participants, and five veteran dentists who reviewed my interview questions.

CHAPTER FOUR: FINDINGS

Overview

Chapter four provides collective information about my participants, followed by twelve brief biographies of my participants. I included a diagram to display how I recruited my participants and a summary of the participants' participation in each data collection method. I described how I developed codes that emerged into seven themes. I presented the following themes: varying knowledge of ASD, empathy, gratification, connection, influence of preparedness, challenges and frustrations, and caregiver involvement. I discussed the central question of my research study and three additional sub themes.

Participants

The participants in my study were comprised of four novice dentists, four experienced dentists, and one retired dentist who instructed at a dental school and acted as a preceptor. I also included 3 dental hygienists in my study. My participants completed their doctoral training at a variety of higher education institutions across Massachusetts, New York, Ohio, and Pennsylvania. Thirteen higher education institutions were represented among my participants' dental schools, residencies, and dental hygiene training programs. Two of my participants practiced dentistry in Ohio and Massachusetts respectively. Eleven participants practiced dentistry in Pennsylvania. My participants ranged from having 2 years of experience to over 38 years of experience. Each dental professional had treated between two and over 1,000 patients with ASD.

I assigned pseudonyms to each participant to provide confidentiality. I included Diagram 1 to display how the participants were recruited and referred. I constructed Diagram 1 to detail how I recruited my participants. I provided each participant with a letter pseudonym for the

purpose of the diagram to protect the identity of the participants from each other. The letter identification is presented in alphabetical order from the date of when I conducted their interview. I used the social media site Facebook to recruit participants D, G, and J through snowball sampling. I recruited participant K through a direct contact, because she was a friend of mine. Participant K suggested participant I. My husband recruited participant A, who suggested participants C, H, and L. Participant C referred participant F. An acquaintance suggested participant D. In addition to the snowball sampling, I also utilized the method of criteria sampling to secure participant B through mass mailings. Moustakas (1994) explained researchers must establish criteria for participants. The criteria changed throughout my recruitment period and was explained in chapter three. I included Table 1 to summarize the participants' participation.

Diagram 1

Recruitment flow chart

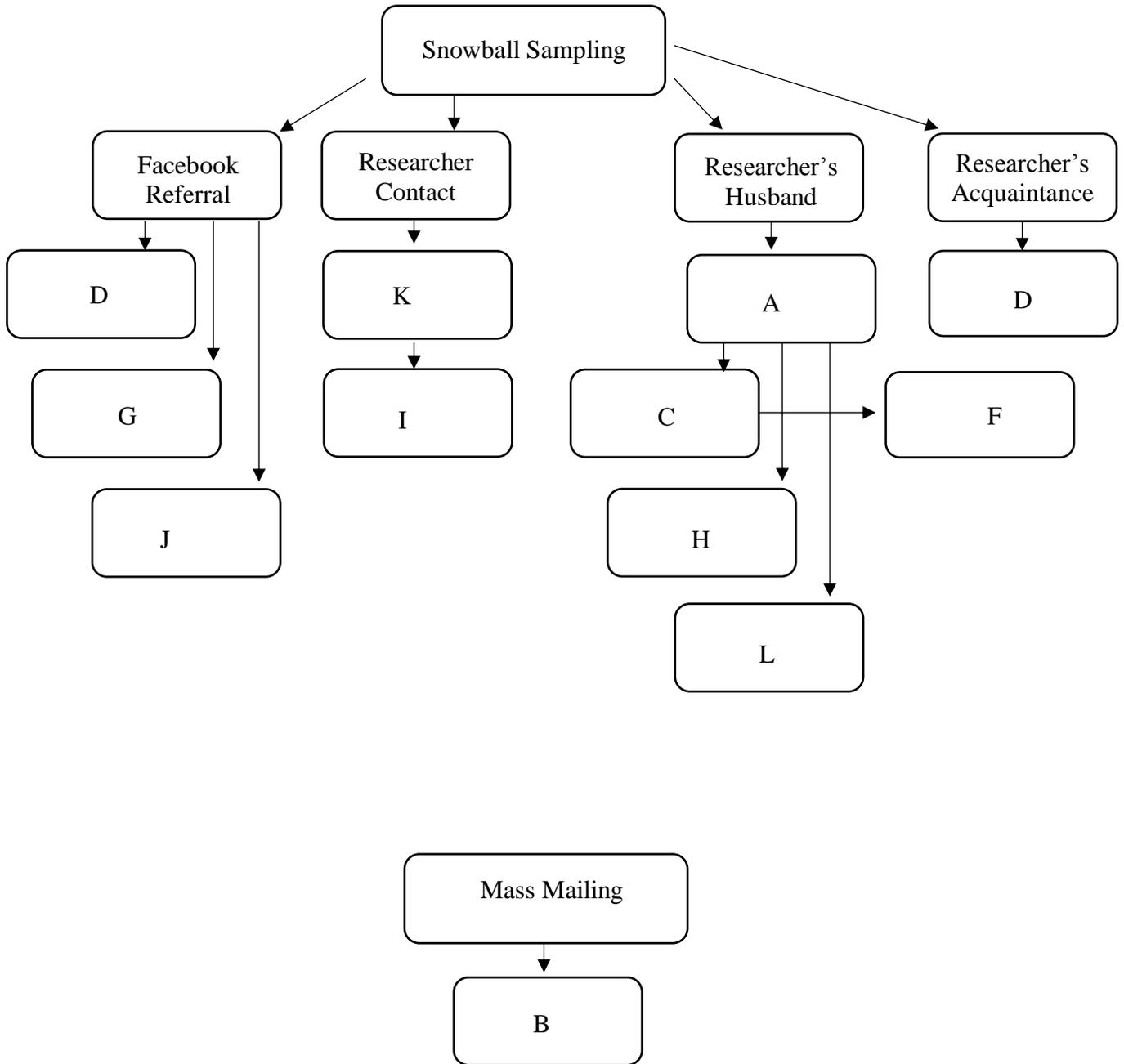


Table 1

Summary of Participation

Name	Interview Completed	Survey Completed
Dr. Kara Smith	6/22/2018	6/25/2018
Dr. Kristin Hyland	6/26/2018	Did not participate
Dr. Anthony Vincent	8/2/2018	10/8/2018
Dr. Ben Norman	8/3/2018	8/9/2018
Dr. Annalyse Cresswell	8/17/2018	8/20/2018
Dr. Joseph Blaine	8/21/2018	Did not participate
Dr. Kathryn Kapusta	9/20/2018	10/7/2018
Dr. Max Terrance	9/24/2018	10/1/2018
Dr. Jennifer Lynch	9/28/2018	Did not participate
Dr. Riley Tino	10/3/2018	10/15/2018
Mrs. Addison Owens	10/5/2018	10/11/2018
Dr. Tabitha Kebert	10/17/2018	10/20/2018

Dr. Kara Smith

Dr. Kara Smith was a novice, practicing dentist who practiced in a pediatric dental office in Pennsylvania (Personal communication with interviewee, June, 22, 2018). When discussing why she became interested in dentistry she stated:

"I became interested in dentistry through my own dentist growing up. I always had really good experiences as a child in the dentist office. I was interested in getting involved in dentistry basically because I love working with children, and I always wanted to do

something that would help others. I found that dentistry allowed me to do that.”

(Personal communication with interviewee, June, 22, 2018)

Dr. Smith pursued her undergraduate and doctoral degrees in New York state. She continued her learning during a two-year residency program and specialized in pediatric dentistry in Pennsylvania (Personal communication with interviewee, June, 22, 2018).

Dr. Smith estimated that she had treated over 40 patients with ASD, ranging in ages from 18 months to 18 years old as a practicing dentist (Survey, June 25, 2018). Dr. Smith discussed her personal strengths treating patients with ASD and wrote, “determining individual goals for patients” was a strength (Survey, June 25, 2018). She suggested that “the goal of the visit is different [for each child] and dependent on what you know their comfort level is” (Personal communication with interviewee, June, 22, 2018). Dr. Smith also wrote an additional personal strength was “recognizing what works well for each patient individually” (Personal communication with interviewee, June, 22, 2018).

Dr. Smith was one of my novice participants with four years of experience in a private practice (Survey, June 25, 2018). Her novice experience did not deter her from seeking newer ideas to help patients with autism. Dr. Smith elaborated on how she individualized patient appointments and stated, “another thing that I've started doing, which I find to be helpful, is a picture book.” She explained that “it's basically the steps involved with the visit. So firstly, entering and just coming into the building, sitting in the waiting room, and then having your name called” (Personal communication with interviewee, June, 22, 2018). She continued and explicitly explained each step the patient encountered during a visit to her dental office, and of course ended her book with “getting stickers at the end.” To further elaborate on her ability to individualize patient appointments, she discussed inserting her patients' favorite characters into

their picture books. She excitedly explained, “It might be Peppa the Pig or Spider-Man going to the dentist!” (Personal communication with interviewee, June, 22, 2018). She showed me a Thomas the Train picture book that she created for one of her patients (Personal communication with interviewee, June, 22, 2018). Dr. Smith mentioned that the picture book makes children with ASD “feel comfortable about what is going to happen and almost practice beforehand” (Personal communication with interviewee, June, 22, 2018).

It was apparent that Dr. Smith utilized her flexibility to accommodate individual patient needs. She stated, “You have to really think outside of the box. So, a lot of times I’m doing exams with my head upside down with the child sitting in the parent chair, because they are comfortable in that chair” (Personal communication with interviewee, June, 22, 2018). Dr. Smith wanted to make sure that she could accomplish her goals regardless of patient limitations.

A top goal of Dr. Smith’s was providing comfort to her patients. The genuine desire to provide comforting care for patients with ASD was apparent. One way that she provided comfort was to make the dental visit “as familiar as possible” (Personal communication with interviewee, June, 22, 2018). She explained that it is helpful to give caregivers things that are used in the dental office to prepare their child for a visit.

For example, even a dental mirror—they sell those at Walmart and any pharmacy. So, I tell parents, pick one of those up and then use that at home. What you can do is—you can put it in your child's mouth and put it to the right side of their mouth, count to five, touch the cheek, take it out. Put it in the other side of the mouth—the top teeth, count to five, touch the cheek, come out [and do the] same exact thing on the bottom. That way the child really gets used to the routine of how we count teeth and what the dental mirror is, so it's not a scary thing, and that seems to help as well. I've also had obviously a lot of

children that have difficulty with the x-rays. We will send parents home with an empty film packet with the tab on it that we use, to have them bite on it; and will have the parents practice at home. That seems to work very well. (Personal communication with interviewee, June, 22, 2018)

Dr. Smith seemed to discover her passion in life with pediatric dentistry. She was able to pair her love of working with children and her interest in dentistry to become a pediatric dentist. Making a difference in the lives of others appeared to be a priority to Dr. Smith. When asked what personal reward she felt when working with patients with ASD, she stated it was “that feeling of making a difference and helping that child out and helping the parents out” (Personal communication with interviewee, June, 22, 2018).

Dr. Kristin Hyland

Dr. Kristin Hyland was a novice, practicing, general dentist in Ohio with two years of experience. She completed her undergraduate and graduate studies, as well as her residency in Ohio. Dr. Hyland began her graduate work in the health field as a pre-med student and majored in anthropology. She stated, “I started doing research on monkey teeth. I started thinking about teeth a little bit more” (Personal communication with interviewee, June, 26, 2018). Dr. Hyland enjoyed the surgical aspect of practicing medicine, but missed the patient interaction. She eventually decided that “dentistry was the best of both worlds” (Personal communication with interviewee, June, 26, 2018). She explained that dentistry is “very surgical, very aesthetically driven, and very hands-on, but I still get that nice patient interaction where you’re building relationships and meeting people on a one-on-one basis (Personal communication with interviewee, June, 26, 2018).

Dr. Hyland was my only participant who was secured through my mass mailing of invitations. She seemed eager to participate in my study and interested in my topic. Dr. Hyland revealed during her interview that she had a cousin with ASD. She explained, “one of my cousins is pretty severely autistic. He’s non-verbal. I grew up babysitting him all through middle school and high school” (Personal communication with interviewee, June, 26, 2018). Dr. Hyland confirmed that having a family member with ASD “really helped” her preparation to treat patients. She described treating patients in her dental office with ASD as “pleasant” and the actual patients themselves as “pretty wonderful”. The endearing comments toward treating patients with ASD may have stemmed from her comfort level and knowledge of how to interact with people with ASD as a result of having a close family member with the disorder.

Dr. Hyland seemed to take pride in having the ability to treat patients with ASD in her office without the need to send them to a specialist. She compared her residency experience to her current dental profession. She explained that in her residency, she used general anesthesia, which is “wonderful and has a place, but for especially the little ones, it’s a big procedure and nobody likes seeing a child intubated” (Personal communication with interviewee, June, 26, 2018). She said, “that it is really hard on your body, and it’s a more dangerous procedure, so being able to treat autistic patients in the chair in the office and awake—it is wonderful” (Personal communication with interviewee, June, 26, 2018).

Dr. Hyland expressed compassion for the parents of patients with ASD. This compassion may also be attributed to the first-hand experience of having a cousin with ASD. She stated:

It’s rewarding. I know the parents are always really appreciative that they don’t have to go to a specialist, or they don’t have to go drive an hour away, or they don’t have to put

them under general anesthesia. So it really helps out the parents too. (Personal communication with interviewee, June, 26, 2018)

Dr. Anthony Vincent

Dr. Anthony Vincent is a retired, pediatric dentist of 36 years who owned a private practice in Pennsylvania. Dr. Vincent qualified as a participant, because he acted as a preceptor for doctoral, dental students at a dental school in Pennsylvania, where he “occasionally lecture(d) on various aspects of pediatric dentistry” including special needs patients” (Personal communication with interviewee, August 2, 2018). Therefore, for the purpose of this study, Dr. Vincent was permitted to participate because of the data he could contribute pertaining to his experience as a practicing, pediatric dentist, as well as working with and lecturing doctoral students.

Dr. Vincent earned his bachelor and doctoral degrees in Pennsylvania. He continued his education in Ohio where he received his pediatric dentistry certificate. Dr. Vincent was candid when he said “I learned nothing” during his predoctoral training on treating patients with ASD. When I asked how he became interested in dentistry, he chuckled and said, “I can’t remember that far back, but it was probably my senior year of college. I was looking at health care, looking at medicine, looking at dentistry, and dentistry seemed like a good option” (Personal communication with interviewee, August 2, 2018).

Dr. Vincent was asked what advice he had been given over the years to treat patients with ASD. He humbly stated, “I can’t really answer that, because one has to consider that I am the expert” (Personal communication with interviewee, August 2, 2018). Dr. Vincent also confirmed that many professionals considered him the expert in the field, such as local pediatricians and the executive vice president of an institute in Pennsylvania that served people

with ASD. He stated, “Usually people are calling me to ask me questions about it [ASD]— versus the other way” (Personal communication with interviewee, August 2, 2018).

The consideration of Dr. Vincent as an expert proved to be true throughout my snowball sampling. His name was suggested by several dentists when I inquired if they could refer me to dentists who fit my criteria and may be interested in my study. Dr. Vincent appeared to be thought of as the guru in his area for treating pediatric patients with disabilities. His experience seemed to be valued among professionals. Dr. Vincent confirmed his own strengths in treating patients with ASD was his “many years of experience along with a residency training program” where he worked (Survey, October 10, 2018). When asked what his weaknesses in treating patients with ASD were, he expressed in his survey “I perceive none” (Survey, October 10, 2018).

Perhaps the confidence he exuded from Dr. Vincent may be attributed to his veteran, experienced status. He confirmed that he averaged treating four patients with autism per week ranging in ages from one to 50 years old during his dental career (Survey, October 10, 2018). Or, possibly the internal gratification that Dr. Vincent felt when treating patients with ASD contributed to his successful career. He said, “I loved my Asperger patients. I found them to be the most charming of all of the patients that I ever treated.” When questioned what personal rewards Dr. Vincent experienced he stated with a big smile, “tremendous personal rewards. You just feel like you are on cloud nine” (Personal communication with interviewee, August 2, 2018).

Dr. Ben Norman

Dr. Ben Norman was a novice, practicing, general dentist with two years of experience. He joined a dental office in Pennsylvania three months prior to the interview. His wife also practiced dentistry approximately 35 miles north of Dr. Norman’s dental office. Dr. Norman

was my only participant who was from another country. He was originally from Canada. He moved to the United States to pursue his undergraduate degree in biochemistry. He completed his doctoral degree in Ohio, followed by a one-year residency program where he worked in a general and a veterans hospital (Personal communication with interviewee, August 3, 2018).

Dr. Norman was a down-to-earth participant and allowed his personality and humor to shine through during the interview. I asked Dr. Norman how he got interested in dentistry. He stated:

Oh man, it's always a good question! My interest in dentistry kind of comes down to really—in terms of my interest in healthcare and in terms of more of a problem solving kind of basis—a lot of working with your hands. When you're in undergraduate [studies] and you're kind of worrying in high school what you want to do...and you kind of think, 'well ok, is medical school for me?'...And I thought dentistry kind of blended both ends with the arts and science... and that kind of appealed to me. You have the ability to kind of run the show- not yet, but eventually. (Personal communication with interviewee, August 3, 2018)

Dr. Norman described that he had treated six to eight patients with autism who had ranged in ages from 10 to 25 years old (Survey, August 9, 2018).

Dr. Norman was easy to talk with, and so it was not surprising that he considered one of his personal strengths to be “establishing communication and setting expectations with patients who have autism and their caregiver” (Survey, August 9, 2018). Interestingly, he also considered “establishing rapport” as the biggest challenge. He stated, “I think that's my main thing when I treat any of my patients is to establish rapport, and that's the biggest thing that I think is the challenge of autistic patients, and so trying to figure out how to do that—or because

it irks me if I don't do that!” (Personal communication with interviewee, August 3, 2018). It seemed Dr. Norman possessed the quality of persistence. He persisted with his challenges until the challenges ultimately became his strengths.

Dr. Norman continued to explain how he established rapport with his returning patients with ASD. He explained that he would say, “Remember this guy? And I would point to the drill and I call it my little electric toothbrush. ‘Remember the suction?’ And I call it Mr. Thirsty.” He said, “I have names for a whole bunch of stuff!” (Personal communication with interviewee, August 3, 2018). Dr. Norman seemed to utilize his skills in rapport building to develop patient relationships and ultimately allow the patient to feel comfortable through recalling past experiences.

Dr. Annalyse Cresswell

Dr. Annalyse Cresswell was a novice, practicing, general dentist who graduated from a dental school in Pennsylvania. She was employed through a community hospital with two years of experience (Personal communication with interviewee, August 17, 2018). Dr. Cresswell became interested in dentistry through her personal experience with dental braces. She discussed that her general dentist put the braces on her teeth. Dr. Cresswell stated, “He let me hold a mirror and told me why this procedure was going to move my teeth. I just thought it was really interesting” (Personal communication with interviewee, August 17, 2018). Dr. Cresswell was in the process of working toward becoming an orthodontist at the time of her interview. In fact, Dr. Cresswell initially declined to participate in my study. She was engrossed in studying for the Graduate Record Examination and applying for orthodontic residency programs (A.C., personal communication, May, 30, 2018). Dr. Cresswell kindly offered that if I required participants at a

later date she may reconsider. I approached Dr. Cresswell a few months later, and she accepted my invitation.

Dr. Cresswell estimated that she had treated 15 to 20 patients of all ages with autism. She had treated children, adolescents, and adults (Survey, August 20, 2018). She confirmed in her post interview survey that her perceived strengths were “maintaining a calm and encouraging outlook on [the] treatment and explaining each step in [the] procedure.” Dr. Cresswell explained that she structured the dental environment to “maintain a quiet and calm atmosphere” for her patients with autism.

Dr. Cresswell was my most reserved participant in my study. It seemed that she wanted to ensure that her answers to my questions were exactly what I was searching for. It was essential that I reassured Dr. Cresswell that her answers were perfect so long as she was providing me with her experiences treating patients with ASD. Dr. Cresswell became more relaxed when we overcame the barrier of her understanding the purpose of my study. She did not elaborate with her answers as much as the other dentists and stated, “Sorry I can't give you a whole lot... I haven't had a ton of experience” (Personal communication with interviewee, August 17, 2018). Dr. Cresswell was under the impression that I was a researcher for the hospital. The misunderstanding was not cleared up until after the interview was completed.

I posed the final question to Dr. Cresswell that asked if she had anything additional to discuss about treating patients with ASD. She stated, “It's tricky [because] it's not my own practice. I kind of have to go with how things were set up here” (Personal communication with interviewee, August 17, 2018). I determined that Dr. Cresswell may have been reserved in her interview as a result of the misunderstanding of my occupation.

Dr. Cresswell had the calmest personality of the participants in my study. It was apparent throughout her interview that her calm demeanor was one of her strengths when treating patients with ASD. She stated:

You have to stay open-minded...you can't get frustrated. If all you do today is show them everything and that's kind of as far as you get—don't take that as a failure.

Hopefully the next time they will have a better experience and you will be able to get more done. (Personal communication with interviewee, August 17, 2018)

Dr. Joseph Blaine

Dr. Joseph Blaine was a veteran, practicing dentist in Pennsylvania. Not only was Dr. Blaine an experienced dentist, he was also a veteran in the United States Army. He proudly served his country until 1983. During his undergraduate years, he studied pre-medicine and zoology, which “was a basic health sciences background” (Personal communication with interviewee, August 21, 2018). He continued his education in a graduate program in pathology at a university in Ohio where he discovered his interest in dentistry.

Dr. Blaine was involved in research on lymphocytes and the immune system and the correlation to dental disease. He interacted with researchers who were also dentists during his research and they discussed “being involved in patient care” and said, “Have you ever thought about dentistry?” Dr. Blaine stated, “I seemed to have a knack for good hand skills, and I was interested in being involved in direct patient care, so it was a good fit” (Personal communication with interviewee, August 21, 2018).

In the years following, Dr. Blaine “paid back” the Army on assignments that carried him to Europe and New York. While in New York, he decided to apply to pediatric dental programs (Personal communication with interviewee, August 21, 2018). He landed several interviews and

was accepted into a two-year pediatric residency program in Ohio. Dr. Blaine completed his general residency program in special needs when he was in the army, but he said, “I seemed to gravitate toward pediatrics.” He explained:

I worked on the outskirts in a clinic all by myself. I was treating army soldiers and their families. The soldiers never kept their appointments, but the families had kids out there, and they needed care. So I said, ‘I will take care of you guys.’ I started to get more and more experience working with children. (Personal communication with interviewee, August 21, 2018)

Upon his graduation, he moved back to Pennsylvania where he originated from and raised four sons with his wife. In 2005, he built a new dental office that he designed. He stated, “It’s set up the way I want it to be” (Personal communication with interviewee, August 21, 2018). Dr. Blaine also taught on Fridays at a dental school in Pennsylvania.

Dr. Blaine’s absolute love for children was evident in his life’s work. Dr. Blaine had a true passion for children. He discussed with a smile:

My wife says I am a kid magnet. So, when I go in a room I gravitate towards the kids and the kids gravitate towards me. And my wife spends time with the adults. So that’s why I am in pediatric dentistry. (Personal communication with interviewee, August 21, 2018)

Dr. Blaine discussed the positive interactions he had with patients with ASD and the warmth he displayed after treatment. He said:

You worked hard with them, and they have become a great patient. They look forward to come to see you. They high five you. And even the ones that don’t interact with you a lot, they just kind of tolerate what you are doing, but they know when it’s over they give you a hug. And at the end of the [entire] appointment, it’s time to give a hug

or a high five. What I find is—the ones that really struggle or have a difficult time sitting still or following directions, and when we get done, it's like yeah! And they are happy.

(Personal communication with interviewee, August 21, 2018)

It was obvious that Dr. Blaine used his interpersonal skills to execute successful appointments. He stated:

One of the things I learned in my training program was read the patient. You have a set way that you are going to approach everybody. [Then you can engage in] reading their reaction. Then [you can determine] ok, we are a little bit off. We are going to take another path here, but we are going to keep guiding back. Just realizing that there is always an adjustment to everything you do.

Mrs. Kathryn Kapusta

Kathryn Kapusta was a registered dental hygienist who practiced dental hygiene for 32 years in Pennsylvania. She said that she got interested in dental hygiene because “my mom’s best friend was a hygienist years ago. I was in 4th grade, and I went to work with her for the day. From that day on I wanted to be a dental hygienist” (Personal communication with interviewee, September 20, 2018). Mrs. Kapusta attended college in Ohio. She earned her associate’s degree in applied science. Mrs. Kapusta worked for a local dentist in a town close to where she was raised (Personal communication with interviewee, September 20, 2018). She treated four patients with autism throughout her career ranging in age from two to 20 years old (Survey, October 7, 2018). Mrs. Kapusta was also honest in her description for treating patients with ASD. She said, “I have twins [patients]. I worry about them biting my fingers off!” (Personal communication with interviewee, September 20, 2018).

Mrs. Kapusta was my eldest dental hygienist participant. She treated limited patients with ASD, though she had treated other patients with disabilities throughout the years (Personal communication with interviewee, September 20, 2018). She exuded a Christian worldview throughout the interview. Mrs. Kapusta confirmed, “Our Christian atmosphere is ABSOLUTELY what makes our practice unique and successful with apprehensive and autistic patients (K.K., personal communication, November, 18, 2018). She stated that you must “love them and show them you care.” Mrs. Kapusta projected empathy when she discussed treating patients with ASD. I asked her to state three words to describe her feelings when she treated patients with ASD. She declared, “empathy, love [and], compassion” (Personal communication with interviewee, September 20, 2018). Mrs. Kapusta described that the dental staff played Christian music as one way that the dental atmosphere encouraged successful treatments for patients with ASD.

Likewise, Mrs. Kapusta considered her personal strengths treating patients with ASD to be her “compassion, loving and genuine [nature] (Survey, October 7, 2018). She also stated during the interview, “I must have a natural instinct.” Mrs. Kapusta gave me a tour of her dental office. An oversized teddy bear, named Jimmy, with a giant, pearly smile was seated on the dental chair awaiting a patient for the next day. (Figure 1) Mrs. Kapusta explained that she demonstrated how to brush Jimmy’s teeth with patients to get them acclimated to her dental hygiene room and procedures (Personal communication with interviewee, September 20, 2018).

Dr. Max Terrance

Dr. Max Terrance owned a private, pediatric dental and orthodontic practice in Pennsylvania (Personal communication with interviewee, September 24, 2018). He did not decide on dentistry as his profession until he was in college. He explored the pre-healing arts

pathway at a college in Pennsylvania. Dr. Terrance explained that it “had broadly similar requirements for medical, veterinary, and dental medicine. I did not give serious consideration to veterinary medicine, but I did explore the other options before settling on a dental trajectory” (M.T., personal communication, October, 14, 2018). He stated:

I explored the different avenues, and all the medical doctors that I talked to were very negative about the profession- insurance companies and how they practiced, loss of income, and having to be on-call all the time. I shadowed a family dentist in Erie, and I actually did an internship. He really turned me on to the advantage of being in the dental profession. So I made my way in that direction. (Personal communication with interviewee, September 24, 2018)

Dr. Terrance earned his doctorate of dental medicine from a university in Pennsylvania in 2007. He completed a residency in 2009. Dr. Terrance earned a specialty certificate in pediatric dentistry from a university in Ohio (Personal communication with interviewee, September 24, 2018).

Dr. Terrance seemed to be a strong advocate for treating patients with ASD. Dr. Terrance treated over 100 patients with ASD ranging in age from one year old through early adulthood (Survey, October 1, 2018). Although he owned a pediatric practice, he treated patients with severe cognitive deficits beyond the teenage years (Personal communication with interviewee, September 24, 2018). He stated:

Part of the issues we know in pediatric practices like mine, most of these kids are not going to be with us forever, so we have the responsibility as they age out to hopefully [have them] be able to accept dental care and in a more traditional dental office where the

treatment may not be as adaptive as what they are used to in our office. (Personal communication with interviewee, September 24, 2018)

Another way that Dr. Terrance displayed advocacy was through coaching his staff. When he described experiences treating patients with ASD in his dental practice he stated:

We may forgo some of the traditional things that are done. I have had to coach my staff on this quite a bit, where you don't have to put the spinning prophylaxis brush in the mouth and go over every tooth and make them lay down in the chair. We need be adaptive to what the child is willing to accept. In my practice, we try and be as flexible as possible, so that we are promoting and making sure that we are identifying any oral health issues, [and we] try as non-invasively as possible [to] get kids to accept routine treatment.

(Personal communication with interviewee, September 24, 2018)

Dr. Terrance does not stop at advocating for patients with special needs inside of his dental practice. He also supports ASD in his community. He explained:

There's an autism walk that's always here to raise money for the autism society. I try and take part in that every year; and I think it's a nice experience to be outside of the office, and have a really non-threatening interaction with a lot of the same kids and parents that I see in the office. (Personal communication with interviewee, September 24, 2018)

Dr. Jennifer Lynch

Dr. Jennifer Lynch was a general dentist in Pennsylvania. She described becoming inspired to become a dentist because of medical issues as a child. She explained:

I had a lot of jaw problems as a kid, so I spent a lot of time at the dentist with TMD (temporomandibular disorder), and it just was really interesting. When I went to college I had to declare a major, and I declared dentistry. I've loved it ever since. (Personal

communication with interviewee, September 28, 2018)

Dr. Lynch completed her undergraduate course work in three years from a small university in Pennsylvania. She took a lot of pride in the college and proudly stated:

I got accepted [to graduate school] early, even though a lot of people told me that you couldn't, since I went to a little school like Bronzer (Pseudonym). It was a little nothing school. So I always like to tell people you get out of it what you put in it. It doesn't matter where you go. (Personal communication with interviewee, September 28, 2018)

Dr. Lynch and her staff combed through her patients' charts prior to the interview. She stated, "We tried to search our brains and we only have a couple [patients with autism]... so I don't have a large exposure" (Personal communication with interviewee, September 28, 2018).

Dr. Lynch confirmed that she treated many patients with Down Syndrome. She suggested that families who have children with disabilities often "talk in their own communities" (Personal communication with interviewee, September 28, 2018). Her statement may have indicated why she treated children with other disabilities and not ASD.

Although Dr. Lynch did not treat many patients with ASD, she seemed to believe in the importance of providing individualized care. She said, "They all have something individual that makes them tick, and you got to figure out what it is" (Personal communication with interviewee, September 28, 2018). She expressed:

Everybody's challenging in their own way. People without autism hate to see the dentist also; and they have their own challenges as to whether it be a large guy with COPD who can't lay back, ... I guess I treat everybody the same. Whatever they need to do to make the treatment pleasant. I hate to use the word pleasant, but acceptable and want to come back. (Personal communication with interviewee, September 28, 2018)

Furthermore, she stated:

We try to find what things they like to focus on and try to use that to our advantage. We try to figure out what day and time or time of day works best for them. Some kids are better when they first wake up and other ones are better later in the day. If we find a certain time or we find if they're more relaxed or less stressed, we try to schedule it around their schedule to try to accommodate for them to be more relaxed. (Personal communication with interviewee, September 28, 2018)

Dr. Riley Tino

Dr. Riley Tino was a pediatric dentist in Massachusetts, who was married with two children aged four and five. Dr. Tino followed in his own father's footsteps. When I asked how he became interested in dentistry, he stated, "My father was a general dentist so that first introduced me to it" (Personal communication with interviewee, October 3, 2018). Dr. Tino reflected on dentists' comfort levels treating patients with ASD and spoke highly of his father. He said:

Even when I was growing up, my dad was my dentist, and he is a really nice guy and as nice as they come. And even some of my general dentist friends who have kids referred their kids to him, because they were like, 'I don't want to deal with them, he's good with them!' (Personal communication with interviewee, October 3, 2018)

Dr. Tino attended universities in Pennsylvania and Massachusetts for his undergraduate and doctoral degrees respectively. He also completed his residency program in New York. Dr. Tino completed an associateship for three years following his graduation. Then he said, "I opened up my own practice with my partner in 2013" (Personal communication with interviewee, October 3, 2018). Dr. Tino had practiced dentistry for ten years.

He confirmed he treated hundreds of patients with ASD throughout his career. He typically treated one to three patients with ASD daily. He stated, “Since we are a pediatric and specialties office, we see them pretty much every day- at least one child on the spectrum every day and some days, we have a dozen or more” (Personal communication with interviewee, October 3, 2018). Dr. Tino was my participant who treated the most patients on a daily basis. He expressed, “They’re kind of the highlight of my day. I love seeing the kids, all kinds of neurological issues, but autism has become the catch all so it is sometimes tough to kind of parse them out” (Personal communication with interviewee, October 3, 2018). Dr. Tino has treated patients as young as two years old and up to 55 years old with ASD (Survey, October 15, 2018).

Dr. Tino participated via phone, however, it was easy to tell that Dr. Tino had a very charismatic personality. He spoke with a lot of energy and excitement. In fact, he considered his greatest qualities for treating patients with ASD to be his “experience, patience, and jovial attitude” (Survey, October 15, 2018). Through Dr. Tino’s experience, he realized:

You have to play multiple roles. For certain kids you have to do the more stereotypical being sickly sweet and charm them and they do great. Some kids just scoff at that. Some kids I have to stand up tall and be the man!” (Personal communication with interviewee, October 3, 2018)

Dr. Tino’s ability to always stay emotionally in control continued to radiate throughout the interview. He expressed:

The number one rule when you treat a challenging patient is you always stay in good spirits, because if you can’t get anything done and the kid is just not having it that day, parents understand that, especially kids either on the spectrum or with other behavioral

issues, or even just anxiety. But as soon as you yell or lose your cool, or even [become] too assertive, that's when not only is it bad because you lose control, or you could lose control, but the parents see that very much right away; and they don't care if it's their kid who is screaming and threatening to punch you.

Dr. Tino also stated, "I am a pretty relaxed guy...but at the same time, everybody gets frustrated" (Personal communication with interviewee, October 3, 2018).

Dr. Tino seemed to possess an ideal mix of confidence and humility. He admitted that it was also frustrating to treat patients with ASD at times. He was not reluctant to admit his frustrations. He stated:

I have infinite patience up to 13 [years old]. But that's one of those times that I have to really check myself and say, you know, remember, this person—especially teenagers with either autism, or ODD, or social anxiety, or things like that, they are not processing the situation the same as you are and you have to walk the line between not treating them like they are a six-year-old, but having the same kind of awareness. (Personal communication with interviewee, October 3, 2018)

In addition, he expressed that he occasionally had to "remind myself that our teenage ASD patients are not trying to be rude, but that their interpretation of social cues are often different from my own" (Survey, October 15, 2018).

Mrs. Addison Owens

Mrs. Addison Owens was a unique participant. Over the years she worked part and full time as a dental hygienist. When describing her current job, she stated, "Right now, I am part-time with two different school districts. I am off in the summer, but I will fill in at dental offices if needed" (A.O. personal communication, November, 18, 2018). She stated, "I service

kindergarten through 7th grade for the most part. About eight to nine hundred students”

(Personal communication with interviewee, October 5, 2018). She also served as a resource for grades eight through twelve.

When asked how she became interested in dentistry, she explained:

I had a friend that was older than me. She was my neighbor growing up, and actually she went into it and that's how I was like, “Oh, that sounds like a good field.” That's exactly how I got into it. (Personal communication with interviewee, October 5, 2018)

Mrs. Owens attended dental hygiene school in Pennsylvania and continued her education to receive her bachelor’s degree in education. She had initial plans to teach dental hygiene in higher education, but she relocated away from the university where she intended to teach. However, she knew that she could work in school districts. She was pursuing her master’s degree in health and wellness at the time of my study.

Although Mrs. Owens worked in the school systems at the time of her interview, she mostly discussed her experiences treating patients with ASD in dental practices. She confirmed she had treated a couple of patients with ASD throughout her career ranging in ages from 5 years old to adulthood (Survey, October, 11, 2018).

Mrs. Owens was the only participant to discuss that she had close friends with children who had autism. She expressed that initially she had one friend who had two children who were diagnosed with ASD. Over the years, she had “a couple friends that had children diagnosed with it” (Personal communication with interviewee, October 5, 2018). Mrs. Owens confirmed that she learned the virtue of patience by observing her friends parent their children with ASD. She stated, “I have learned and watched their caregivers have a lot of patience with them, and that

helps me understand that is needed” (Personal communication with interviewee, October 5, 2018).

She brought an exclusive perspective to my study that appeared to unknowingly transfer to her professional career. Mrs. Owens seemed to express being conscientious to caregivers’ feelings that may be a result of friendships with parents who have children with ASD. She stated, “You don’t want to ever offend the parents” (Personal communication with interviewee, October 5, 2018). She elaborated:

There’s a bit about not wanting to offend the parents, or maybe [concerned] how you react when the parents are in the room. So when the parents are in the room, it kind of makes me nervous. I know what I’m doing. I’m confident. It’s just that I sometimes don’t know what they are thinking. I’m doing the right thing and I know what to do to kind of get through the treatment.

Miss Tabitha Kebert

Miss Tabitha Kebert is a pediatric dental hygienist in Pennsylvania. She had practiced dental hygiene since 2003 (Personal communication with interviewee, October 17, 2018). When asked how she became interested in the dental profession, she stated:

I started in fourth grade at Dr. Marlena DeGrange’s (pseudonym) office... as an Orthodontic patient. I couldn’t believe what she did for me to change my smile, and I knew from then on that I was going to be in dental. So I started working there when I was 14 and did things that I could do at that age like cleaning the chairs. And they taught me sterilization and things like that; and I just went from there. (Personal communication with interviewee, October 17, 2018)

Miss Kebert went to a technical school in Pennsylvania for five years. She discussed that she learned a “basic foundation” for treating patients with special needs during her dental hygiene training (Personal communication with interviewee, October 17, 2018). Miss Kebert elaborated on her knowledge of treating patients with special needs. When asked if she could clarify what she learned in her dental hygiene training and what she learned through her experience working as a dental hygienist, she predicted:

I would say probably 75% of it was on the job training. A lot of it is just what I have found has worked when I have worked with special needs kids and patients in general. Because prior to being in pediatrics, I did work in a general practice in the years leading up to working in pediatrics, and we had a lot of special needs patients in the adult offices as well. So, most of it was just learning through experience—this is what works, this is what didn't, but the basic foundation is what they teach you in school. (Personal communication with interviewee, October 17, 2018)

She treated patients with ASD ranging in age from 2 years old to over 30 years old (Personal communication with interviewee, October 17, 2018). When asked how many patients with ASD she had treated, she confirmed “Unsure. Too many to count” (Survey, October, 20, 2018).

Miss Kebert was an extremely enthusiastic participant that absolutely loved her job. She said that she is often called the Tooth Fairy by family and friends. It was apparent that Miss Kebert had a true passion for dental hygiene and for working with patients with special needs regardless of the challenge some patients may present. She excitedly exclaimed:

I love it! I love the challenge. I'd take those kids over and over and over again. If I know there's a challenging one, I would love to have it on my schedule, because I love

working with them and seeing how they improve over time. It's amazing! It's so rewarding! (Personal communication with interviewee, October 17, 2018).

When describing a specific patient with ASD that she treated she stated, “They're the sweetest, they're so sweet. You just have to find a way to get into their world and help build on what they're comfortable with” (Personal communication with interviewee, October 17, 2018). The love that Miss Kebert possessed for her patients was evident, she said:

I love having them come in and they used to be afraid, and now they'll come in and they look forward to seeing you! I love when they build on that foundation that you set up for them. (Personal communication with interviewee, October 17, 2018)

Miss Kebert utilized creativity as a means to reach her patients with ASD through a common desensitization technique that she called sights and sounds. She discussed that she wanted her patients to have fun during their appointment and perhaps forget that they were receiving dental care. She discussed:

Sights and sounds are one of those things that I do over and over, every time they come as long as they're showing that there is some concern for them. Then most of the time, within a couple times, they've seen it all. They just learn to trust you and they can just hop in and go. But if they're showing a nervousness at all, the sights and sounds teaches them. [The patients believe that] we're just playing. That's probably my biggest goal. If parents ever asked me about that, my goal for your child is to make them think that they played the entire appointment, and if they have a lot of anxiety coming in, sometimes I'll just say, “You know what, why don't we just play today?” Then they think they're off the hook. My goal is to make them play the entire appointment, so they don't ever realize

that I stopped playing with them, and that I actually did my job. (Personal communication with interviewee, October 17, 2018).

Results

The main source of my data was the participant interviews. The participant surveys served as a secondary, supplemental source that allowed the participants time to construct their responses. The document analysis and journal entry served as the final sources of data for my analysis. I developed fifty-one individual codes throughout my analysis. (Table 2) Then I compiled similar codes together. Seven themes emerged after careful consideration. There were six themes that pertained directly to my research questions. The themes represented were: varying knowledge of ASD; empathy, gratification; establishment of rapport and trust; and the influence of preparedness. One unexpected theme surfaced that was indirectly related to my research questions—caregiver involvement, which was heavily discussed by my participants.

Table 2

Codes Related to Themes

Theme	Codes
Varying Knowledge of ASD	knowledge of ASD; knowledge of what to do but not doing it; number of patients in office
Empathy	family with ASD; patients are all different; acknowledgement hard on parents
Gratification	gain trust; pleasant experiences; creativity; rewarding
Connection	triggers; comfort level; goal setting; really getting acquainted with patient; establishing rapport; flexibility
Influence of Preparedness	mentors; transfer of knowledge; figuring out what is already known; training; no outside influence; friends with children who have autism; continuing education; life-long learning; acknowledgement of limitations; collaboration with other professionals; team work in the office; experience; public and autism; social media; residency
Challenges and Frustrations	tantrum; frustrations; non-verbal; communication barriers; big kids; previous bad experiences; injurious behaviors; combative; difficult processing; language barriers; sensory integration; behaviors; time constraints; establishing rapport
Caregiver Involvement	parents help at home; helping parents at home; parental support or assistance in the office; pitfalls of caregivers; utilizing family in appointments; advice

Theme One: Varying Knowledge of ASD

I asked my participants to share their overall knowledge of ASD. One hundred percent of my participants were able to offer their knowledge of ASD. My participants revealed a scattered conceptual knowledge of ASD during all of their interviews. Their knowledge appeared to be indicative of the quantity of patients the participants treated. Five of my participants provided a basic and broad knowledge of ASD. These were the participants who treated minimal patients with ASD in their dental office. However, it must be acknowledged that although the participants offered a limited definition of ASD, my impression of their willingness to treat patients was commendable.

Mrs. Owens was honest in her response when she shared her knowledge of ASD and stated, “Well, not a lot. I know that there's different spectrums. I know some [people] are more functionable than others. That's all I really know” (Personal communication with interviewee, October 5, 2018). Mrs. Owens wrote in her survey that she had treated “a couple” of patients with ASD (Survey, October 11, 2018). Dr. Lynch thought she may have only ever treated a couple of patients with ASD during her career as well. She stated, “I know that it's genetic, and I know they're not sure what causes it. I know there is a great spectrum in autism as far as function and how they like to be touched and how they react to people” (Personal communication with interviewee, September 28, 2018). Dr. Cresswell stated that she “did not have a ton of experience” treating patients with ASD. She shared that “when you're autistic you like a specific routine. Most [people with] Asperger’s are highly intelligent. They are not quite as restrictive as those with autism” (Personal communication with interviewee, August 17, 2018). Mrs. Kapusta confirmed that she had treated four patients with ASD over her career of 32 years. She said, “They’re very smart. I’ve noticed [they are sensitive to] noises and they can be

loving. As they get older, they can be very physical” (Personal communication with interviewee, September 20, 2018).

Dr. Norman expressed that he treated “six to eight patients thus far” in his career (Survey, August 9, 2018). He stated, “There's a varying spectrum in terms of autism in general...there are certain triggers for patients that can elicit a response... and social cues, that we [typically developing people] kind of take for granted that are not really there.” He also discussed that he wanted to see patients' comfort levels during treatment and determine if patients can follow simple commands. He was unsure of the physiology of the disorder (Personal communication, 8/3/2018).

On the contrary, the participants who treated an abundant of patients with ASD shared a more detailed description of the disorder. Seven of my participants discussed their knowledge of ASD during their interviews with a deeper understanding and some of my participants provided examples of how they implemented a reduction to stimuli for their patients. Dr. Terrance estimated that he treated over 100 patients with ASD (Survey, October 1, 2018). He shared:

It's a cognitive disability that arises in early childhood. Most patients with autism have some common traits, such as being very repetitive with their actions [and] their play. [They] tend to avoid some types of direct eye contact and human interaction depending on who the person is that is interacting with them. As I mentioned, there are some children on the autism spectrum that first appear, behaviorally interaction wise, almost normal; and then all the way down to kids who are nonverbal, aggressive, show self-injurious behavior, and are very difficult to manage in any kind of routine way. (Personal communication, September 24, 2018)

Dr. Smith estimated that she treated 40 patients with ASD in her office (Survey, June 25, 2018). She discussed:

Autism spectrum disorder is a disorder that can vary hugely dependent on individuals. They're finding genetic basis for it. They're finding certain mutations that can cause it. There's a lot that isn't known about it. It can really affect sensory processing and cognitive abilities. When they categorize it, there used to be variations of Asperger's [syndrome] and autism; and now it kind of falls under the one big scope of autism spectrum. We see the wide variation in IQs and processing, and just even the ability to communicate. You can see wide varieties of individuals. (Personal communication with interviewee, June 22, 2018)

Dr. Tino expressed that he treated “hundreds [of patients] over the years” who had ASD (Survey, October 15, 2018). He discussed in detail how he treated patients with ASD in his dental practice throughout his interview. When asked to share his overall knowledge of ASD he stated:

It's a developmental anomaly, condition, or syndrome depending on how you want to define it and affecting, I believe at this point, the most aggressive measurement is 1 and 50 somewhere on the spectrum. It's a collection of different neurological traits, anywhere from mild social issues to severe mental retardation. (Personal communication, October 3, 2018)

Dr. Blaine did not confirm the approximate number of patients that he treated. He described his knowledge through how he interacted with patients. He discussed:

I think at an early stage, I realized that autism wasn't always the same. It's a spectrum and this was before they actually said there was a spectrum. There were different levels of autism; and so my approach has been that maybe these patients aren't really here with us. They are somewhere else in their mind. (Personal communication, August, 21, 2018)

He continued:

Well, it's kind of a connectivity problem. I think a lot of times there are areas and approaches and levels of connectivity..., but you can't connect on all levels, and finding out what level they operate at and how you can keep their attention is important. So when I approach a patient, I want to see do they respond to verbal? Do they respond to tactile? And then just kind of desensitize [the patients] or getting them used to what I am going to do by taking gradual steps and see if they react in a positive way. Then, I continue on and progress to a more involved procedure or technique. If they respond in a negative way, then I back-track and try another approach. So I am looking for connectivity with that person. (Personal communication, August, 21, 2018)

Dr. Hyland did not confirm the number of patients that she treated, but she stated succinctly:

The spectrum itself is very wide ranging. It can be very mild to very severe- verbal and nonverbal. Levels of communication really vary, and I know a lot of times that they can have triggers, so that's what I mostly try to avoid in the dental office. (Personal communication, June 26, 2018)

She also stated, "Autism often goes hand in hand with sensory disorders... I always ask about lights, sounds, touch, [and what] bothers them (Personal communication with interviewee, June 26, 2018).

Dr. Vincent expressed that he had treated “too many patients to remember” when asked how many patients with ASD he had treated during his career (Survey, October 8, 2018). He discussed:

Autism has morphed over my career. You know, from being classified probably as mental retardation early on in the early 80s, to getting the label autism, then going to autism spectrum disorder. There's numerous categories that fall under it—Not Otherwise Specified. They had Rett Syndrome for a while as part of autism. It's just one of those diagnoses that is continuing to morph as we find that there are more children that meet the category of the so-called spectrum. I think it was severely undiagnosed as mental retardation early on. (Personal communication with interviewee, August 2, 2018)

Miss Kebert expressed that she had treated “too many too count” when asked how many patients with ASD that she had treated (Survey, October 17, 2018). When asked of her overall knowledge of ASD, she discussed extensively about the need to reduce stimuli for the patients. She said:

The biggest thing is just the stimulus... Where we hear, sights, and sounds, and smells, and things like that, theirs (people with ASD) are much more magnified... I think it is a lot of that they lack eye contact. They have difficulty communicating and may get very agitated with certain stimuli, so you just have to decrease all that as much as you can. (Personal communication with interviewee, October 17, 2018)

The participants who provided the greatest, overall depth of knowledge of ASD were primarily the pediatric dental providers. Every pediatric dentist or pediatric dental hygienist shared extensively about ASD through their definitions of the disorder or their descriptions of how they treated patients with ASD. Dr. Hyland was one exception. Dr. Hyland treated children

with ASD, but also provided care to adult typically developing patients. Dr. Hyland's familiarity may have been impacted by the relationship with her cousin who had ASD.

The theme of varying knowledge appeared to have some degree of correlation to the participants' quantifiable experiences of treating patients with ASD. Though, it should not be presumed that the statements provided are the only overall understanding of the disorder. Many of the participants shared how they treated patients with ASD in their office, which is also indicative of their inclusive knowledge of ASD. A discussion of how the participants treated patients with ASD in their offices is discussed with the central research question.

Theme Two: Empathy

A theme of empathy toward treating patients with ASD emerged throughout the participants' interviews twenty-seven times among eight of my participants. Some of my participants eluded to not viewing the patients differently than typically developing people just because of their disability. Other participants discussed the need to treat the patients differently because of their disability. Although the statements at the surface level sounded completely opposite, the connotation was exactly the same. People with ASD need to be treated with a humanistic approach and with great empathy. Mrs. Kapusta shared,

You just have to love them and you have to show them that you really care, like really care. Not just, 'oh, get my job over with.' You have to really care, and show them compassion, and treat them like you would want to be treated. It has to be genuine. I think they see that. (Personal communication with interviewee, September 20, 2018)

When I asked Mrs. Kapusta to list three words that described her overall feeling when she treated patients with ASD, she stated, "empathy, love, and compassion" (Personal communication with interviewee, September 20, 2018). Mrs. Owens had a personal connection through watching her

friends parent their children with ASD. The empathetic undertone in her interview was apparent. She said, “If you are a little kinder and slower, not that we aren't always kind, but slower and show them the things that they can touch or feel, and the things before we do it- that’s helpful” (Personal communication, October 5, 2015).

Dr. Hyland’s relationship with her cousin who had ASD may have provoked an empathetic tone throughout her interview. She stated, “These are patients who really need care and aren’t necessarily getting it from a lot of other places” (Personal communication with interviewee, June 26, 2018). Dr. Hyland’s discussion of a challenging experience treating a patient with ASD also depicted an example of her empathy. She stated:

My most challenging case was actually probably when I was a dental student...and when I was in the pediatric office that focused on autism spectrum. I'm pretty petite. I'm only about five-foot, so a lot of the times the kids can get close to my size—if not bigger. We had one little boy. He was a little larger than me. He was probably 12. He was pretty severely autistic and he had an abscess. It was decently sized...we really couldn’t let him go. We had to get the tooth out; and the office that I was in did not do sedations. So we actually had to papoose him. Mom had to come in and hold the legs and just get him to stand still for it. You feel bad, because you know it’s traumatic, but at the same time, it has to be done—it has to—their health is the main priority.

Dr. Hyland’s empathy was paired with feelings of responsibility to treat her patient.

Dr. Vincent may have also felt compelled to help children with ASD because of a lack of care they may receive elsewhere. He said:

In my opinion, many family dentists are literally terrified of children to begin with. They look at a child and they say- I take care of the parents, I guess I have to really try and be

nice to that kid, but I really don't want them in my practice. And take that one step further, you have a family dentist that has someone who brings in a special needs child, and boy, I'll tell you, that can really flip them out. (Personal Communication, August 2, 2018)

Even though the perception from my participants may have been that people with ASD may not be receiving adequate care from other professionals, their collective perspective was to treat patients with ASD with the same dignity as a typically developing patient. Dr. Vincent said, "treat the autistic patient like you would any young child patient" (Personal communication with interviewee, August 2, 2018). Likewise, Dr. Tino stated, "treat each patient as an individual and not just see this as a person with autism that you treat [and treat them] like the last [person with ASD] that you saw" (Personal communication, October, 3, 2018).

The theme continued to transpire with sentiments from Dr. Terrance. He discussed: I think that it's definitely good to see the person as a whole-who isn't just somebody who has some teeth, who comes in every six months and [who you are] supposed to look at, [but] who has a whole outside life and family and to some extent needs to be taken into account, to treat them properly and empathetically. (Personal communication with interviewee, September 24, 2018)

Dr. Lynch also confirmed that you must treat the patient "just like any child and "not different than any other patient. She expressed, "Everybody's challenging in their own way. People without autism hate to see the dentist also and they have their own challenges..." Dr. Lynch reiterated "a kid is a kid or an adult is an adult that needs taken care of. I just have to figure out the best way to do that" (Personal communication with interviewee, September 28, 2018).

Dr. Blaine discussed an initial patient's appointment who had ASD in a journal entry. He described Lamarcus (pseudonym) who was a six year-ten-month-old male. He wrote:

At the initial visit I met with his mother and him. I introduced myself. He was cooperative walking into the room and sat beside his mother on the couch while we talked and reviewed his medical history. Since this was his first dental exam, the mother stated that he has autism so he has a little trouble with reacting and behavior, she expected him to be a little nervous about dental treatment.

Dr. Blaine described how he used a technique of personal touch. He wrote in his journal entry:

When I initially approach the patient, I put my hand on their hand to see how they react to touching. I touch them on the shoulder, and then I touch their hair, or touch their chin and lips to see how they react to that. (August 21, 2018)

Dr. Blaine described an empathetic approach to treating his patient with ASD.

Dr. Vincent's empathy encompassed the parents. He stated:

One can only have a lot of empathy for the way it is at home when you know you've got a child that's a special needs autistic patient, and perhaps they have other children that don't have any spectrum and you know that child just requires- it just requires so much of the parents on those patients. (Personal communication with interviewee, August 2, 2018)

The theme of empathy emerged throughout the interviews of most of the dentists and dental hygienists who had the greatest years of experience in the practice of dentistry, not specifically with the quantity of patients with autism the participants treated. Dr. Hyland was an outlier in this theme because she was considered a novice dentist.

Theme Three: Gratification

All of my participants felt rewarded treating patients with ASD. Two types of gratification emerged. Some participants experienced the internal gratification of being the provider who was able to help a patient with their dental needs, while other participants experienced the joy of watching their patients accept dental care resulting in successful treatments.

Provider gratification. Five of my participants felt an intrinsic reward treating patients with ASD. They experienced personal fulfillment being the dental professional whom was able to deliver the care to patients with ASD. Dr. Vincent stated that he felt “tremendous personal rewards” treating patients with ASD. He genuinely stated, “You just feel like you are on cloud nine.” He also commented that he felt “emotionally satisfied” and “You feel like you’re a winner” (Personal communication with interviewee, August 2, 2018). Dr. Vincent described how he was able to build a network of referrals through treating patients with ASD in his office. He said, “We never really advertise anything, but one parent talks to another in their circle.” He then gave an example of how the networking occurred through a parent’s lens. “We went to Dr. Vincent and Justin did really well, and we never thought we would be able to accomplish something!” He continued, “And yet you did, and then you have five or six other patients coming in” (Personal communication with interviewee, August 2, 2018). Dr. Vincent felt the overwhelming accomplishment when he was able to successfully treat a patient with ASD.

Dr. Lynch, Dr. Smith, and Dr. Hyland also felt an intrinsic reward when they treated patients with ASD. Dr. Lynch confirmed, “It is rewarding for myself if I can help them” (Personal communication with interviewee, September 28, 2018). A similar comment was made by Dr. Smith. “Just that feeling of making a difference and helping that child out” (Personal

communication with interviewee, June 22, 2018). Dr. Hyland embraced the reward of being able to treat patients with ASD in her dental office, coupled with the acknowledgement of helping the parents. She explained:

It's very rewarding thing to do because you recognize that there are a lot of dentists that don't treat patients with autism or they don't even treat children... it is very rewarding... It's so much easier on the parents to not have to go to a specialist or drive an hour and half away, or have their child put under general anesthesia. (Personal communication, June 26, 2018)

Dr. Smith described treating patient with ASD as a challenge, but stated, "I like the challenge" (Personal communication with interviewee, June 22, 2018). She saw rewards of setting goals that she wanted to accomplish.

Acceptance of care. Ten of my participants experienced gratification watching their patients with ASD accept dental care. The participants discussed the elation of watching their patients' reactions, transformations, and successes within appointments and over extended treatments.

Dr. Smith recalled a very challenging experience treating a child with ASD who regressed with his treatment. She discussed that she previously recommended to the child's parents to bring their child for more frequent dental visits, but due to insurance coverage, the child was only brought for six-month check-ups. She explained that six months later "his behavior had gotten worse...he didn't even want me to brush his teeth with a toothbrush, which we had done previously." She said, "It's frustrating for you as a provider because you think you have it, but you don't... so you just take a deep breath, and start over again, and reintroduce everything like it's all new." Dr. Smith stated that she eventually convinced the parents to bring

the child back at the three-month mark. She said, “Even though the previous visit he didn’t do too well, he was amazing [at] the next visit. He remembered what we showed him. He actually sat in the chair (he had never sat in the chair before)... he wore sunglasses. He reclined in the chair. He let me brush his teeth. He let me count his teeth. He even let me use the tooth scaler (on the front tooth)” (Personal communication with interviewee, June 22, 2018).

Dr. Smith confirmed that the challenging patient ultimately resulted in “one of the most rewarding experiences I’ve had since I started here with working with children with autism because of the transformation that he made.” She elaborated that the experience was not only personally rewarding to her, but “it was very rewarding for his parents, and he was very proud of himself- you could tell.” Dr. Smith discussed that she had experiences working with children with ASD in her residency program. She said they “really made a transformation. When you see that transformation, and where they're comfortable, and they trust you, it's everything. It's just awesome!” (Personal communication with interviewee, June 22, 2018).

Dr. Cresswell, Dr. Blaine, Dr. Norman, and Dr. Lynch agreed that successful appointments were very gratifying. Dr. Cresswell discussed that it was personally rewarding when patients can “make steps” toward accepting dental care and endure having a filling completed “and not have a melt-down” (Personal communication, August, 17, 2018). Dr. Blaine felt personally rewarded when patients with ASD can follow the directions. He stated, “Just doing a simple procedure—the reward is getting it done and the success doing that, whether it is a big filling, or just a tooth cleaning (Personal communication with interviewee, August 21, 2018). Similarly, Dr. Lynch asserted that she felt a personal reward “if we can get through their cleaning, if we can get them to let us work on them without a struggle, without being combative—that’s a win-win (Personal communication with interviewee, September 28, 2018).

Although Dr. Norman felt the reward was similar when he treated patients with ASD and typically developing people, he stated, “patients with autism—to me—is better.” Dr. Norman said, “If I’m able to successfully treat, and then the patient is able to avoid any future discomfort or if it’s a successful filling or extraction and I get him pain-free [that is rewarding]. How I will get there is the difficult part (Personal communication with interviewee, June 22, 2018).

Some of my participants discussed that they felt personal rewards when their patients with ASD could accept dental care who in the past may have exhibited behaviors that interfered. Dr. Vincent stated, “The other thing that was rewarding was when you could get a patient that is [on] the autism spectrum...to start accepting dentistry and know that you have achieved some success.” He said, “They are coming in and they will sit in the dental chair. The parents are at ease and the parents are comfortable knowing that their child is starting to acclimate to something. So that's the best and rewarding part. It's beyond rewarding” (Personal communication with interviewee, August 2, 2018).

Likewise, Dr. Terrance described the gratification of patient compliance. He stated:

I have patients who were extremely difficult and almost impossible to manage, and just over time, we've managed to gain their trust, and help to basically desensitize them to certain things, sounds, and sensations in the office. That's one of the best things when we take a patient, who when one of the first times the patient comes in, the parents are in tears. No dentist can get near them. They don't know what to do. We are going to plan and try and get this patient to come to the dentist office like any other child, and have it be completely routine. (Personal communication with interviewee, September 24, 2018)

Dr. Terrance described his most rewarding patients are the patients that are able to eventually accept dental care. He said, “to normalize or mainstream a patient, I think is the most rewarding

thing and to not have to resort to knocking [the patients] out with drugs or putting them asleep to do work. They can accept care as any other person” (Personal communication with interviewee, September 24, 2018).

Dr. Tino also found gratification in desensitizing a patient to accept dental care. He described a particular patient with ASD who was “super nervous, running around the office, [and] pulling stuff off the wall.” He discussed the need for possible sedation with the parents, but over a few months’ time, Dr. Tino was able to collaborate with the parents to help the child have a successful dental appointment. He said:

Now when he comes in, he is like any other kid—he gets his teeth cleaned, he gets a balloon animal, and leaves happy, just like any other kid. Those are the really gratifying ones—when you can give a kid a pleasant experience. (Personal communication, October 3, 2018)

Miss Kebert emphasized the same gratification for patients with ASD accepting dental care. She described the rewarding feeling of patients’ comfort level “when they come in and actually hop in the chair and you know what they used to be like. That is so rewarding” (Personal communication with interviewee, October 17, 2018).

Mrs. Owens summarized the reward that she felt when treating patients with ASD with a very simple, yet genuine statement. She said, “when they're happy that makes you really happy” (Personal communication with interviewee, October 5, 2018). The gratification that my participants felt treating patients with ASD was sincere and heartfelt. They experienced satisfaction through their personal successes and the process by which they were able to acclimate their patients with ASD to dental care.

Theme Four: Connection

Overall, five of my participants discussed the importance of connecting with the patients through building a rapport, gaining the trust, or establishing a personal connection with their patients with ASD. Although this theme was represented among less than half of my participants, this theme was directly related to the literature and therefore merited a discussion. Four of my participants specifically discussed the need to develop rapport and gain the trust of patients with ASD during dental treatment because of the positive affect on the patient and/or provider. Dr. Hyland stated, “You don’t dive into treatment right away unless it is absolutely necessary. You kind of take things nice and easy, nice and slow, and then once you know [that] they know that you’re not going to hurt them [you can begin].” She said, “If they have your trust, it’s a lot easier to get things done (Personal communication with interviewee, June 26, 2018).

Miss Kebert discussed how trust is earned by her patients through desensitization. Miss Kebert described how desensitization can occur “within a couple times” and they “learn to trust you.” She said, “They can just hop in [the chair] and go” (Personal communication with interviewee, October 17, 2018). Miss Kebert described feeling rewarded by the establishment of trust with her patients. She stated that she felt rewarded by “seeing them really trust you and like seeing you.” She continued, “I love having them come in and they used to be afraid and now they’ll come in and they look forward to seeing you. I love that they build on that foundation that you set up for them” (Personal communication with interviewee, October 17, 2018).

Dr. Terrance also described the reward of “making a connection with a patient who you have earned their trust” through desensitization. He said, “I have patients who were extremely difficult and almost impossible to manage, and just over time, we’ve managed to gain their trust

and help to basically desensitize them to certain things, sounds, and sensations in the office” (Personal communication with interviewee, September 24, 2018). In addition, he spoke of understanding the patients routine that “the parents have set up for them with each general visit” so well the he can say to his patient, “So, you are going to McDonalds for chicken nuggets with Ketchup [after the appointment] (Personal communication with interviewee, September 24, 2018). Dr. Terrance hoped that the personal connection he could establish with the patient would allow the patient to trust and like him.

Dr. Norman discussed that his residency director believed that an important technique to treating patients with ASD was to “engage and maintain” eye contact, which Dr. Norman said “is very difficult to do” (Personal communication with interviewee, August 3, 2018). Dr. Norman has used the advice and discussed how he used eye contact to “get a rapport” regardless if he had completed dental work on the patient. When I asked Dr. Norman what advice he would share with a dental provider who was going to treat a patient with ASD he said “establish rapport” and “obtain eye contact with the patient” among a list of several other researched based techniques. He also spoke about building a rapport with the caregiver can be helpful as well. Rapport building was a technique engrained in Dr. Norman’s schema for treating patients with ASD.

Two of my participants discussed physical affection with their patients with ASD. The physical affection seemed to be a mechanism used to maintain a connection with patients. Miss Kebert continued her discussion of pleasant experiences treating children with ASD and said after their appointment they will sometimes hug her, or they will have their individual way of showing their happy, such as a high five. She described a particular experience that she had treating a patient with ASD the day of her interview. She said, “The one [patient with ASD] today, he always documents everything on his cell phone. He takes pictures of everything and

that means a lot to him. He takes pictures of people in our office.” Miss Kebert said, “You just have to find a way to get into their world and help build on what they're comfortable with”

(Personal communication with interviewee, October 17, 2018).

Dr. Blaine discussed his most pleasant experiences are the children with ASD “who start out with a lot of anxiety or they can’t handle [the dental treatment]” and then over time they “become a great patient, and they look forward to come to see you” (Personal communication with interviewee, August 21, 2018). He continued and said:

They high five you. And even the ones that don’t interact with you a lot, they just kind of tolerate what you are doing, they know when it's over and they give you a hug. And at the [complete] end of the appointment it's time to give a hug or a high five. (Personal communication, August 21, 2018)

Dr. Blaine described the gentle approach he takes with his patients with ASD in an affectionate manner to maintain control. He said, “I always put my hand on the patient. So when I approach a patient I will touch their hand. I will touch their arm. I will touch the shoulders. I will touch their head...(Personal communication with interviewee, August 21, 2018).

The five participants who discussed aspects of connection with their patients included four dentists and one dental hygienist. Three of the participants specialized in pediatric dentistry, while two of the dentists treated patients of all ages. The theme of connection with rapport building, gaining trust, and physical affection were deemed important by this group of participants.

Theme Five: Influence of Preparedness

The theme of the influence of preparedness to treat patients with ASD emerged as a leading trend during my long interviews and directly answered my second sub research question. My participants' preparedness to treat patients with ASD varied greatly depending upon their age, if they attended a residency program, and the age of patients that some dental providers treated. The greater in age of my participants, the less likely the participants had doctoral or dental hygiene training on treating patients with ASD. This was not unexpected because of the recent increase in awareness of ASD, and the development of new dental standards.

My participants who were considered novice in experience typically received some training for treating patients with ASD. The dentists who completed a residency program in pediatrics described receiving greater training on treating patients with ASD than my participants who did not complete a residency program. My participants who generally treated younger patients in a pediatric practice tended to discuss their preparedness through their experiences in greater detail than my participants who treated patients of all ages.

I created four sub themes to accompany the overall influence of preparedness after I analyzed the data. The sub themes represented the precise influence of the participants' preparedness. The sub themes were: experience during doctoral or dental hygiene training, residency, mentors and colleagues, on the job experience, and continuing education.

Training. I put the compiled transcripts into a word cloud generator to see the frequency of use of the word training during the interview for my participants. The word training was used among my participants 36 times during their interviews, which was the fourth highest applicable word stated during the interviews.

My participants discussed the training they received on treating patient with ASD during their doctoral training and dental hygiene training. The quantity and quality of the training for treating patients with ASD appeared to be distinctly less than the training that the participants who attended a residency program received.

One of my participants described that she received some training on treating patients with ASD within a course on treating patients with special needs. Dr. Cresswell confirmed that she did receive some training on “the protocols and the kinds of things to help” the dentist treat patients with ASD (Personal communication with interviewee, August 17, 2018). She stated, “We did have a one-semester class that discussed treating people with special needs, including autism.” She believed the training was provided to help the future dentists feel “comfortable working with” the special patient populations (Personal communication with interviewee, August 17, 2018).

Twenty five percent of my participants explained that their time in their pediatric rotations helped them feel prepared to treat patients with ASD. The participants who discussed their pediatric rotations were all novice dentists, with the exception of Miss Kebert who had 15 years of experience as a dental hygienist (T.K. personal communication, December, 8, 2018). Dr. Hyland raved about her month-long pediatric rotation and considered it “wonderful” (Personal communication with interviewee, June 26, 2018). Dr. Hyland stated, “They really do expose you to a lot of different autism sides of the spectrum and children... and teach you different techniques to help...” She also had the unique opportunity to treat people in “underserved areas in the community” during her third and fourth years of doctoral training. She explained, “One of the specialists that we rotate with is a pediatric dentist that focuses on special needs and autism” (Personal communication with interviewee, June 26, 2018).

Dr. Norman said that “my biggest influence would be my pediatric training” (Personal communication with interviewee, August 3, 2018). He felt that the principles that he learned in his pediatric courses to “manage special needs patients” were applicable to treating patients with ASD, although the preclinical aspect “wasn’t as in-depth” with regard to patients with ASD. He stated, “I employ a lot of the techniques I use with pediatric patients on patients with autism, whether they're pediatric or adult populations” (Personal communication with interviewee, August 3, 2018).

Miss Kebert said that her training on treating patients with ASD focused on reducing stimuli. She spoke extensively on what she did to reduce stimuli for her pediatric patients with ASD. The discussion will be presented with the theme of desensitization.

Residency for dentists. Two out of my five participants who discussed their doctoral training also spoke about their residency programs that prepared them to treat patients with ASD.

Dr. Hyland said that she:

treated a fair amount of autism spectrum patients... The more severe cases, we would actually often [take them to the] operating room, so they would have to undergo surgical procedures where they actually put them under general anesthesia...[and] would actually complete all of the work at once. (Personal communication with interviewee, June 26, 2018)

She also discussed that she learned that there are limitations to treating patients with ASD, and “there are some cases that unfortunately have to be under general anesthesia or sedation.” Dr. Hyland praised her residency program for helping her acknowledge that some cases require sedation treatment (Personal communication with interviewee, June 26, 2018).

Dr. Norman believed his greatest influence on treating patients with ASD occurred during his residency program. He said he received experience managing patients “in the chair, and then forming treatment with local anesthetic or local anesthesia with nitrous, or making a decision to have them treated in the operation room with general anesthesia” (Personal communication with interviewee, August 3, 2018). Like Dr. Hyland, Dr. Norman also realized the limitations of dental treatment for patients with ASD. He discussed that he was able to take “each challenge separately [while] building that experience with...patients with ASD” (Personal communication with interviewee, August 3, 2018).

Dr. Terrance believed his residency program helped prepare him to treat patients with ASD, and he considered his residency a “almost in a way, on the job training” (Personal communication with interviewee, September 24, 2018). He stated, “I was exposed to a lot of patients with different special health care needs, learning disabilities, intellectual disabilities, and autism.” Dr. Terrance made a similar comment as Dr. Norman when he spoke of the individuality of patient care for patients with ASD. He said that he “chiefly learned that each patient is an individual. And it’s been said a million times, but it’s totally true—once you have met one person with autism, you have met one person with autism. They all have a different approach that they need to take” (Personal communication with interviewee, September 24, 2018).

Dr. Smith did not discuss her doctoral training, though, she did discuss her residency program. She said, “I think it's really the education I received in residency that allowed me to feel comfortable treating special needs patients” (Personal communication with interviewee, June 22, 2018). Dr. Smith’s reference to her residency training was a broad statement of treating

patients with ASD. She referred to the attendings who she worked with in her residency program as mentors.

Limited exposure during training. On the contrary, because more than half of my participants discussed little or no training on treating patients with ASD, I felt obliged to discuss the lack of influence from the participants' dental training programs. All of the participants who discussed a limited exposure or no training, with the exception of Dr. Smith who was one of my novice dentist participants, all had over five years of experience.

Dr. Smith stated:

We probably touched on special needs patients and lecture multiple times. [However], the actual ability to treat special needs patients or being exposed to treating special needs patients was very limited. Basically it would depend on what patients were coming into the clinic the day you were assigned to pediatric dentistry, because in the main general clinic there were no special needs patients. (Personal communication with interviewee, June 22, 2018)

Dr. Smith did not state if she treated a patient specifically with ASD during her residency (Personal communication with interviewee, June 22, 2018).

Six of my participants with more than ten years of experience discussed that they were given little or no experiences with patients with ASD during their training years. Dr. Tino had ten years of dental experience including his residency at the time of his interview. He said that ASD "was sort of a new diagnosis when I was growing up. Even when I was in dental school, it was still sort of finding its footing in definition and scope" (Personal communication with interviewee, October 3, 2018). He stated:

When I went to school, autism was very new and not really known. We didn't have specific classes in autism. We did have pediatric dentistry where we talked about taking care of the mentally handicapped or how to manage difficult patients, but there really was no training in autism. It really wasn't heard of back then. (Personal communication, October 3, 2018)

Dr. Tino explained that his training was mostly conceptual, though he did receive “a little bit of exposure during rotations in pediatric dentistry.” He said that he received the exposure because he “was particularly interested, but it was not necessarily part of the actual curriculum.” He continued and said, “We were lectured on it, but basically little hands-on experience treating kids or anyone with special needs” was provided (Personal communication with interviewee, October 3, 2018). Dr. Terrance, who graduated dental school in 2007 and his residency in 2009, stated, “I think I got very little training in handling children with autism in my predoctoral training” (September 24, 2018).

My participants with over 10 years of experience confirmed that they did not receive any training on treating patients with ASD. Mrs. Owens commented, “Well, back then we didn't have any of this. We did have some handicapped training and that was mainly how to lift the patient into the chair and that kind of thing. Honestly, there wasn't any training” (Personal communication with interviewee, October 5, 2018). Likewise, Mrs. Kapusta confirmed, “None, not 32 years ago” when I asked what she learned about ASD during her dental hygiene training” (Personal communication with interviewee, September 20, 2018).

Dr. Vincent had over 30 years of experience and he testified to a similar sentiment. He confirmed:

I learned nothing—very limited experience with any real children in our dental school... Most everything dealt with didactic training on children's dentistry and maybe a clinic where you watched graduate students do their work and assist them. The most you did on your own was maybe do a cleaning on a child, but no real experience with special needs at all. (Personal communication with interviewee, August 2, 2018).

Dr. Vincent added that with his position at the university level, he is trying to provide his students with “a much broader experience with children” (Personal communication with interviewee, August 2, 2018).

When I asked Dr. Blaine about his experience learning about treating patients with ASD during his training, he said:

Well, not specifically autism, but we did have some special needs training... when I was a dental student. The gentlemen, the dentist that we were working under, was really good at managing patients with behavioral diagnosis. And I don't even think autism was a diagnosis back then. He taught me some techniques about approaching people and kind of feeling your way with their behavior to see how they respond, and then changing your approach. And then when I went to the pediatric training program, that was about a fourth of our training [which] involved management of behaviors—normal behaviors. Then we also went to a couple of facilities that had patients that were severely debilitated and severely disabled. And then the rest of it was learn as I go, when I got here.

(Personal communication, August 21, 2018)

Experience on the job. Sixty-seven percent of my participants discussed that their personal experiences treating patients post all training impacted their preparedness to treat patients with ASD in their career. The word experience was used among my participants 62

times during their interviews, which was the second highest applicable word stated during the interviews according to the word cloud generator. There were four themes that emerged within the sub theme of experience on the job: learn as you go, practice and reflection improves treatment, and recall from returning patients.

Learn as you go. Five of my participants confirmed that they learned how to treat patients with ASD through their own personal experiences treating patients with ASD during their career. Dr. Terrance said, “I would say most of what I learned would be more on the job training and continuing education post-doctoral.” He said “There is definitely some trial and error (September 24, 2018).

Dr. Blaine stated, “I didn’t really take a course on autism. It has been learn as I go...A lot of it is really based on personal experiences and judging people’s reactions, whether they be normal, or patients that have abnormal reactions” (Personal communication with interviewee, August 21, 2018).

Miss Kebert’s discussion was similar to Dr. Terrance and Dr. Blaine, she explained that she used an experimental learning process with her patients with ASD. Miss Kebert stated, “I do things and I change things based on how the patient is reacting to what I am doing. It’s really just on an individualized basis, and that influences how I’m going to treat them, or what I’m going to do to make their experience the best that it can be (Personal communication with interviewee, October 17, 2018). Miss Kebert predicted “probably 75% of it was on the job training” when I asked her how she became prepared to treat patients with ASD. She said:

A lot of it is just what I have found has worked when I have worked with special needs kids and patients in general, because prior to being in pediatrics, I did work in a general

practice to the years leading up to working in pediatrics, and we had a lot of special needs patients in the adult offices as well. So, most of it was just learning through experience- this is what works, this is what didn't. (Personal communication with interviewee, October 17, 2018)

Dr. Tino also discussed that through his experience, he learned that flexibility within dental treatment for patients with ASD is needed. He spoke about switching tactics with his patients with ASD. He said, "The most important thing is which tactic to use when and being able to maneuver back and forth between different ones, depending on appointments. Some start out one way, or switch, or you're going down the wrong road. I would say just getting in the trenches and having more exposure" impacted the influence of his experiences.

Practice and reflection improves treatment. Two of my participants eluded to the more experience they had, the better they felt they were able to treat patients with ASD. Dr. Vincent expressed, "It's just that the more you do, the better you get at it" (August 2, 2018). Dr. Cresswell stated, "I think the more you work, the more comfortable you are. [Everyone is different], but I think your experiences help you with your new patients and how to deal with challenges the may present (Personal Interview, August 17, 2018).

Recall from returning patients. My participants took advantage of the knowledge they gained treating patients with ASD and applied it to future appointments for the same patient. Three of my participants utilized note taking strategies, five of my participants described providing consistency for their patients, and two additional participants depicted goal setting for their patients with ASD as a strategy.

Take notes. Dr. Smith, Mrs. Owens, and Dr. Tino discussed that they take notes on their patients after their treatment and then review the notes at the commencement of the next

appointment. Dr. Smith shared, “I usually have in the notes what the goal is for that day. That way I remember specifically what we showed, what the goal is, what we want to accomplish, and that's usually how I prepare. It's just by visiting the chart and looking at what I had” (Personal communication with interviewee, June 22, 2018). Likewise, Mrs. Owens takes notes at the completion of every appointment. She discussed that she completed notes on every patient that she treats, but she keeps “personal notes” for patients with ASD regarding what made the patients comfortable during treatment. She said that she will “definitely write down what was successful about that appointment, so that the next time usually those things work” (Personal communication with interviewee, October 5, 2018).

Dr. Tino described how he and his dental staff prepared for the week with their chart review. He stated:

I do chart review every week, and any kids who need anything beyond the standard ‘have a seat treatment,’ we will review on Monday morning and do some of the same preparations. We take copious notes, way more behavior notes, than dentists or other specialties would for obvious reasons, because lots of times the kids with autism like a routine. Some kids like a particular chair, or a particular person, or particular flavor, or all of the above, and they need to be a certain way... You can only be so prepared, but then knowing what their triggers are and maybe a couple things that they do like [also helps]. We have a couple animals for the kids to hold. They are stuffed animals. If Billy really likes the brown doggie, then we are going to have that waiting in the chair for him and that will give him a little bit of ease and make him comfortable. (Personal communication with interviewee, October 3, 2018)

Note taking helped the participants remember the previous experiences and set the stage for future successful appointments.

Consistency. Forty-two percent of my participants discussed that they employed consistency techniques to help their returning patients have successful treatment. These participants used their experiences to impact future experiences with the same patients. Dr. Hyland discussed,

The cleanings are always going to have the same hygienist. They're preferably going to be in the same room, [and] the same doctor is going to come in and see them. It's really about getting into that habit, because they like that repetition. It's the newness and the scariness that often can set people off, and not just people with autism, so we make a point to make sure they are always getting the same care, getting used to the same face, [and] the same thing. We aren't going to spring anything on them. (Personal communication, June 26, 2018)

Likewise, Dr. Cresswell explained that she will "keep them (patients with ASD) with providers that they're familiar with. The providers usually work in the same rooms so that seems to work out pretty well (Personal communication with interviewee, August 17, 2018). Miss Kebert also discussed in detail how she used consistency with her patients with ASD. She stated:

If I knew that they did fine with the TV on, I would go ahead and leave that on. If I knew the blinds didn't seem to bother them, I would just leave them the way that they were. The lighting- I feel like the lighting in the back is really helpful, so I always just keep those lights dimmed back there. We leave the [lights] that are under the cupboards on, but not the big overhead lights. (Personal communication with interviewee, October 17,

2018)

Dr. Vincent stated that he completed subsequent visits the same way. In addition, he said that he will “build upon what we did on the first visit” (Personal communication with interviewee, August 2, 2018). Mrs. Kapusta said that she remembers past treatments with the patients and plans accordingly for future appointments. She said, “If I know they don’t like the suction, I will get the cup ready (Personal communication with interviewee, September 20, 2018).

Setting expectations. Dr. Terrance, Dr. Norman, and Dr. Smith discussed that they set expectations in advance to prepare for their patients with ASD. Dr. Terrance discussed that he collaborated with parents on the plan of action. He said:

A lot of that has to do with coming up with a plan with the parent to see whether we are going to get as far as we can, or are we just trying to have the patient allow an examination or have to be restrained? Are we moving on to the more routine things we do at a dental appointment? Then whatever the case may be, depending on the patient, it is setting the stage. We let them watch tv, so we may have already cued up the patient’s favorite show. That can really help with distraction, soothing the patient, and making the dental office as close to something that they are familiar with as possible.

(Personal communication, September 24, 2018)

Dr. Norman sets expectations for the patient by referring back to the previous appointment. He stated that he would remind the patient “what we were able to accomplish last time, and to tell them you're here for this next step. It is very similar to the previous time you were here and you did really well with that procedure” (Personal communication with

interviewee, August 3, 2018). Dr. Smith described in her survey that “Every patient has a different goal for each visit” (Survey, June 25, 2018).

Mentors and colleagues. Five of my participants discussed that their preparedness was influenced by mentors or colleagues. Two of my participants discussed that they were influenced by mentors in their residency program. Dr. Norman said he was given learning tools and the “understanding of what you can and can’t do” while treating patients with ASD (Personal communication with interviewee, August 3, 2018). He said that his residency director served as a great mentor. Dr. Norman spoke about the director of his general residency program. He said:

We would spend a lot of time one-on-one doing all of our cases on special needs...so we would talk while I was doing the treatment and he was assisting me in the operating room. We would talk about why they [were] in the operating room if I was the one that referred them, or if a co-resident referred them there. (Personal communication, August 3, 2018)

Dr. Norman said that the residency director and he would talk about “specific questions and scenarios” too (Personal communication with interviewee, August 3, 2018).

Dr. Carlin discussed that he noticed the techniques that his fellow co-residents and attendings used during his residency. He stated, “A couple of them had a good way with patients with ASD (Personal communication with interviewee, September 24, 2018). However, his greatest influence was a former colleague. Dr. Terrance said, “I have learned quite a bit from my previous partner” (Personal communication with interviewee, September 24, 2018). Dr. Terrance shared that he learned from watching how his former partner “approached different patients” (September 24, 2018). Dr. Terrance said that he was also able to pick up on his

mannerisms of successful treatment techniques with patients with ASD (Personal communication with interviewee, September 24, 2018).

Two additional participants valued the influence from their colleagues. Miss Kebert stated that she was influenced by the entire team that she worked with. She commented that she had learned techniques through her own experience, but she learned how to conduct lap exams by observing her team members perform dental treatment in that manner. Miss Kebert also mentioned a former dentist that she worked under. She said, “He would say if I said something a certain way, ‘Why don’t you try and say it this way?’ ” (Personal communication with interviewee, October 17, 2018).

Dr. Tino believed his former boss was the greatest influence in his preparedness to treat patients with ASD. Dr. Tino worked alongside his boss for five year before Dr. Tino started his own practice. He referred to his former partner as “one of these supermen” (Personal communication with interviewee, October 3, 2018). Dr. Tino discussed that he may not have always agreed with the advice his partner offered, but he admired the “mental effort” that he put into all of the details of treating patients with ASD (Personal communication with interviewee, October 3, 2018). Dr. Tino concluded talking about his partner and stated:

I don’t think he would have been as influential if he would have been a professor that I worked with for one or two years, but it’s because I got to see it in practice. Residency is only two years, and there is a big shortage. You may not even be with one person that much. I got to work with him two days per week, seeing a full slate of patients for several years; so I think having that mentor relationship...was hugely beneficial for me. (Personal communication with interviewee, October 3, 2018).

Continuing education. Six of my participants discussed the influence of continuing education on their preparedness to treat patients with ASD. Some of my participants discussed their residency program as continued education, and their discussions were included above. Other participants had not attended any continuing education specifically on ASD.

Dr. Smith said that she went to a recent conference that had a “whole lecture series on autism, which was great” (Personal communication with interviewee, June 22, 2018). She confirmed that she decided to attend the lecture series on ASD “because you can always learn something new, and you can always learn from someone else what tips they use, and what works well for them. You can always try to implement that, and see if it works for you” (Personal communication with interviewee, June 22, 2018).

She also discussed the importance of being a life-long, independent learner. “You really have to read up on things and be up on the current literature” (Personal communication with interviewee, June 22, 2018). Dr. Smith acknowledged how she is impacted by current research and methods. She said, “The more they research and find out about autism, the more it can help us treat patients with autism” (Personal communication with interviewee, June 22, 2018). Dr. Smith was the only participant who discussed the influence of social media. She added:

The other thing that is really interesting is social media. There are a lot of pediatric dentists that connect via Facebook and share ideas, and concerns, and techniques...so that is becoming more and more common place where dentists around the country can connect with each other. (Personal communication with interviewee, June 22, 2018)

Dr. Terrance said that he had “attended quite a bit of CE on treating kids with autism or special healthcare needs in general.” He considered his learning “pearls of wisdom” (Personal

communication with interviewee, September 24, 2018). He stated that the American Academy of Dentistry does “a real good job with courses with veteran dentists who have a lot of good suggestions for treating kids with autism. Some of them have turned their offices or clinics into really dedicated places for children with autism” (Personal communication with interviewee, September 24, 2018). Dr. Vincent and Dr. Blaine discussed the same annual meeting that Dr. Terrance spoke about. Dr. Vincent considered the courses that the American Board of Pediatrics produced as “absolutely wonderful” (Personal communication with interviewee, August 2, 2018).

Mrs. Kapusta and Mrs. Owens discussed a training that I provided to them on treating patients with ASD. Mrs. Owens stated, “It opened our eyes” (Personal communication with interviewee, October 5, 2018). The training that I provided to them was the only training that they had attended on treating patients with ASD.

Two of my participants discussed that they had attended trainings on treating patients with special needs, but may not have been exclusive trainings on ASD. Dr. Tino said that he tried to take “at least one or two classes [per] year in particular with behavior management usually with either special needs or pre-cooperative kids” (Personal communication with interviewee, October 3, 2018). He also was able to read journal articles every two months and take quizzes (Personal communication with interviewee, October 3, 2018). Miss Kebert said that she attended a continuing education training for treating a broad range of patients with special needs, but not specifically ASD. She also discussed a similar mailer that Dr. Tino explained.

The reasons that the remaining participants stated that they did not take continuing education courses on ASD varied. For example, Dr. Norman felt that trainings on ASD were unneeded because he didn’t treat many patients with ASD (Personal communication with

interviewee, August 3, 2018). Dr. Lynch was not aware of specific trainings on ASD, but knew of trainings for patients with special needs, and different tricks and tools to use (Personal communication with interviewee, September 28, 2018).

Theme Six: Challenges and Frustrations

All 12 of my participants discussed elements of challenge and times of frustration when treating patients with ASD. The intensity of the challenges and frustrations were scattered among the various levels of experience. The novice dentists did not speak of a greater level of challenging circumstances resulting from less experience. Similarly, the more experienced dentists and dental hygienists did not discuss fewer challenging circumstances as a result of their years in dentistry. As mentioned previously, Dr. Terrance stated, “once you have met one person with autism, you have met one person with autism. They all have a different approach that they need to take” (Personal communication with interviewee, September 24, 2018). Eleven of my participants discussed the challenge of treating patients with ASD were because of the behaviors and characteristics of the disorder.

Combative. Half of my participants discussed the behaviors of patient with ASD caused their treatment to be challenging for the dental provider. My participants who discussed combative behaviors consisted of one novice dentist, and the remaining participants had over ten years of experience. Dr. Vincent said that the patients’ “overall behavior” may be a challenge (Personal communication with interviewee, August 2, 2018). Miss Kebert stated:

Sometimes when they’re combative it's very difficult, because you're trying to get them to trust you and you're trying to get them to let you touch their teeth and touch their mouth. Sometimes they’re combative even just for touching their fingers...So that is

hard when you feel like you don't have anything to even start on. (Personal communication with interviewee, October 17, 2018)

Dr. Vincent shared an experience treating a patient named Kyle (pseudonym) who was combative. He said:

Kyle- I started seeing him as a three-year-old... He's not severely autistic, but he's middle autistic. He would pretty much never cooperate. We initially did him in the operating room to get his teeth fixed when he was probably four. We started seeing him in the dental office, and he would do fine until he started to reach teenage years, and then he could become difficult if he wanted to because you just didn't know. He was bigger and he was stronger. Sometimes we just would be starting something and then he would kind of lose it.

Dr. Lynch also talked about the challenging behaviors she encountered treating patients with ASD. She said:

Some days they're willing and some days they're not. The days they're not, you can't hardly get them to budge. We try bribery. We try everything. We even hold them down sometimes because we know it needs done. These are bigger kids- they are adults. A lot of times, we can't get too physical with them because they could definitely over power us. (Personal communication with interviewee, September 28, 2018)

Dr. Tino shared about an experience with a patient who got injured because of his behavior. He described that he had treated the patient for a while, but he did not show improvement with the comfort of care throughout treatments. He said:

My assistant was handing me a scaler...He grabbed it out of her hand and the edge of the scaler got impaled into his palm. He ended up having to get some stitches done. It was

one of those things where he had never done that before. He had been shy and never grabbed or hit or anything like that. We saw him back again and he actually threatened to punch me and my assistant, and when he hit puberty he became more aggressive.

(Personal communication with interviewee, October 3, 2018)

Dr. Smith also felt that it was difficult to treat patients who were combative. She said that it is “hard to treat patients with violent tendencies due to safety concerns” (Personal communication with interviewee, June 22, 2018). She elaborated and said:

It's hard when a child is violent or physical. That can really change things. It can change the ability to manage a patient when they have the self-injurious behavior and also when they injure others. So that can make things extremely difficult. (Personal communication, June, 22, 2018)

Dr. Smith discussed that at times restraints are needed for patients with ASD. She said that she will need two additional people to assist. Sedation or general anesthesia may be needed for patients with ASD that are combative (Personal communication, June, 22, 2018). Dr. Terrance discussed the need to sedate some non-verbal patients with ASD because of their combative behavior as well. He shared about a recent experience treating an 18-year-old male patient who he had been treating for nine years.

He has gotten very tall, a little bit on the heavy side, very strong, and he's non-verbal. He's needed some dental work in the past that had to be done under general anesthesia, but we try and treat him as [routinely] as we can in the office, and we have unfortunately seen a decline in his acceptance of treatment over time. I had to eventually have my hygienists stop cleaning his teeth, because I was afraid one of them would be injured because he can suddenly just throw his arms and his legs and lash out. He can really grab

on to the providers limbs... He can hurt his mom when she has been there in the office, so we've tried to set the stage for him in a private room where he can feel more comfortable and often times I can get an exam done, but when it comes down to things like scaling, prophying, fluoride, flossing, that is something we have found we really can't get very far, unless we provide a sedation. He's not willing to take that orally, so we resort to an intramuscular injection, which I find is tolerated really well by most kids. We haven't yet found a good regimen with a sedative for him that kind of strikes the balance between not wanting to turn into a zombie all day, but getting all the work done. We have also encountered issues with him becoming nauseous with medication. Then on top of everything else, he refused, and he is throwing up. Sometimes it is not a perfect science trying to find the best way to treat a patient. That is one of more challenging cases right now. We are trying to find the best way to approach him pharmacologically. I just don't see him in the near future being able to more feely accept treatment and those are probably the most challenging patients when an autistic patient is completely non-verbal. It is very hard to get any kind of acceptance for treatment. (Personal communication, September 24, 2018).

Communication. The barrier of communication emerged as a challenge for treating patients with ASD. Three participants discussed the challenge with non-verbal patients or patients who cannot communicate effectively.

Non-verbal. Two of my participants discussed the challenge of treating patients who are non-verbal. Dr. Hyland who was a novice dentist spoke about treating a 12-year-old patient with ASD and said, "Sometimes it is hard to tell if it is a dental concern or if it is something else that is bothering him" (Personal communication with interviewee, June 26, 2018). She continued and

stated, “One time, he came in because his parents said he kept putting his hands in his mouth and they couldn’t figure out why, and they thought something was wrong or something was hurting” (Personal communication with interviewee, June 26, 2018). The patient was not able to verbalize if he was in pain or discomfort. Dr. Hyland was able to provide the examination to determine that the patient was getting an adult tooth. Miss Kebert said, “The non-verbal end of it is difficult because you have to somehow get into their world and you have to just find what works for them... That's really, really hard” (Personal communication with interviewee, October 17, 2018).

Non-effective communication. Dr. Tino spoke about the challenge of treating patients who have the ability to speak, yet cannot effectively communicate. He stated that it is frustrating “when they are young and really little and really scared and don’t know how to properly express their dismay or their discomfort” (Personal communication with interviewee, October 3, 2018). He said:

Kids do everything you can imagine, sit there and be weepy, threaten to bite you, and kick. Most kids are receptive, but once they are a little bit older and ‘should’ be more receptive to logic and reason, but they are not due to neurological disorders, sometimes due to teenage attitude, that can be very frustrating. Those are the days I have to remind myself that it's not the end of the world, they are just teeth. You can’t care more about someone else’s teeth than they do. (Personal communication with interviewee, October 3, 2018)

Dr. Tino also commented that it is also challenging to treat patients with ASD because of the:

inability for them (patients with ASD) to emote exactly what’s bothering them as far as

more of a malaise, as opposed to a neurotypical kid saying they don't like a needle, or a drill. [It] can be difficult, because there are so many things we can change, but they have such a hard time explaining what they particularly don't like. (Personal communication with interviewee, October 3, 2018)

Sensory. One third of my participants discussed patients' sensory integration difficulties as a challenging part of dental treatment. Dr. Smith described the sensory concerns for treating patients with ASD in her dental office and wrote that the "environment can be [a] sensory overload at times." She also included that the environment is often noisy and there are bright lights as a weakness to treating patients with ASD (Survey, June 25, 2018).

Dr. Cresswell stated:

I think the greatest challenge [is] if they're very sensitive to noise or certain feels, and all that is kind of a barrier for them. So trying to overcome those [barriers], because some of these feelings, and sensations, and noises you can't avoid at the dental office. So, kind of trying to get them to desensitize to them, so you can do a good job and standard of care are probably the most challenging. (Personal communication with interviewee, August 17, 2018)

Mrs. Owens described an experience with a patient that had difficulty with sensory integration in the dental office.

I was treating a patient in a chair and trying to do their cleaning, and he wouldn't open. He didn't want any parts of it really, and so we kept trying to talk. We wouldn't turn the light on him, because I know that bothered him. We never really could get anything done, so unfortunately that patient got referred to someone who could use nitrous or sedate. (Personal communication with interviewee, October, 5, 2018)

Mrs. Kapusta also shared an experience treating a patient that was discomfited by the noise in the dental office.

One of my other patients was very cooperative at a younger age, but I would tell his mom to bring his headphones. We knew he was autistic right away and his mother knew, so he would bring his headphones. As he got older he was more, not really aggressive, but the one time in particular he just was very noisy. [He said,] ‘I don’t want this!’ And [he was] really disruptive to the entire office. I am sure the whole office was wondering what’s going on in there. I wasn’t sure how I was going to deal with this, because I thought I can’t clean his teeth today. He’s got to leave and come back another time. His mom said he had a really rough day at school. She knew on the ride in that it was going to be difficult. I just firmly looked at him eye-to-eye, and I lowered my voice to make it sound more like a man, and I said, ‘Jess (pseudonym) you stop it right now, you straighten up right now.’ He just looked at me and he just flipped the switch. He became more cooperative. The whole office became quiet. And everyone said, ‘What did you do? What did you say?’ (Personal communication with interviewee, September 20, 2018).

Mrs. Kapusta also added:

If they don’t want to be suctioned because of the noise, then I have to let them sit up and use the cup. Sometimes I’ll talk over top [of the noise] when I am polishing so they don’t really notice the noise. It distracts them from the noise of the polisher. (Personal communication, September 20, 2018)

Mrs. Owens discussed how light becomes a challenge when treating patients with ASD. She stated that the patients with ASD:

don't usually like light, so we put sunglasses on them. But even that's hard for them, because we have to see, and we can't see what we're doing. If we can't have [the light] directly on them, it's hard to see. (Personal communication with interviewee, October 5, 2018)

Frustrations. I asked my participants to describe their weaknesses treating patients with ASD on a survey. Some of my participants described their weaknesses, which appeared to be more of their frustrations treating patient with ASD. Dr. Norman wrote that he was frustrated when he could not “provide services safely due to compliance issues and having to refer out” (Survey, August 3, 2018). He described a time when he had to refer a patient to another provider. He discussed an 18-year-old male with ASD who presented with symptoms of needing a root canal. Dr. Norman described the appointment:

He wouldn't open the complete amount...I didn't have access to nitrous sedation, so we had to just purely do it with the Valium, and I was able to kind of get him through some of the motions of kind of opening more for me, the idea of getting numb, and perform a filling in that same area that needed to be done anyway, to kind of get him through that appointment and then see how he handled that, and that was sort of my kind of diagnostic to kind of see if he would be able to withstand being open for an extended period of time to do the root canal... I was unable to do the filling satisfactory because he would constantly close down and not really respond well to me or even respond well to his caregiver. So at that point, we temporized the procedure, and I made the decision to refer him to a special needs clinic in Pittsburgh for treatment with

sedation, which my office wasn't able to offer. (Personal communication with interviewee, August 3, 2018)

Dr. Norman was not alone in his frustration for the lack of completion of dental procedures. Miss Kebert said,

Sometimes I feel somewhat frustrated or defeated if I've done everything I can do to make it a positive experience, and I still can't break through their wall, especially for the more combative patients. Because you care so much, and you know that you are ultimately trying to help them and they don't understand that. In those cases you have to focus on every little positive step forward and use those as tiny building blocks to build a strong foundation. (Survey, October 20, 2018)

Dr. Tino described his overall frustration at times when treating patients with ASD. He commented:

I am a pretty relaxed guy, but at the same time, everybody gets frustrated...[the] kind of the running gag is I have infinite patience up to [age] 13. But that's one of those times that I have to really check myself and say, 'You know, remember this person, especially teenagers with either autism, or ODD, or social anxiety, or things like that—they are not processing the situation the same as you are, and you have to walk the line between not treating them like they are a six-year-old, but having the same kind of awareness.'

(Personal communication with interviewee, October 3, 2018).

Dr. Tino reiterated his frustration and considered it a weakness on his survey. He wrote that he could sometimes get overwhelmed when treating patients with ASD, and occasionally had to remind himself "that our teenage ASD patients are not trying to be rude, but that their interpretation of social cues are often different from my own" (Survey, October 3, 2018).

Dr. Smith discussed the frustration she felt when patients regress between visits. Dr. Smith revealed that she usually suggested that patients with ASD have more frequent dental appointments, rather than the standard 6 months check-ups to help with the acceptance of dental care. She said:

The thing that makes things challenging is when...for example a parent sometimes doesn't want to bring the child in every 3 months, so they only bring them in every six months and that's a long time. So usually they don't remember what happened the previous 6 months ago, and it's really hard to start over again. I can remember one specific instance of... [when a patient with ASD] didn't even want me to brush his teeth with a toothbrush, which we had done previously. So we had taken a step back. At that point, it's frustrating for you as a provider because you think you have it, but you don't. So you just kind of have to start over again. You just take a deep breath, and start over again and reintroduce everything like it's all new. (Personal communication with interviewee, June 22, 2018)

Three of my participants described frustrations with parents. Mrs. Owens wrote that “Sometimes the parents don’t give enough info on their child” (Survey, October 11, 2018). Dr. Terrance may have revealed a possible reason why parents do not offer enough information about their child. He wrote in his survey that there is a “lack of time and resources to conference with parents of children with ASD to delve deeply into their concerns and develop a goal-oriented, long-term behavioral treatment plan” (Survey, October 1, 2018). Dr. Blaine felt the opposite of Dr. Terrance. He stated that parents were his greatest challenge. He said, “I understand that parents know their child better than anybody else, but a lot of parents don't know their child. What is frustrating for us, is that we know the situation that we are in, and what we

need from the patient, and being able to guide everybody through that is a real challenge (Personal communication with interviewee, August 21, 2018). A greater discussion of parental involvement is discussed in the eighth theme.

The challenges and frustrations were diverse among my participants. All of my participants experienced challenges and frustrations at some point during their careers treating patients with ASD. Although the participants felt challenges and frustrations, it is important to restate that all of my participants felt rewarded or gratification treating patients with ASD. Therefore, it may be presumed that although my participants may experience struggles at times, they still felt the reward for treating patients with ASD.

Theme Seven: Caregiver Involvement

An unexpected theme of caregiver involvement developed throughout the course of all of the interviews. The entire theme was unexpected because I did not ask any questions relative to caregiver involvement nor support during dental treatment. I used a word cloud generator to check the frequency of the theme. The theme was used 187 times among my participants during their interviews, with the exact words and frequencies as follows: parents (102); parent (32); caregiver (16); caregivers (5); mom (15); family (10); dad (7). Some of the participants preferred the use of the word caregiver, while others participants used the word parent(s) in their interviews. I used the word caregiver(s) to discuss the involvement of parent(s) or caregiver(s) throughout the study.

Three subthemes transpired after I analyzed the data. The participants discussed how caregivers helped and supported them before and during the treatment of their child, whilst other participants felt that the caregivers' roles were unproductive and even burdensome during

treatment. The third subtheme that developed were the caregivers' surprise and appreciation of completing dental treatment for their child with ASD.

Caregiver support. Ten of my participants discussed how they used the support of the caregivers to provide dental care to their patients with ASD. The participants discussed how the caregivers are involved prior to and during treatment. Over half of my participants used the caregiver's support prior to commencing treatment on their child. Three of my participants discussed that they used caregivers' support during the actual treatment.

Prior to appointment. Forty-two percent of my participants engaged in a type of parent conference with the caregiver prior to beginning dental treatment. The participants believed in the importance of understanding the child's triggers as a way to be prepared to deliver the dental treatment. Mrs. Owens said that engaged in conversations with the caregivers to determine what the child could handle and "how they prepared [their child] for the appointment" (Personal communication with interviewee, October 5, 2018).

Three of my participants said that they had phone conferences with the caregivers prior to the child's dental appointment. These statements were compared to the data analysis of the blank patient forms. Dr. Smith, Dr. Terrance's, and Dr. Tino's blank patient forms have a question that asks specifically if the child has autism (Table 3). Dr. Blaine's blank patient form asked if the child had a learning disability. Dr. Terrance stated, "Unless I make a phone call and really interview the parent ahead of time it is hard to know what to expect until you have the first encounter with the patient" (Personal communication with interviewee, September 24, 2018). Dr. Terrance discussed how he prepared to treat a new patient with ASD by "setting the stage." He said that he would develop a plan with the caregiver. He described the conference:

A lot of that has to do with coming up with a plan with the parent to see whether we are going to get as far as we can, or are we just trying to have the patient allow an examination or have to be restrained? Are we moving on to the more routine things we do at a dental appointment? (Personal communication with interviewee, September 24, 2018)

Dr. Terrance described the outcome of the conference would “really help with distraction and soothing the patient, and making the dental office as close to something that they are familiar with as possible (Personal communication with interviewee, September 24, 2018). Dr. Smith described working with caregivers prior to appointments to determine preferences with flavors and textures that the patient would experience (Survey, June 25, 2018).

Dr. Blaine said that he also conducts phone interviews. He said, “We ask them what they do at home. So I find out if they are actively brushing teeth and how they accomplish that” (Personal communication with interviewee, August 21, 2018). Dr. Blaine also said that part of the paperwork that he had the caregivers complete “asks the parent what has been your child’s previous experience and how do you expect them to react today?” (Personal communication with interviewee, August 21, 2018).

Dr. Tino revealed how he conferenced with the caregivers. He said:

I usually call the parents a few days or a week ahead of time. I actually used to have a list of questions that I used to go through, but now I just get to know them. I ask them how they do in other similar settings. How are they at the barber? How are they at the pediatrician? What flavors do they like? What flavors do they hate? [I] just kind of get an idea of where they are coming from, because where we are in the country, most kids have gotten some kind of intervention early on, behaviorally, sometimes pharmacologic.

So I get a pretty good idea of the kid's capability to an extent, but there is no for sure determining factor. But if we have a kid who this is the third dentist and they walk in the building and starts screaming, we are going to be prepared to have a quiet room empty, or just a room that has a door. (Personal communication with interviewee, October 3, 2018)

Four of my participants discussed that they conferenced with the caregiver in the dental office to determine the needs of their patient before treatment. Dr. Hyland said that she asked the caregivers questions. She listed some of the questions—"Does light bother them? Do noises bother them? What makes it better? What makes it worse?" She said that "a lot of times I'll encourage headphones" and allow the mother in the dental room (Personal communication with interviewee, June 26, 2018). Dr. Vincent found it helpful to assess and talk to the caregiver prior to meeting the child. He said that he would interview the caregiver so that he could determine the challenges (Personal communication with interviewee, August 2, 2018). Dr. Vincent believed that the caregivers were the greatest impactor for his preparedness to treat patients with ASD.

Dr. Lynch confirmed that she had not had the opportunity to treat many patients with ASD though her advice to a dentist who had never treated a patient with ASD would be "to have a thorough discussion with the parent or caregiver because they know what makes a kid tick, and what will go well, and well will upset him" (Personal communication with interviewee, September 28, 2018).

Dr. Blaine had a different approach than the other participants. He described how he was interested in the caregiver's and child's interactions. He stated:

I want to just see how they react with their parent. I want to see if I can keep the parent's attention, or what is the child doing when I talk to the parent. Can I keep the child's

attention? What is the parent doing when I am trying to keep the child's attention?

(Personal communication, August 21, 2018)

Dr. Blaine discussed that he wanted to understand the child's communication ability. He felt he could prepare for the treatment by talking to the parent first.

Two of my participants utilized other strategies for their patients prior to their treatment. Dr. Smith discussed two researched based techniques of role playing and visual pedagogy that she encouraged the caregivers to partake in to prepare the children for treatment and make the dental experience as "familiar as possible." The techniques were described in Dr. Smith's introduction. Dr. Hyland confirmed that she utilized the caregivers to demonstrate the dental experience for the patient with ASD. She said, "a lot of times, for new patients who haven't been here before, I will make sure the parent goes first, so they can see what a cleaning looks like. They see it's not scary. It doesn't hurt" (Personal communication with interviewee, June 26, 2018).

During the appointment. Three of my participants specifically discussed that they utilized the caregivers during the patients' actual appointments. Permitting the caregivers in the dental rooms or open bays may have been a common practice by all of the participants because I observed extra chairs that appeared to be for caregivers (document analysis). Two of the participants stated that they had completed dental appointments while the child is lying in a lap. Miss Kebert said she had used her own lap and recalled:

Sometimes with autistic patients they might not get in the chair at all, and we need to do a lap exam with the parents. They lay their child back in your lap and you can sing a song to them quietly and calmly. (Personal communication with interviewee, October 17, 2018)

Dr. Terrance discussed that he had completed dental exams while the child sat on the mother's lap while sitting in the waiting room (Personal communication with interviewee, September 24, 2018).

Dr. Norman revealed that he utilized caregivers' support by encouraging the patient. He remembered an experience during his residency when he had to anesthetize a patient. Dr. Norman said that he had the caregiver, who was someone the patient trusted, stand "really close by" and the caregiver was "giving him (the patient) the audible reassurance" (Personal communication, August 3, 2018). Dr. Norman explained:

I was able to perform the procedure postoperatively and manage the postoperative concerns and conclude the appointment in a timely manner. I think that allowed us to perform the treatment. If that didn't work, the alternative would have been to sedate him completely or send him to the operating room, which we didn't want to do because of the risks that are associated with that. (Personal communication, August 3, 2018)

Miss Kebert also described how she used the caregivers during the appointments and how the support continued at home. She said, "I'll encourage them to take pictures with their cell phone of each step that I'm showing the patient." She explained that she will tell the caregiver to reinforce the dental experience for the child at home by providing positive praise. Miss Kebert said that she told parents to say, "Today, you let Tabitha count your teeth! Today, you let Tabitha brush your teeth!" (Personal communication, October 17, 2018).

Unproductive caregiver support. On the contrary to supportive caregivers, one-third of the participants discussed a negative aspect to caregiver involvement. Three of my participants revealed they had experiences with caregivers' denial about their child having ASD. Mrs. Kapusta vividly recalled treating a patient with ASD since the age of three. She said:

My first patient was probably 3. He wouldn't get in my chair, and he was afraid of certain things. I didn't pick up on it that visit. Then 6 months later, we didn't do anything on him. The next time he came back, and it was very similar. But at least I got him to go in the chair. It was certain things that annoyed him, so we didn't do anything that time. I think it took to age 5, and he came back every 6 months and we would try different things. Then I would say, "What don't you like?" He would say, 'That and that.' It was the suction and the polisher. And then I was picking up [that] it was a noise thing or a vibration thing. In the back of my mind, I am thinking this kid [has] autism or [has] Asperger's or something, but I knew with the noises [he must have a sensory disorder]. So then I talked to his grandfather... and I said, 'Does his mom think anything?' [His grandfather said], 'Oh no, no, no, he is very smart.' I said, 'Well, it's not a smart thing.' I just was picking up on the noises. I don't know when he was actually diagnosed, but I think he was maybe age 8. (Personal communication with interviewee, September 20, 2018)

Mrs. Owens discussed experiences when she knew a child may have had ASD, but the caregivers did not. "We have parents that bring the kids in and we know there is something wrong, but the parents don't. Or they won't accept it, and there is nothing written, or they don't tell us. They don't want to write it on the history. They are not ready to do that. That happens a lot" (Personal communication with interviewee, October 5, 2018).

Dr. Blaine detailed the history of treating a patient with ASD. He said that he first met the patient a few years ago and was told that the patient had autism and attention deficit hyperactivity disorder. He stated, "He wouldn't pay attention to you, and he rant and raved a lot, and then I didn't see him for a year. Unfortunately, he didn't get his dental treatment done because

his mother didn't bring him in" (Personal communication with interviewee, August 21, 2018).

Dr. Blaine discussed that he eventually treated the patient for an infection at a different facility. He was able to talk him through the procedure. He disclosed that he came back into his practice again on the day of our interview. Dr. Blaine said:

As we started out, he was being kind of silly and we had to talk our way through a few things, and he tried to try out some behaviors and we had to nip that in the bud. 'No you aren't going to do that.' Then he just sort of settled back and didn't interact much at all. He just kind of let us go ahead. His mother told me that he doesn't really have autism. And you know, I told her, 'that is interesting since that was his diagnosis before. I don't think he got rid of it, but his behaviors are better controlled now, and maybe he relates better with people, and we are able to talk him through it.' (Personal communication with interviewee, August 21, 2018)

Dr. Blaine commented that the greatest challenge treating patients with ASD are the parents. He said:

I understand that parents know their child better than anybody else, but a lot of parents don't know their child. What is frustrating for us, is that we know the situation that we are in, and what we need from the patient and being able to guide everybody through that is a real challenge. (Personal communication with interviewee, August 21, 2018)

Dr. Tino seemed to reveal an annoyance with some caregivers of children with ASD when he discussed the challenging aspect of some caregivers and their low expectations for their children with ASD. He described a common scenario of a child having trouble brushing his teeth at home. Dr. Tino hypothetically said what a caregiver would frequently say, "Oh, you will just have to sit on them, or you will just have to sedate them, or you will just have to do this."

Dr. Tino said in actuality, “really just a little TLC and a little bit of time” is what is needed to treat a patient with ASD. Dr. Tino provided another example of an interaction with a caregiver. He stated that the caregiver said, “He won’t sit in the chair.” Dr. Tino replied, “Well, if you tell them they won’t sit in the chair then they are going to say, ‘Ok, well, I don’t need to sit in the chair.’” Dr. Tino stated in a very compelling tone, “But my big thing, and this is for neurotypical and otherwise, kids will live up to or down to your expectations.” He said, “The great majority of [patients with ASD] come around pretty quickly once they know you are on their side, and you play games with them, and you have fun with them (Personal communication, October 3, 2018).

Dr. Tino stated, “The best parents are the ones that sit there nice and quiet.” His strong opinion may have developed from the unbeknownst, unproductive interaction of the caregiver and the patient. Dr. Tino explained:

Even if they are trying to agree with us, and I say, ‘Ok Buddy, open big.’ And mom repeats every request after I repeat it, most of the time they will only open their mouth after mom says it. So you are breaking down that relationship between the doctor and the patient, because if they respond to me if I ask them to do something, we are establishing that rapport and that trust, as opposed to be just being a vicarious treater through mom or dad. (Personal communication with interviewee, October 3, 2018)

Miss Kebert also described how caregivers may be unproductive during an appointment. She discussed that at times parents say “things that aren’t productive to help build the patient up” for a successful, unfearful dental experience. She said that she will have to “help the parents say the correct words, so that they're not scaring the patient more.” Miss Kebert described an incident that occurred the day of her interview. She stated, “A lot of times the parents can

undermine everything you've done. I had that happen today too. The parents will say, 'Oh x-rays, that's the thing that made you gag before.'" Miss Kebert explained that she will have to reword the expression to calm the child.

'You're so much bigger now, and we have these new ones that are smaller and these are the small ones.' But really, they are the same size they had before. So it sometimes is just that mental thing to prepare them and say the right words to get them to do what you need them to do. (Personal communication with interviewee, October 17, 2018)

Satisfied caregivers. My participants discussed their perception of how the caregivers felt when they were treating a caregiver's child with ASD. Dr. Vincent said, "The parents are terrified. They don't know how their child is going to react. They've taken their child to pediatricians. They've taken them to neurologists. They've taken them to behavioral specialists. Many of the patients are on extensive medications" (Personal communication with interviewee, August 2, 2018). Dr. Tino explained that patients with ASD may have had terrible experiences at other offices "where they wrestled with the kid, and the assistant sat on them, and dad had to wrangle the leg." He explained that even with the behavior of the child, the parents will remember how the dental provided treated their child (Personal communication with interviewee, October 3, 2018).

Dr. Terrance felt that "in pediatrics especially, you are really treating the child and the parent together. It's hard to separate the two" (Personal communication with interviewee, September 24, 2018). Dr. Cresswell mentioned a similar statement. She had concerns for making certain her treatment of the patient went well by desensitization and routine orientation so that the appointment was not "disastrous" for the caregiver" (Personal communication with interviewee, August 17, 2018).

One-fourth of my participants discussed that caregivers are often surprised with how well their child accepted dental treatment. The participants who acknowledged the caregivers' appreciation were some of my participants who were the most seasoned treating patients with ASD. Dr. Vincent spoke of the reward of acclimating a child with ASD to dental treatment and the reaction of the caregiver. He said:

The other thing that was rewarding was when you could get a patient that is on the autism spectrum and you can get them to start accepting dentistry, and know that you have achieved some success. They are coming in, and they will sit in the dental chair. The parents are at ease, and the parents are comfortable knowing that their child is starting to acclimate to something. So that's the best and rewarding part. It's beyond rewarding.

(Personal communication with interviewee, August 2, 2018)

Dr. Tino also discussed the eventual ease that the caregivers feel. He discussed another hypothetical situation with caregivers. He explained that he will often say, "Well, you know, kids like Billy do well like this, and is that ok?" He said that the caregivers reaction is typically, "No, no, no, he can't do that." However, he stated:

Most of the time they can. We have enough experience and enough of a protocol in place. We rarely run into serious difficulties, especially now. Most of the time, if we catch them early by the time they are 5 or 6, they are at ease and the parents are at ease with us and it goes great. (Personal communication with interviewee, October 3, 2018)

Dr. Terrance and Dr. Tino both discussed the relationship of trust that is built with the caregivers. Dr. Terrance stated:

When you earn the trust of the parents, they want to take your advice and see that you are making strides with their child, and they give you that gratitude for seeing the

improvement, and for having their child treated as special and at the same time as close to normal as possible. I think parents really appreciate that. (Personal communication with interviewee, September, 24, 2018)

Dr. Tino discussed an experience with a patient who he helped desensitize to dental treatment. He said, “The parents were on board, and we worked together, and they called me for advice.” Dr. Tino concluded that the experience may be scary for the family. The families may not have had many positive experiences. He said that it is really gratifying “when you can give a kid a pleasant experience, because most kids walk out with a big smile on their face” (Personal communication with interviewee, October 3, 2018). He also talked about the importance of gaining the trust of the caregivers by keeping composed during difficult treatments.

If you’re smiling and laughing the whole time, even if you are a little conflictive on the inside, it pays you back, because not only are the parents more trusting of you, they know you are going to do your best and that may not be perfect. (Personal communication with interviewee, October 3, 2018)

Dr. Vincent discussed how the caregivers’ satisfaction helped create a network of patients. He stated:

We never really advertise anything, but one parents talks to another in their circle and [would say,] ‘We went to Dr. Vincent and Justin did really well, and we never thought we would be able to accomplish something.’ And yet you did and then you have five or six other patients coming in. (Personal communication with interviewee, August 2, 2018)

Table 3

Analysis of Blank Patient Forms

Participant	Question about ASD	Description
Dr. Smith	Yes	Autism, PDD, Asperger's Syndrome
Dr. Hyland	No	NA
Dr. Vincent	Not available	NA
Dr. Norman	No	NA
Dr. Cresswell	Yes	Autism or ADHD
Dr. Blaine	No	Learning disability
Mrs. Kapusta	No	NA
Dr. Terrance	Yes	Autism, PDD, Asperger's Syndrome
Dr. Lynch	No	NA
Dr. Tino	Yes	Autism
Mrs. Owens	No	NA
Miss. Kebert	Yes	Autism, PDD, Asperger's Syndrome

Research Question Responses

I had one central question and three sub questions in my study. Most of the themes that emerged were directly related to the questions, while other questions required more discussion to fully answer the questions. A discussion of all of the questions are provided.

Central Question. How do dentists' and dental hygienists' preparedness affect their manageability of behaviors for patients with ASD during dental treatment experiences?

I used the participants' interviews, question number seven of the participants' surveys (Table 4), and the document analysis of pictures of the dental offices to answer the central question in my research study. I discussed the barriers to treatment throughout theme six that detailed the participants' challenges and frustrations treating patients with ASD. The challenges that the participants experienced were combative patients, communication barriers with non-verbal patients, patients who could not communicate effectively, and patients with sensory integration difficulties. The frustrations that existed among the participants were not completing patients' treatment, regression, and time constraints.

My participants discussed individualizing appointments and desensitizing and conditioning patients to the dental experience as a way to manage the behavior of patients with ASD because of the challenges that patients with ASD exhibit. The participants' preparedness was a blended method of physically preparing the environment and a conscious intent to use flexibility and techniques to progress through treatments in an individualized manner.

Dr. Terrance described the necessity of individualization for his patients with ASD. He said:

Don't walk into the appointment assuming you are going to do the normal steps you would do with a similar, cognitively, normal patient of the same age. You are going to have to bend to what they will give you as far as cooperation and interaction. (Personal

communication, September 24, 2018)

Dr. Smith stated, “There’s no one formula that works for everyone you have to figure out what works for each individual, each child, and go from there” (Personal communication with interviewee, June 22, 2018). Mrs. Kapusta included that “Everybody is different. You just compromise” (Personal communication, September 20, 2018). Dr. Lynch provided an example of how she individualized treatment for a patient with ASD. She said, “[I have] one patient who hates the prophylaxis cup. He doesn’t like the motorized prophylaxis so we... stand at the sink with him and we brush his teeth. It’s not ideal, but it gets the job done” (Personal communication, September 28, 2018). Similarly, Mrs. Kapusta wrote, “I have cups of water ready, because the noise from the suction bothers them. I have a toothbrush with toothpaste ready, because the noise from the prophylaxis angle bothers them” (Survey, October 7, 2018).

Several participants discussed using the patient’s preferences as a way to individualize treatment. Dr. Tino explained that he individualized treatment for his patients. “Some kids like a particular chair, or a particular person, or particular flavor, or all of the above, and they need to be a certain way” (Personal communication, October 3, 2018). Dr. Cresswell, Dr. Vincent, Dr. Hyland, and Miss Kebert explained that their patients with ASD often prefer the same operatory, or same clinician, which are provided to individualize the treatment and condition the patient to the dental office (Survey, August 20, 2018; Survey, October 8, 2018; Personal communication with interviewees, June 26, 2018; Personal communication with interviewee, October 17, 2018). Another way to individualize patient care through consideration of patient preferences was discussed by Dr. Smith. She considered her patients’ preferences to flavors and textures during appointments (Survey, June 22, 2018).

Many of the participants discussed familiarizing their patients to their office as a way to condition them and reduce their fear. Dr. Hyland said, “A big thing is not jumping them straight in the unknown, kind of getting them acclimated at first. So even if they come and check out the practice first and [get] absolutely no treatment that day [that is okay]” (Personal communication with interviewee, June 26, 2018). Dr. Vincent explained what he did to familiarize his patients to their “dental home.” He said, “Spending time with the child before even trying to do any kind of examination and then just going very, very slowly.” He explained that the first visit he may just do an exam and then “bring them back for subsequent visits” that are “short and sweet” (Personal communication with interviewee, August 2, 2018). Dr. Cresswell discussed that if she knew the patient had ASD prior to the treatment, she would “not do any work that day—just try and show them the room and the providers—just so it's not so foreign” (Personal communication with interviewee, August 17, 2018).

Dr. Smith, Dr. Terrance, and Dr. Tino described collaborating with the caregivers to determine the goals of the treatment and preferences of the patient. Dr. Tino explained, “We will speak with parents of new patients ahead of time to nail down any potential fears or problems” (Survey, October 15, 2018). Dr. Terrance wrote “listening to the preferences and concerns of parents” as a way to individualize the treatments for his patients with ASD (Survey, October 1, 2018).

Seventy-five percent of the participants discussed the Tell-Show-Do approach that could be used to condition a patient with ASD to dental experiences. Dr. Norman explained that he learned the Tell-Show-Do technique during his training. He said that the approach is used for all children because typically developing children will also not want to engage in conversation or maintain eye contact (Personal communication, August 3, 2018). Dr. Norman said, the Tell-

Show-Do- management style [is] where I am telling them what I'm about to do, showing them how I'm going to do it, whether it's with a hand-piece, an explorer, a mirror, and then actually doing it" (Personal communication with interviewee, August 3, 2018). Dr. Smith said, "I walk them through that whole process of what it will feel like and what to expect. You have to really explain and have them understand what it is going to feel like" (Personal communication, June 22, 2018). Similarly, Mrs. Owens recommended "walking them through all [of] the steps" and going slow" as advice she would give to a dental professional who had never treated a patient with ASD (Personal communication with interviewee, October 5, 2018).

Dr. Cresswell said, "[I] show them everything ahead of time before I do anything. I will say, 'I will be using a high-speed drill, or this is going to feel a little bit bumpy' or 'this is going to spray water, this whistles, this one feels bumpy' ... I'm not surprising them with the next step" (Personal communication with interviewee, August 17, 2018). Dr. Vincent, Dr. Terrance, and Dr. Hyland shared how they use the Tell-Show-Do technique with their patients.

Mrs. Kebert used the Tell-Show-Do approach, but referred to the technique as "sights and sounds." She explained, "I am a big, big believer in the sights and sounds. I'll do that as much as I possibly can." She said:

You're showing them the sights that [they are] going to see and the sounds that [they are] going to hear, and you're going to break that down into each step in the least invasive way possible, and then you're going to slowly move it into their mouth. (Personal communication with interviewee, October 17, 2018)

She added:

Basically it's just a matter of the stimulus—trying to reduce as much of that as you can. And then it's a matter of talking calmly and slowly and [having] a relaxed conversation

with them, so that they can process it a little bit better what you're going to be doing, and just communicating the best that you can [with] one step at a time. They're very literal so [I would say,] 'The first thing I'm going to do is I'm going to count your fingers.' And I'll count their fingers. 'Now I'm going to show you this.' And because they're very sensitive to sounds, I'll start the suction half way so they can hear it suck the water out of the cup. Then we will spray the water into the cup, so they will hear that sound—just desensitizing them to the repeated exposure to the sounds and the feelings. (Personal communication with interviewee, October 17, 2018)

Miss Kebert explicitly explained how she used the sights and sounds to desensitize her patients.

She explained:

One thing that I do frequently with special needs and autistic patients in particular would be having them come back on a more frequent recall. If they're really struggling to get accustomed to what we do in the office, they might come in one time and I'm going to count their fingers. I'm not going to have them get in the dental chair. You find their comfort level. So if they're scared to get in the dental chair, then you can [have them] just sit in... a regular chair. If they're not comfortable doing that, then you [can have them] stand. You just keep going until you find what works for them." (Personal communication with interviewee, October 17, 2018)

Miss Kebert stated, "Sights and sounds are one of those things that I do over and over, every time they come, as long as they're showing that there is some concern for them" (Personal communication with interviewee, October 17, 2018).

Desensitization is a technique that some of the participants utilized. Dr. Tino trained his "staff personally with desensitization protocols" which means that he brought patients with ASD

“in at the beginning for more frequent very, very easy visits” (Personal communication with interviewee, October 3, 2018). He elaborated:

We do short, easy, frequent visits for the first few depending on the child. Sometimes it will just be the assistant or hygienist. I will try and make an appearance every time, but sometimes they are a little scared of guys. So sometimes it is just easier to have the kid come in, go for a ride in the chair, brush their own teeth, and that’s it. Then they come back and do one step more the following time and building them up for a regular cleaning or a filling. (Personal communication with interviewee October 3, 2018)

He further explained:

We get them used to the sights, the smells, the sounds, the people. Then, building up- sometimes [we will] see them every week, every month, or every 2-3 months, depending on the situation, and ease them into regular, standard pediatric care. Often times [it takes] one to three months, and in some cases it’s several months or even years. (Personal communication with interviewee, October 3, 2018)

Dr. Blaine described how he desensitized patients with ASD. He discussed:

Start out with things that are familiar with them and progress to things that are new. So when I do an exam with any of my patients, the first thing I start with is a toothbrush. I don’t start with a mirror and a pick. I show it on their hand, and I see how they react to that. I show them when I touch their mouth, and I see how they react to that. I lift their tooth. I tickle it... You don’t just sit down and blow air on a person's tooth. You blow it on their finger, then their hand, then their arm, then their face, and then you blow on their front tooth. Then see how they react. (Personal communication, August 21, 2018)

Dr. Smith reiterated desensitization as a technique to individualize patient treatment (Survey, June 25, 2018). She explained how she progressed with treatment when she felt a patient was able to accept the dental care. “Once we get a certain comfort level, then we can add different things to the visit. We can add a scaler to clean your teeth, and we’re not going to tell the child it’s a scaler, but we’re going to use certain words and terms to explain everything” (Personal communication with interviewee, June 22, 2018). Miss Kebert also detailed how she progressed patients through their care. She worked in a dental office with a bay of hygiene chairs. She stated that she will often treat the patients with ASD in a back private room and desensitize them to the bay area. She said:

Once they’re to the point where they’re completely comfortable in the back room, then we can graduate them and try it out in the hygiene bay. If that is difficult for them, then we can always move back to the other room again. We try to keep progressing through the treatment by moving them as much as possible. If they are completely comfortable in the back with everything we do, then we definitely would love to mainstream them and put them into the big room with everybody else. But, for some kids that’s a lot of commotion out there, so we just can’t. (Personal communication with interviewee, October 17, 2018)

The participants discussed considerations with scheduling as a way to prepare to manage the behaviors of patients with ASD. Dr. Smith said more frequent visits were advantageous to her patients with ASD. Dr. Smith explained that she recommended seeing her patients every three months, but she is unable to bill for desensitization appointments. She stated:

A lot of times it’s up to the provider to decide what they want to do. Sometimes you can bill for an exam every three months and then every 6 months do the cleaning because the

insurance will cover the cleaning every six months. I've had cases where there is no charge. (Personal communication with interviewee, June 22, 2018).

Greater time at each appointment was also a suggested approach. Dr. Hyland said that she may schedule a two-hour block for a patient with ASD compared to only one hour for a typically developing patient (Personal communication with interviewee, June 26, 2018). Dr. Smith also said that because she thoroughly explained what to expect during her treatment, the appointments sometimes require a longer allotment of time (Personal communication with interviewee, June 26, 2018). Dr. Tino confirmed that he offered “flexible scheduling” to his patients with ASD as a way to individualize dental treatment (Survey, October 15, 2018). Dr. Lynch discussed that particular times of day were best for various patients. She said:

We try to figure out what day and time, or time of day works best for them. Some kids are better when they first wake up and other ones are better later in the day. If we find a certain time or we find if they're more relaxed or less stressed, we try to schedule it around their schedule to try to accommodate for them to be more relaxed. (Personal communication with interviewee, September 28, 2018)

Role playing was another approach that was discussed to help manage the behavior of patients with ASD. Mrs. Kapusta explained that she used her stuffed teddy bear Jimmy, to role play brushing teeth (figure 1). Dr. Smith encouraged caregivers to role play at home with store bought dental items (Personal communication, June 22, 2018). Miss Kebert detailed how she role played with a stuffed alligator. She explained:

I have a big toothbrush that comes with them, the big toothpaste, a separate play mirror, and a play tooth cleaner, and I'll do everything that I'm going to do on their teeth...on the alligator. A lot of the kids relate better to that alligator than they do to show it on

themselves, so I'll just show it on the alligator. Then I've even gone as far as making the alligator hold the mirror and say, 'Okay, you look at the alligator's teeth.' And they look. Then I say, 'He's going to look at your teeth.' I will literally put the mirror in the alligator's hand and move the mirror around their mouth with the alligator's hand. It's amazing what they'll let me do. You just have to be creative. (Personal communication with interviewee, October 17, 2018)

Two of the participants discussed that they used visual pedagogy to help their patients accept the dental treatment. Dr. Tino explained that he used a picture booklet for his new patients with ASD. He said:

We also have a little booklet. It's like a little photo album of pictures of the building, then pictures of our front desk person with a big smile on their face, a picture of the chair with a kid brushing their teeth, and snapshots all in a row of what we will be doing. A lot of kids will use that as, 'Ok, I have read the book 20 times. Now I know this is what we are going to do next, and this is who that is.' That's sort of our preparation. (Personal communication with interviewee, October 3, 2018)

Dr. Smith said that she discovered the picture book to be helpful. (Figure 2) She said the book covered the steps involved with the visit—"entering into the building, sitting in the waiting room, and having your name called." She explained more pictures of lying back in the chair, having your teeth counted and cleaned, receiving x-rays, and getting stickers at the conclusion of an appointment. She had found it helpful to insert her patient's favorite characters in the picture book to practice at home what will happen prior to the experience (Personal communication with interviewee, June 22, 2018).

My participants discussed their abilities to manage the behaviors of patients with ASD in their dental offices. They used many of the same techniques and approaches through desensitization and conditioning their patients to provide treatment. Tell-Show-Do, was the most common technique that my participants engaged in to manage their patients.

Table 4

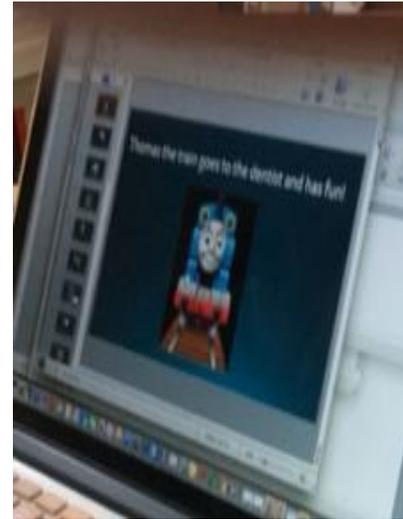
Participants' Survey Question Seven Response

Participant	Survey Response to Question: Describe how you individualize dental treatment for patients with ASD. Please write not applicable if you do not individualize treatment.
Dr. Smith	Every patient has different goal for visit. Some patients come back for desensitization visits. Some do not have to come back every three months. Some children have to be treated under general anesthesia if they have extensive treatment needs. Working with parent on texture/flavor issues. Some children do well with counting, lists, or picture books. Working with the parents to determine the best way to proceed with treatment.
Dr. Vincent	Quiet operators. No outside stimulation. Dimmed lights. Blanket covering patient torso to remove tactile stimulation
Dr. Norman	I treatment plan these patients like any other. If they need fillings, cleanings, crowns, root canals, then that is what is needed. However, the difference comes down to what I can accomplish in my chair with the patient safely.
Dr. Gage	N/A
Dr. Terrance	Chiefly by listening to the preferences and concerns of parents, and being flexible with my approach to each patient's give and take.
Mrs. Kapusta	I have cups of water ready because the noise from the suction bothers them. I have a toothbrush with toothpaste ready because the noise from the prophylaxis angle bothers them
Dr. Tino	We will speak with parents of new patients ahead of time to nail down any potential fears or problems. We will only do what patient is comfortable doing, pushing a small amount each visit. We will see them in the same chair with the same staff to establish a pattern and familiarity with the office for them.
Mrs. Owens	N/A
Mrs. Kebert	I literally "read" their behavior. I see what works and what doesn't. I find out what words to use and not use for each patient. Some patients let their walls down easily and some patients require more time to build trust and positive experiences before they will let you into their world. I find out through working with them early on in the appointment what sights and sounds affect them in a negative manner, and I work to desensitize them through play and using a less invasive approach. For instance squirting the water in a cup so they see how it works before I squirt it in their mouth. Or touching my instruments on their finger before approaching their mouth. I also gauge whether they are sensitive to the commotion in the open bay setting or if they would do better in a quieter, more private room.

Figure 1



Figure 2



Sub question one. How do the experiences of treating patients with ASD, previous trainings, and prior knowledge influence the dental environment? I presented how past experiences and previous trainings influenced my participants' preparedness to manage the behaviors of patients with ASD in Theme Five- The Influence of Preparedness. Forty-two percent of my participants believed they learned how to treat patients with ASD through a '*learn as you go*' approach. They improved their techniques with more opportunities to treat patients. Sixty-seven percent of my participants believed it was their own experience treating patients with ASD that created their preparedness. Reflection after treatment was a practice that 17% of my participants engaged in that influenced their preparedness. Twenty-five percent of my participants utilized note take strategies to help prepare for future appointments. Maintaining the consistency that was used at previous appointments for concurrent appointments was stated by 42% of my participants. Previous training through continuing education was discussed by 33% of my participants, with an additional 17% of participants discussing being aware of trainings focused on ASD.

My participants' prior knowledge of ASD was evident in their preparation of the dental environment. I analyzed the participants' interviews, question number four from the online surveys (Table 5), and the document analysis of photographs that I captured. The participants adapted the dental environment through visual, auditory, olfactory, gustatory, and tactile means.

Visual. Visual adaptations were the most common technique my participants employed to prepare the dental environment for their patients with ASD. Darkened rooms or dimmed lights were a popular way to adapt the physical environment of the dental office to assist with successful dental treatment for patients with ASD. Dr. Smith, Dr. Terrance, Miss Kebert, Mrs. Owens, and Dr. Vincent discussed that they dimmed the lights and used the natural light to treat their patients (Personal communication with interviewee, June 22, 2018; Personal communication with interviewee, September 24, 2018; Personal communication with interviewee, October 17, 2018; Personal communication with interviewee, October 11, 2018; Personal communication with interviewee, October 8, 2018). Dr. Tino and Mrs. Kapusta shared that they provided sunglasses to their patients to reduce the required light that was needed to complete dental treatments (Personal communications with interviewee, October 3, 2017; Personal communication with interviewee, September 20, 2018).

Visual distractions were purposely provided to and intentionally avoided for patients with ASD. Electronics were provided as a purposeful distraction. Dr. Smith, Dr. Hyland, Dr. Norman, Dr. Terrance, and Miss Kebert had televisions in their dental offices and allowed their patients to watch cartoons and movies (Personal communications with interviewee, June 22, 2018; Personal communication with interviewee, June 26, 2018; Personal communication with interviewee, August 3, 2018; Personal communication with interviewee, September 24, 2018; Personal communication with interviewee, October 17, 2018). Examples of tv in the

participants' offices are presented in figure 3 and figure 4. Dr. Terrance said that he often had his patients' favorite show playing on the television (Personal communication, September 24, 2018). Dr. Smith had an electronic tablet for her patients to play on (Document analysis, June 22, 2018). (Figure 5) Dr. Blaine displayed a visual distraction of clouds on his ceiling and a textured fish on his wall. (Figure 6 & Figure 7) Mrs. Kapusta hanged children's drawings on her walls. (Figure 8) Dr. Terrance wrote that he used a pleasant color scheme in his office (Survey, October 1, 2018).

Several of the participants' dental offices were set up as open bays with many dental chairs lined in rows. One dental office is represented in Figure 9. The open bay configuration allowed for patients to view each other's behaviors which reinforced expectations in the dental office. Dr. Terrance and Miss Kebert discussed that their office set up allowed for the modeling of behaviors for their patients (Personal communication with interviewee, September 24, 2018; Personal communication with interviewee, October 17, 2018). The participants discussed removing visual distractions in the dental environment by providing dental treatment in a quiet room. Dr. Smith, Dr. Terrance, and Miss Kebert described quiet rooms where they treated some patients with ASD (Survey, June 25, 2018; Survey, October 1, 2018; Survey, October 20, 2018). Dr. Tino discussed that not all of his exam rooms had doors. He stated that if a child comes into his building screaming, he is "prepared to have a quiet room empty, or just a room that has a door" (Personal communication with interviewee, October 3, 2018). Mrs. Owens described utilizing a "private, quiet room" for her patients with ASD (Survey, October 11, 2018). Dr. Vincent, Dr. Norman, and Dr. Cresswell also mentioned treating patient with ASD in a quiet and calm location (Personal communications, August 2, 2018; Personal communication with interviewee, August 3, 2018; Personal communication with interviewee, August 17, 2018).

Auditory. My participants discussed auditory adaptations to their dental environments. The most common auditory adaptation described by half of my participants was providing a calm and quiet atmosphere. Some examples of quiet locations were aforementioned with removing visual stimuli. Miss Kebert wrote, “For some autistic patients [the dental] setting can over stimulate, so we are able to move them to a private room [and] create a quieter setting” (Survey, October 17, 2018). Dr. Norman, Dr. Cresswell, Dr. Vincent, and Mrs. Owens all wrote that they provided a calm or quiet atmosphere for their patients with ASD (Survey, August 9, 2018; Survey, August 20, 2018; Survey, October 8, 2018; Survey, October 11, 2018). Dr. Tino described that he had quiet rooms waiting for children with ASD (Personal communication with interviewee, October 3, 2018). Three of my participants wrote in their surveys that they had calming music that was played in their dental offices (Survey, October 1, 2018; Survey, October 7, 2018; Survey, October 11, 2018). Dr. Hyland commented that she encouraged the caregivers to bring headphones for their child to wear during dental treatment (Personal communication with interviewee, June 26, 2018).

Tactile. Tactile adaptations were used the least by my participants. Three of my participants discussed that they used an item that was weighted to drape over their patients’ chests and laps during dental treatment. Dr. Vincent wrote that he used a blanket to cover the patient’s torso to remove tactile stimulation (Personal communication with interviewee, August 2, 2018). Dr. Cresswell and Mrs. Kapusta shared during their office tour that they draped x-ray shields on their patients as calming mechanisms (Personal communication with interviewee, August 17, 2018; Personal communication with interviewee, September 20, 2018). Dr. Terrance and Dr. Tino discussed that they permitted their patients to hold stuffed animals during dental treatment. An example is provided in (Figure 10). The dentists explained that they had stuffed

animals waiting for their patients on the dental chairs (Personal communication with interviewee, September 24, 2018; Personal communication with interviewee, October 3, 2018). All of the participants provided treats or prizes for their patients as a reward after their treatments. An example is provided. (Figure 11)

Olfactory and gustatory. Four of my participants discussed adapting flavors or modifying the paste for their patients with ASD. Miss Kebert stated, “a lot of times the taste and the textures of our toothpaste bothers” patients with ASD (Personal communication with interviewee, October 17, 2018). Miss Kebert, Dr. Smith, and Dr. Terrance permitted their patients to bring in their personal toothpaste from home. Miss Kebert discussed that she used the patients’ toothpaste from home, and then added “a little bit of prophylaxis paste so they can start to get used to that texture” (Personal communication with interviewee, October 17, 2018). Dr. Tino said that some of his patients preferred a “particular flavor” of paste (Personal communication with interviewee, October 3, 2018). Dr. Terrance described that his dental atmosphere had a “neutral scent-it doesn’t ‘smell like a dental office’” that would help patients with ASD who are sensitive to smells (Survey, October 1, 2018).

Figure 3



Figure 4



Figure 5



Figure 6



Figure 7



Figure 8

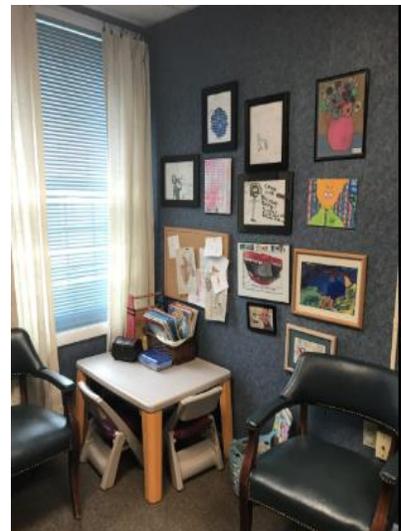


Figure 9



Figure 10



Figure 11



Table 5
Participants' Survey Question Four Response

Participant	Survey Response to Question: Describe the dental atmosphere and environment in your dental office that would encourage successful treatment for patients with ASD.
Dr. Smith	Private treatment rooms allow for modification of treatment based on patient. Story picture books help with getting used to new environment and dental instruments. Encourage desensitization visits every 3 months to foster positive dental experiences.
Dr. Vincent	A quiet room with no outside distractions
Dr. Norman	Separate operatory with space for caregiver to seat in front of patient's view. Ideally the dental atmosphere would be calming and without it being overcrowded. A TV or something similar placed in front of the patient for distraction.
Dr. Gage	Same operatories with same providers, try to maintain quiet and calm atmosphere
Dr. Terrance	As a pediatric practice, the setting has generally calming music, a pleasant color scheme, lots of natural lighting, neutral scent (it doesn't "smell like a dental office") and both opportunities for modeling behaviors in common treatment areas as well as "quiet rooms" that are less stimulating. We are not rigid with our demands on patients with ASD, and try to modify our approach to each patient's individual needs. Finally, we provide several levels of behavior management from tell-show-do to general anesthesia.
Mrs. Kapusta	Christian music playing, drawings done by kids hanging in the walls
Dr. Tino	Friendly staff, quick and easy introductory appointments, good prizes, flexible scheduling, we take all insurances (in MA, special needs patients are often given Medicaid support in addition to the parent buying private insurance. The fact that we take Medicaid means the parents rarely if ever have any out of pocket cost)
Mrs. Owens	Private, quiet, music light not loud.
Mrs. Kebert	We have an open bay setting with several chairs in one room. It doesn't feel like a dental or medical setting. It helps the special needs patients because they are able to see the other patients going through their visit as well. For some autistic patients this setting can over stimulate so we are able to move them to a private room, create a quieter setting, dim the lights, and stream Netflix quietly on the ceiling to help distract them.

Sub question two. What are novice dentists', experienced dentists', and dental hygienists' personal reactions to the behaviors exhibited by people with ASD during dental treatments?

There was one similarity in the responses between the novice and more experienced dentists with their reactions to the behaviors of patients with ASD. I discussed in theme six that every dentist regardless of their status of experience had some level of frustration or challenge when treating patients with ASD. The common challenges were patients who were combative or who had communication or sensory difficulties. The common frustrations that existed were the inability to complete dental treatment, feelings of being overwhelmed, patients who regressed, and time constraints to complete appointments. The intensity of the challenges and their frustrations were diverse compared to their level of experience. There was no evidence to support greater challenges among the novice dentists compared to the more experienced dentists. Every dentist experienced challenges and frustrations regardless of their status of experience.

I asked every participant during their interview to state three words to describe their overall feelings toward treating patients with ASD. (table 6) Many of the participants believed this question was difficult to answer. They often required some time to think about their response before answering. Some of the participants were able to only think of two words. Dr. Blaine initially answered the question with an inquiry with the level of wonder as to how in tune the patients were to their surroundings. He followed up the response by wondering to what level he could declare the patient's treatment a success.

Two of the novice dentists stated the words challenge or challenging. Other words stated by the novice dentists were modification and limitation. The responses indicated that the novice dentists felt the restraints of treating patients with ASD as a result of the patients' behaviors.

Two of the novice dentists stated the words comforting, cautious, thorough, flexible and open-minded. Their responses revealed their own state of awareness of how they needed to behave to be able to treat patients with ASD. One of the novice dentists stated the word excited. Dr. Smith exuded an overall, sincere excitement for treating patients with ASD. She stated, “I feel excited. I look forward to it. I see it as a challenge, but I like the challenge” (Personal communication with the interviewee, June 22, 2018). Dr. Smith discussed that she set goals for her patients and wanted to accomplish them.

The experienced dentists stated different reactions than the novice dentists to treating patients with ASD. Two of the experienced dentists stated the word trepidation when asked to state words to describe their reaction toward treating patients with ASD. Another dentist stated the word awareness. Their reactions were indicative of the idea that Dr. Terrance expressed “Once you have met one person with autism, you have met one person with autism. They all have a different approach that they need to take” (Personal communication with interviewee, September 24, 2018). The experienced dentists understanding of the individual consideration that is necessary to manage the behaviors of patients with ASD was apparent through their responses of their own unease and need to be fully aware.

All of the experienced dentists stated a positive affirmation for their reactions to managing the behaviors of patients with ASD. Their choice of words included emotionally satisfied, gentleness, optimism, rewarding, and making a difference. The revelation with the positive reactions showed the contentment that is experienced by treating patients with ASD. The results were consistent with the third theme of gratification. Dr. Vincent and Dr. Lynch felt an intrinsic reward that they were the provider who treated patients with ASD. Dr. Vincent, Dr.

Lynch, and Dr. Tino felt gratification that their patients accepted the dental care. Dr. Terrance felt rewarded when his patients were compliant to the treatment that he provided.

The three dental hygienists were all considered experienced in their field with over 12 year of experience and 66 years of experience combined. The dental hygienists stated positive affirmations similar to the experienced dentists. Love, empathy, compassion, happy, rewarding, and positively challenging were among the words expressed by the hygienists. Miss Kebert stated that she loved the challenge. She said, “I feel proud that I am able to see them through a tough situation, and something they are struggling with, and I can make it better” (Personal communication with interviewee, October 17, 2018). Mrs. Owens confirmed that she is “happy if it works” (Personal communication, October 5, 2018). She found pride when she was successfully able to complete treatment with a patient with ASD. Mrs. Owens stated that she felt nervous and flustered as well. The description of nervousness may be considered acquainted with the experienced dentists feelings of trepidation. Mrs. Owens elaborated on why she felt flustered treating patients with ASD. She said:

It can be frustrating because we are on a schedule—on a time limit schedule. Those patients take longer, but we're not always given that time. So I'm thinking about the two [patients] after them that are already starting to wait for me while I'm trying to get through this appointment. (Personal communication with interviewee, October 5, 2018)

Table 6

Participants' Descriptions of Treating Patients with ASD

Novice Dentists	Descriptions
Dr. Smith	excited, challenging
Dr. Norman	challenge, modification, limitation
Dr. Cresswell	Open-minded, flexible
Dr. Hyland	comforting, cautious, thorough
Experienced Dentists	
Dr. Vincent	trepidation, satisfaction, emotionally satisfied
Dr. Terrance	a level of trepidation, optimistic
Dr. Tino	patience, awareness, and gentleness
Dr. Lynch	rewarding, making a difference
Dr. Blaine	wonder what constitutes a success (paraphrased)
Dental Hygienists	
Mrs. Owens	nervous, flustered, happy (if successful)
Mrs. Kapusta	empathy, love, compassion
Mrs. Kebert	rewarding, (positively) challenging, proud

Sub question three. How do pre-doctoral dental school educational experiences and dental hygiene trainings prepare novice dentists, experienced dentists, and dental hygienists to treat patients with ASD? Sub question three was fully discussed in the fifth theme—The Influence of Preparedness. My participants attended a total of 13 higher education institutions for their doctoral trainings, residencies, and dental hygiene trainings. None of my participants

attended the same higher education institution together. I assigned the colleges, universities, and technical schools a letter pseudonym to protect the school's identity. (Table 7)

The inclusion of training for treating patients with special needs and specifically ASD in doctoral training and dental hygiene training was indicative of the recency of their schooling. Dr. Smith confirmed that her instructors discussed treating special needs patients in general through lectures multiple times. She said that her exposure was limited during her pediatric residency, because it was dependent upon what patients were scheduled to come in to the clinic. Dr. Smith did not confirm that she specifically treated any patients with ASD.

Dr. Hyland and Dr. Blaine attended higher education institution G 28 years apart. Dr. Hyland who was a novice dentist was exposed to treating patients with ASD in her program. She completed a two-week rotation for treating adult patients with special needs and fulfilled elective based courses on special needs (Personal communication with interviewee, June 26, 2018). She learned about treating patients with ASD from a pediatric dentist during a rotation. Dr. Blaine discussed that he was not exposed to treating patients with ASD. He mentioned that ASD was not a diagnosis when he attended school. He commented that his attending taught him behavioral management techniques (Personal communication with interviewee, August 21, 2018).

Dr. Hyland completed her residency program and Mrs. Kapusta completed her dental hygiene training at institution M. Dr. Hyland described the quantity of patients with ASD that she treated as "a fair amount" during her residency experience (Personal communication with interviewee, June 26, 2018). Mrs. Kapusta graduated with her dental hygiene degree 30 years prior to Dr. Hyland's graduation. Mrs. Kapusta stated that she did not learn anything about ASD during her training (Personal communication, September 20, 2018).

Dr. Norman and Dr. Lynch attended higher education institution C for their general dentistry schooling. Their schooling occurred more than 15 years apart. Dr. Norman stated that his training on ASD “was not in-depth.” He was trained with “principles with pediatric dentistry” that he was able to apply to his patients with ASD (Personal communication with interviewee, August 3, 2018). Dr. Lynch did not have any specific classes on ASD. She was taught how to care for patients with intellectual disabilities referred to as mentally handicapped at the time of her schooling. She stated that “autism was very new and not really known” (Personal communication with interviewee, September 28, 2018).

Dr. Norman explained that he was exposed to treating patients with ASD during his residency at institution K, where Dr. Smith attended dental school. He said that his training consisted of “managing [patients with ASD] in the chair and then forming treatment with local anesthetic, or local anesthesia with nitrous, or making a decision to have them treated in the OR with general anesthesia” (Personal communication with interviewee, August 3, 2018).

Dr. Cresswell and Dr. Terrance attended institution L for their general dentistry degree. Dr. Terrance graduated nine years before Dr. Cresswell. Dr. Terrance stated, “I think I got very little training on handling children with autism in my predoctoral training (Personal communication with interviewee, September 24, 2018). Dr. Cresswell discussed that she completed a one-semester class on treating patients with special needs. She said the training included patients with ASD that exposed her to protocols (Personal communication with interviewee, August 17, 2018). Dr. Terrance graduated with a pediatric specialty degree from institution A. He stated, “I was exposed to a lot of patients with different special health care needs, learning disabilities, intellectual disabilities, and autism.” He believed that he primarily

learned the necessity of providing individual care for patients with ASD (Personal communication with interviewee, September, 24, 2018).

My remaining participants did not attend any of the same schools. Dr. Vincent and Mrs. Owens stated that they did not learn about ASD in their training. Dr. Vincent attended institution E and stated that he “learned nothing” about treating patients with ASD. He concluded:

[I] had very limited experience with any real children in our dental school...Most everything dealt with didactic training on children's dentistry and maybe a clinic where you watched graduate students do their work and assist them, and the most you did on your own was maybe do a cleaning on a child, but no real experience with special needs at all. (Personal communication with interviewee, August 2, 2018)

Mrs. Owens solely learned lifting techniques for patients with physical disabilities at institution J (Personal communication with interviewee, October 5, 2018). Dr. Tino said that he learned “very, very little-mostly conceptual” knowledge during his predoctoral training at institution B. He received some lecture on ASD during his residency, with minimal hands-on training with children or patients with special needs (Personal communication with interviewee; Personal communication with interviewee, October 3, 2018). Miss Kebert stated that she learned basic information as to how to reduce stimuli for patients with special needs during her training at institution H (Personal communication with interviewee, October 17, 2018).

Waldman et al. (2016) explained the adoption of the dental standard pertaining to special needs patients for accreditation of dental schools occurred in 2004 and implementation was required by the year 2006. The novice dentists and two of the experienced dentists were affected under the new standard that was required to be implemented while they attended school. Standard 2-25 is defined as “graduates must be competent in assessing the treatment needs of

patients with special needs” (CODA, 2018b). The intent that accompanies the standard is defined as:

An appropriate patient pool should be available to provide experiences that may include patients whose medical, physical, psychological, or social situations make it necessary to consider a wide range of assessment and care options. The assessment should emphasize the importance of non-dental considerations. These individuals include, but are not limited to, people with developmental disabilities, cognitive impairment, complex medical problems, significant physical limitations, and the vulnerable elderly. Clinical instruction and experience with the patients with special needs should include instruction in proper communication techniques and assessing the treatment needs compatible with the special need. (p. 31)

It must be noted that ASD, nor management techniques were not specifically addressed in the standard. Dr. Hyland and Dr. Cresswell were the only participants who discussed receiving some specific training on ASD during their general dentistry programs. Dr. Hyland raved about her program, while the impression Dr. Cresswell provided was that she received minimal exposure.

Dr. Norman, Dr. Terrance, and Dr. Hyland had some experiences treating patients with ASD during their residencies. The hands-on experience appeared to have the greatest effect on the dentists. Dr. Terrance described learning how to individualize treatment for patients with special needs which is interpreted in the specialty standard 4-18 listed by CODA (2018a) that was required to be implemented during his schooling. Dr. Norman learned how to formulate treatment and manage patient care. His learnings was also classified under standard 4-18 listed

by CODA (2018a). Miss Kebert described learning how to reduce stimuli for patients with special needs. Her learning is compatible with competency standard 2-12 (CODA, 2018c, p. 23).

Table 7

Participants' Higher Education Institutions

Higher Education Institutions	Doctoral Training	Residency	Dental Hygiene Training
A		Dr. Terrance	
B	Dr. Tino		
C	Dr. Norman Dr. Lynch		
D		Dr. Smith	
E		Dr. Vincent	
F		Dr. Tino	
G	Dr. Hyland Dr. Blaine	Dr. Blaine	
H			Miss. Kebert
I	Dr. Vincent		
J			Mrs. Owens
K	Dr. Smith	Dr. Norman	
L	Dr. Cresswell Dr. Terrance		
M		Dr. Hyland	Mrs. Kapusta

Summary

My participants ranged from having two years to over 38 years of experience in dentistry. They presented with a varied knowledge of ASD, which proved to be impacted by the quantity of patients the participants treated and not necessarily their years of experience. The participants revealed an empathic nature toward treating patients with ASD. They disclosed gratification for being able to treat the sub population of patients with ASD successfully. Other participants felt gratified experiencing their patients' acceptance of dental care. Some participants believed in the importance of developing a connection with their patients through building a rapport or gaining trust. My central research question was answered through the participants' preparedness that was influenced from a multitude of factors including their training and residency program, while other participants revealed their training inadequately prepared their ability to treat patients with ASD. Additional ways that my participants were prepared to treat patients with ASD were through a learn as you go approach; continuing to practice and reflect; recalling past experiences treating patients; mentors and colleagues; and continuing education experiences though it was minimal. My participants used a variety of visual, auditory, olfactory, gustatory, and tactile, adaptations to reduce stimuli for their patients. All of my participants experienced some levels of frustrations and challenges managing the behaviors of patients with ASD. Some of my participants also expressed challenges with caregiver support. Other dentists revealed they utilized caregiver support prior to and during appointments. The participants felt satisfaction when caregivers were surprised with their child's dental acceptance.

CHAPTER FIVE: DISCUSSION

Overview

The purpose of my study was to explore the preparedness of dentists and dental hygienists to manage the behaviors of patients with ASD during dental treatments. I discuss the summary of my findings. I provide a discussion of the implications with consideration to the theoretical and empirical literature in relation to the relevant literature and theory that underpins my study. I detail the delimitations and limitations from my study. Finally, I present recommendations for future research.

Summary of Findings

Dental professionals possess a wide range of knowledge of ASD. The participants who treated the greatest quantity of patients with ASD also exhibited a greater preparedness to treat patients with ASD. They shared more techniques and approaches that they believed assisted in the management of the behaviors of patients with ASD compared to the participants with less experience. The participants believed their preparedness was impacted by many factors with the greatest influence being their hands-on experience predominantly during their professional career. Some of the novice participants valued their residency programs, while other participants revealed their training insufficiently prepared them to treat patients with ASD. Recent dental program standard changes may have influenced the novice dentists' dental curriculum, though there was not an abundance of data that supported an extensive preparedness to treat patients with ASD that was influenced by their dental school training. The participants believed in reflection and recalling past experiences treating patients with ASD as a way to improve their preparedness. Learning from mentors and colleagues were also discussed as influences of the participants' preparedness.

The dental professionals felt empathy regardless of the quantity of patients that the dental professionals treated. They believed that patients with ASD deserved the same dental care as typically developing people. Some of my participants believed that their patients with ASD should not be treated differently than their typically developing patients in the essence that all people are created equal. Other participants believed that the ASD sub-population is special and therefore deserved different considerations during dental treatment. The beliefs are grounded in the same understanding that dental professionals need to be able to treat patients with ASD.

The participants experienced gratification in two distinct ways. There was internal gratification felt by some of the participants for being able to treat patients with ASD in their dental office. They experienced great satisfaction because they were able to manage the patients with ASD that may be deemed as difficult by other professionals. Other participants experienced the personal fulfillment observing their patients with ASD who were able to accept their dental care. These participants experienced joy when the patients' progression of dental care culminated with acceptance in their dental office.

Almost half of my participants believed connecting with their patients with ASD was necessary for successful treatment. The participants used rapport building, working toward gaining their patients' trust, and establishing a personal connection by individualizing parts of the dental experience. The participants experienced challenges and frustrations while treating patients with ASD. The challenges were reflective of characteristics of ASD with regard to communication, sensory integration, and behavior. The participants revealed visual, auditory, olfactory, gustatory adaptations that they believed assisted their patients in their dental treatment. Some of the participants valued caregiver support and experienced the reciprocity of happiness

with the parents' satisfaction of the dental care they provided, while other participants experienced a lack of caregiver support that at times negatively affected the dental treatment.

Discussion

I present a discussion on the theoretical literature that underpinned my study. I discuss the adult experiential learning theory and a disability model. I present a discussion on the empirical literature that supported my study. I discuss how my research extends and diverges from the existing literature.

Theoretical Literature Discussion

My study was corroborated by the theory that underpinned my research and was presented in Chapter two—the adult experiential learning theory. Experiential learning is described as a cycle of learning with experience, reflection, and the integration of the knowledge (Dernova, 2015). Experiential learning was the greatest influence of preparedness that impacted my participants to treat patients with ASD through their training programs or workplace experiences. Almost half of my participants discussed their preparedness was partly influenced by their residency program, because they were given the opportunity to treat patients with ASD or special health care needs. Kolb (2014) discussed the practice of higher education institutions providing field experience opportunities for their students as a way to give real-life experiences.

Sixty-seven percent of my participants discussed that they learned how to manage the behaviors of patients with ASD through their own experiences through a *learn as you go* approach and through trial and error. In addition, the participants who treated the largest quantity of patients with ASD were the participants who discussed the greatest overall knowledge of ASD. My study validated the importance of experiencing treating patients with ASD in a real-life setting.

Reflection is a central factor in the adult experiential learning theory. Reflection during the process is what causes the transformation to occur (Kolb, 2014). Two of my participants discussed an element of reflection after treating patients with ASD. Three of my participants shared that they took notes after treatment. The copious notetaking strategy could be represented as a reflection tool that the participants engaged in to document what occurred that would then inform future treatment. The written reflection would permit the participants to document successful strategies that were implemented during the treatment so that consistency may occur for subsequent treatments for the returning patient. The reflection may also serve as a mechanism to remind the provider what did not work to manage the behaviors of the patients with ASD, and therefore function as a reminder of what not to do during future visits. Reflection was not a strategy that was heavily discussed throughout the data, though note taking by providers after dental treatment is a common practice. My study emphasized the importance of the desensitization techniques and reduction or adaptation of stimuli. It may be presumed that the participants actively reflected on treating patients with ASD to transform their knowledge to improve future treatment. My study extended the adult-experiential learning theory.

The disability model was relative to my inquiry. Preston and Fink (2010) asserted that there is ambition to integrate people with disabilities into society. The disability model does not focus on the impairments of people with disabilities, rather the model emphasized the exclusion of people in society. One of the criteria to participate in my study was to have treated at least one patient with ASD in their dental practice. Therefore, all of my participants were able to discuss the inclusion of patients with ASD. My participants revealed feeling gratification for treating patients with ASD. Genuine compassion was perceived from my participants. Weil et

al. (2011) discovered that dentists genuinely liked treating patients with ASD. My study supported the literature.

Empirical Literature Discussion

The literature on dental treatment for patients with ASD examined the barriers that people with ASD present with. Fifty to 70% of children with ASD have uncooperative behaviors while in the dental office (Stein et al., 2014; Brickhouse, Farrington, Best, & Elsworth, 2009; Loo, Graham, & Hughes, 2009; Marshall, Sheller, Williams, Mancl, & Cowan, 2007). Dental providers expressed that the characteristics of ASD are the actual barriers during treatment (Alkahtani, Stark, Loo, Wright, & Morgan, 2014). All of my participants revealed challenges or frustrations treating patients with ASD. The challenges included combative patients and communication deficits with patients who were non-verbal, or could not adequately express themselves effectively. My research enhanced the existing literature that treating patients with ASD proved to be challenging because of their behaviors that are the characteristics of ASD.

My study deviated from the research of Weil and Inglehart (2010) that discussed the overall attitudes of dentists who treat patients with ASD needs improved. My participants revealed a genuine reward for treating patients with ASD and stated many positive affirmations. Some participants revealed their frustrations that existed, though their attitudes remained positive. There was no research on dental hygienists attitudes toward treating patients with ASD. My study filled a gap in the literature by examining dental hygienists' attitudes. The dental hygienists' attitudes were also positive, yet they revealed they feel nervous and challenged as well.

Green and Flanagan (2008) explained that there are many sensory sensitivities—auditory, visual, tactile, olfactory, and gustatory, that patients with ASD may experience in the dental office. My study supported the literature. My participants revealed that their patients with ASD experienced visual, auditory, olfactory, gustatory, and tactile sensitivities during appointments. The participants discussed the adaptations to limit the sensory sensitivities for their patients with ASD during dental appointments that were grounded in the literature. Fully adapted SADE environments were not evident among the participants' dental offices. The use of a wrap similar to the butterfly wrap was the one feature that was not discussed by any of the participants. However, some of the participants revealed that they were aware of fully equipped SADEs that other dentists created for their patients with ASD. The participants who treated the greatest quantity of patients with ASD utilized many of the features of a SADE.

The participants who regularly treated patients with ASD discussed that they incorporated many of the SADE features into their treatments, whereas the participants who treated a minimal number of patients with ASD offered less adaptations for their patients. For example, Dr. Tino confirmed that he treated one to three patients with ASD daily and hundreds of patients with ASD over his years of practice (Survey, October 15, 2018). Dr. Tino stated that he prepared in advance for his patients with ASD that needed more than the “standard have a seat treatment” that the patients without ASD received (Personal communication with interviewee, October 3, 2018). He offered his patients with ASD adaptations and modifications for their dental treatment including desensitization throughout appointments; behavioral management techniques; tactile stimulators (holding stuffed animals); sunglasses; alternate, quiet rooms for treatment; routine oriented appointment; preferred dental staff treating the patients; specific, preferred flavors for toothpaste; and a picture book to orient the patients to the dental

office and staff. The other dental professionals who treated several patients with ASD also offered many adaptations that could be considered SADEs.

The participants who treated minimal patients with ASD, likewise offered minimal adaptations that could be provided without preparation such as a calming voice, dimming lights, and utilizing the Show-Tell-Do protocol. This finding is not fully indicative of the provider's awareness of what may be provided for adaptive treatments for patients with ASD, but may be more indicative of what the providers felt was necessary for the patients who they treated or the severity of the patients' behaviors. The scope of my study focused on what the participants currently employed to assist their patients with ASD, and did not focus on hypothetical situations of what the participants would or could do if treating a patient who presented with behaviors that were unmanageable with their current techniques.

Seventy-five percent of my participants discussed desensitization methods with explicit focus on the Tell-Show-Do strategy. The goal of the strategy is to decrease patients' undesirable behaviors (Appukuttan, 2016). Other goals for the Tell-Show-Do strategy consist of teaching the patient what to expect, allowing the patient to become comfortable in the dental office, and desensitizing the patient to the procedures (American Academy of Pediatric Dentists, 2015). The strategy is a common practice among dental professionals. Brahm et al. (2013) revealed in his study that more than seventy-five percent of the dentists employed the Tell-Show-Do strategy to help reduce patients' anxiety during dental treatment. The findings in my study were consistent with the results in the study conducted by Brahm et al. (2013).

My participants' discussions blended using the Tell-Show-Do strategy and desensitization techniques. Dr. Norman explained that for his patients with ASD, he tells the patients what he is going to do, specifically shows the patients what he intends to do, and

concludes with doing it (Personal communication with interviewee, August 3, 2018). Dr. Smith emphasized that it is necessary to thoroughly explain the procedures to the patient so the patient may fully understand what is going to occur (Personal communication with interviewee, June 22, 2018). Mrs. Owens used the figure of speech of “walking them through” to explain the thoroughness of describing each step to her patients with ASD. She stated that her rate was “very slow” when she implemented a Tell-Show-Do strategy (Personal communication with interviewee, October 5, 2018). The step by step approach was also depicted by Dr. Cresswell. She added that she used the Tell-Show-Do strategy so that she did not surprise her patients with any unexpected procedures during her dental treatment (Personal communication with interviewee, August 17, 2018). Miss Kebert explained that she is a “big believer” in the strategy that she referred to as “sight and sounds.” Miss Kebert stated that she used the strategy often when treating patients with ASD (Personal communication with interviewee, October 17, 2018). Tell-Show-Do is not a strategy that was specifically developed for patients with ASD, though many of the participants commented on the effectiveness of the strategy for their patients with ASD. My research was consistent with former research conducted on the Tell-Show-Do strategy.

Mochamant et al. (2015) discovered that individual behavioral techniques were necessary for patients. My patients revealed how they individualized dental treatment for patients with ASD. Visual pedagogies were not emphasized as an implementation strategy by all of the participants, but were discussed by a few of my participants. My study did not extend the literature on visual schedules (Law, 2015x); Social Stories™ (Gray, 1998); and video modeling (Al-Namankany et al., 2014) as approaches to desensitize patients to the dental environment and treatment.

Other visual pedagogies were used by three of my participants and all utilized differently. Miss Kebert discussed that she had the caregivers use photographs that were taken throughout the treatment as a reference for future appointments and as a way to praise the child for their dental acceptance (Personal communication with interviewee, October 17, 2018). Two of the participants utilized photographs as a way to familiarize the patient to the dental staff and environment. Dr. Tino offered his patients a book showing pictures of his dental office and staff (Personal communication with interviewee, October 3, 2018). Dr. Smith utilized cartoon characters in the photographs (Personal communication with interviewee, June 22, 2018). The literature discussed the benefits of using real photographs of the children with ASD. The implementation of cartoon characters diverged from the literature. Wibisono et al. (2016) explained that using cartoons may require the patient to use abstract thinking to comprehend the material. However, new light may be shed on the consideration of the utilization of a favorite character that is tailored to the child's individual preference which may prove to be a beneficial strategy to obtain patient's dental acceptance.

Many pieces of the literature that I presented in chapter two regarding recommendations prior to and during appointments to assist in the patients' acceptance of dental care was discussed by my various participants. Scheduling flexibility was a recommended suggestion to help patients with ASD have a successful dental appointment (Loo et al., 2009; Nelson et al., 2015). Dr. Lynch and Dr. Tino discussed that scheduling flexibility was an option they provided for their patients with ASD to individualize the patients' treatments (Personal communication with interviewees, September 28, 2018; Personal communication with interviewee, October 3, 2018).

Developing a rapport and gaining trust with patients was a theme among my participants. The theme was supported by the literature of Mawhinney and Hope (2015) who concluded that establishing a rapport with patients would ultimately allow the patient to trust the provider. Dr. Hyland discussed that she does not “dive in” to the treatment with her patients with ASD, rather, she used time to her advantage by slowly showing her patients what she would do. She believed that the dental treatment was easier when the patient trusted her (Personal communication with interviewee, June 26, 2018). Dr. Norman thought developing a rapport was important (Personal communication with interviewee, August 3, 2018). Dr. Terrane and Miss Kebert each expressed they earn the patients’ trust through desensitization techniques (Personal communication with interviewees, September 24, 2018; Personal communication with interviewee, October 17, 2018).

Developing consistency with the routine during dental appointments was a strategy recommended by Nilchian et al. (2017). The repeated consistency increases patient cooperation. Two of my participants revealed that they used consistent routines in their appointments. Dr. Cresswell learned that people with ASD prefer a routine. She said that she provided consistent routines to help her patients have a successful appointment (Personal communication with interviewee, August 17, 2018). Dr. Smith discussed that she recommended role playing to the caregivers to help her patients understand the dental routine (Personal communication with interviewee, June 22, 2018).

Role playing was a recommended strategy in the literature. Fakhruddin and Batawi (2017) revealed that role playing may be used to desensitize patients to dental treatment. The patients were more comfortable with the dental treatment after the role play experiences. Two of my other participants discussed that they role played with their patients with ASD. Mrs. Kapusta

role played with Jimmy (figure 1) and Miss Kebert role played with a stuffed alligator to help their patients become accustomed to the dental treatment (Personal communication with interviewees, September 20, 2018; Personal communication with interviewee, October 17, 2018).

Using a calm voice when speaking to patients with ASD with the use of literal language was a recommended strategy that dentists may use to help patients with ASD during dental treatment (Nelson et al., 2015). Kuhaneck and Chisholm (2012) discussed counting as an approach to help patients through their procedures as well. One method that Mrs. Kapusta found that worked well was lowering her voice and speaking with a firm authority mostly over top of the noise of the equipment (Personal communication with interviewee, September 20, 2018). Miss Kebert mentioned that patients with ASD are very literal and she utilized a calm tone and a slow rate when speaking to assist her patients during dental treatment (Personal communication with interviewee, October 17, 2018). Dr. Smith discussed that she engaged in counting to help her patients during their appointment (Personal communication, June 22, 2018).

Cermak et al. (2015) discovered that butterfly wraps were a component of a SADE that helped patients with ASD. The wraps provided deep pressure and brought comfort to the patients with ASD. The patients were able to accept dental treatment better than without the use of a tight wrap according to the caregivers who participated in the study. Three of my participants disclosed that they used weighted items to provide the deep pressure for their patients. Kuhaneck and Chisholm (2012) and Nelson et al. (2015) recommended using weighted vests to help patients with ASD during treatment. Dr. Cresswell and Mrs. Kapusta showed me how they draped x-ray vests across their patients with ASD (Personal communication with interviewees, August 17, 2018; Personal communication with interviewee, September 20, 2018).

Dr. Vincent used a blanket to remove tactile stimulation for his patients (Personal communication with interviewee, August 2, 2018).

Nelson et al. (2015) suggested allowing patients with ASD to use coping toys during dental treatment. Dr. Terrance and Dr. Tino discussed allowing the patients to hold stuffed animals (Personal communication with interviewees, September 24, 2018; Personal communication with interviewee, October 3, 2018). My participants did not discuss using other sensory toys such as fidgets and stress balls that were recommended in the literature review. Nelson et al. (2015) also recommended that caregivers complete a questionnaire to help dental providers understand the needs of the patients with ASD. Five of my participants specifically included a question asking if the patients had ASD on their blank patient forms.

Although several aspects of the literature were mentioned by at least one of the participants, the participants did not all use every recommendation and some of my participants relied heavily on Tell-Show-Do alone. The participants who treated a greater quantity of patients with ASD mentioned using more of the recommended techniques than the participants with less experience treating patients with ASD. The adult learning theory (Kolb, 2014) is corroborated by my findings within this aspect of the literature as well. The participants who had the greatest opportunities to treat patients with ASD utilized the recommended techniques suggesting their own experiences shaped their treatment of patients with ASD.

There was limited research on dental professionals and ASD at the time of my study. Research existed on treating patients with special health care needs or SCD. The findings of my study filled a gap with a narrowed focus of ASD and accompanied one study conducted by Weil and Inglehart (2010). Weil and Inglehart (2010) revealed that the quality of dentists' dental educational training for treating patients with ASD was correlated to the number of patients they

treated during their studies. My study supported the work of Weil and Inglehart (2010). The perceived quality of my participants' dental program was related to their exposure of patients with ASD during their training.

There was a great range in the ages of my participants. The varying ages could be correlated to the amount of exposure the participants received during their dental training programs. Ahmad et al. (2015) revealed that many dental schools are not providing the necessary training to help providers learn to treat patients from special needs subgroups. It would certainly be unfair to consider the dental programs of the veteran dentists, or the dentists who completed schooling prior to the implementation of newer standards, though consideration must be given to the novice dentist participants.

Clemetson et al. (2012) confirmed that less than 75% of dental schools had students working with special needs patients. All of my novice participants were provided opportunities to treat patients with special health care needs. The novice dentists mostly spoke of inadequate training during the doctoral, pre-residency years. The participants used the phrases *some training, wasn't in depth, learned protocols that may help* to describe their exposure to treat patients with ASD. The participants' perceptions were similar to the study by Ahmad et al. (2015) who revealed that undergraduates perceived their training on treating patients with special needs as inadequate. Waldman et al. (2016) stated that dental schools must prepare graduates to treat patients with special needs. My study collaborated the research by Waldman et al. (2016), because my participants revealed that they had limited exposure to ASD in their doctoral studies.

The novice dentists who completed residency programs had diverse perceptions. Dr. Hyland regarded her program highly for exposing her to treating patients with ASD (Personal communication with interviewee, June 26, 2018). Dr. Norman believed his residency program

was beneficial for learning how to manage patients in the dental chair and form plans (Personal communication, August 3, 2018). Dr. Smith described a limited amount of learning in her residency program (Personal communication with interviewee, June 22, 2018). Overall, the participants exposure to treating patients with ASD in their residency programs were dependent upon the patients who walked in the doors to be treated. This finding may reveal the significance for dental school administrators to seek patients who have ASD for their students to treat. A study to determine the percent of people with ASD who do not go to the dentist may be warranted as well.

Special education teacher training and SCD may be comparatively explored. Researchers detailed that preservice teachers are exposed to instruction for students with special needs in a greater quantity than regular education preservice teachers (Sanz-Cervera et al., 2017). Regular education preservice teachers felt less confident than special education teachers for treating students with special needs. Regular education preservice teachers needed more knowledge and instruction on how to accommodate for students with special needs. They reported adapting material as their greatest challenge.

The general dentist participants may be compared to regular education preservice teachers. Overall, the general dentist participants received less training on treating patients with special health care needs than the pediatric dentists, special needs dentists, and dental hygienists. Just as regular education teachers will have students with ASD in their classrooms, due to the prevalence of ASD, general dentists may have patients with ASD in their practice. Patients with ASD who live in communities without pediatric or special care dentists may have a disadvantage because their dental providers may have received less training on treating patients with ASD.

Implications

I present the theoretical implications of my study. I discuss the implications from the adult experiential learning theory and the disability model. There are implications from my study for many stakeholders. Some generalization may be made.

Theoretical

Adult learners gain knowledge from their own personal experiences. Predoctoral dental and dental hygienist students need increased exposure during their training on treating patients with ASD through direct experience and mock simulations. All students should be provided with ample techniques to assist patients with ASD. Dentists and dental hygienists should continue experimenting with their own dental approaches, reflecting on their trials and errors, and transforming their knowledge into a plan for subsequent patient visits.

Not all dental providers accept patients with ASD. The inclusion of patients with ASD into dental providers' practices integrates the special population of people into society. Patients with ASD may have successful dental treatment when dental professionals adapt the dental environment to individualize the treatment for patients' sensory needs.

Stakeholders

I recommend suggestions for stakeholders to consider. I include recommendations for curriculum developers and instructors at dental schools, dental providers, caregivers, people with ASD, and other medical professionals. I conclude the implications of my study with a recommendation for insurance companies.

Curriculum developers and dental school instructors. Curriculum developers at dental schools and dental school instructors may consider allotting time for dental and dental hygiene students to practice conferencing with caregivers who have children with ASD, adapt

dental environments with attention to individualization, and formulate practical plans to treat patients with ASD. Students could be given an opportunity to reflect on their adaptations, the successes, and the shortfalls, and reformulate a future plan subsequent treatment.

Generalizations may be made for people who suffer from dental anxiety. Their treatment may be improved through utilizing similar techniques that have proven results for patients with ASD.

Dental providers. My findings revealed that challenges may always exist when treating patients with ASD because of the behaviors that are often exhibited by patients with ASD. I exposed the true challenges and frustrations that my participants experienced when treating patients with ASD. All of my participants had positive affirmations toward treating patients with ASD, even with the challenges and frustrations that my participants experienced. Many of my participants enjoyed the challenge of treating patients with ASD. They considered the actual challenge a reward. My research may serve as encouragement for other dental providers who do not normally treat patients with ASD to consider treating this subpopulation of people. The positive rewards that my participants felt may be experienced by all dental providers.

Dental providers may use the literature review and the techniques shared by the participants to improve their treatment for patients with ASD. Dentists should continue to rely on each other to share best practices and support one another with desensitization and other adaptive techniques. The dental providers in my study did not indicate that their adaptations to the dental environment were expensive or difficult to use. Providing adaptations for patients with ASD may prove to be an easy transition for other dental providers to adapt their dental environments for new patients.

Cross collaboration may occur with education professionals and the dental community. Many educational tools that teachers use in the classroom for students with ASD could be

utilized in the dental environment for patients with ASD. My participants did not discuss common educational tools such as video modeling and Social Stories™ to elicit expected behaviors and visual schedules to help patients understand dental routines. The use of similar educational tools in the dental office may produce greater acceptance of dental care because of the familiarity from the classroom to the dental office.

Caregivers. The unexpected theme of caregiver involvement emerged in my study. There are implications from my study for caregivers to contemplate. Caregivers should consider always informing dental professionals if their child has ASD regardless if the blank, patient, dental form specifically ask if the patient has ASD. Caregivers should conference with the dental providers prior to the dental treatment and share preferences, dislikes, fears and past experiences that their child has had. The dental providers may want to be as prepared as possible to establish dental acceptance for the patients. Caregivers should consider remaining positive during the child's treatment and follow the direction of the dental provider. Caregivers may consider praising their children for the aspects of the dental treatment that were successful.

Patients with ASD. Patients' with ASD could advocate for themselves or through their caregivers to reduce specific sensory stimulation during dental treatment. Patients with ASD could receive tailored, individualized appointments which may lead to the full acceptance of dental care. Improved acceptance of dental care may ultimately enhance patients' dental and overall health.

Medical professionals. Medical professionals could employ similar adaptations to their environment. Doctors of pediatric medicine and emergency room doctors could consider developing sensory rooms to treat patients with ASD. Trainings could be offered to all medical professionals on treating patients with ASD, desensitizing, and individualizing patient

appointments. Finally, desensitization appointments could become billable for insurances. Often children with ASD require several, frequent appointments to accept the dental environment and dental care. Dental professionals are losing money while they provide the necessary desensitization for their patients with ASD. Dental professionals may feel more confident they provided successful treatment if the patient could return as many times as possible to complete the treatment.

Delimitations and Limitations

There were delimitations and limitations to my study. Some of the delimitations and limitations were obvious before the commencement of my research. Other delimitations and limitations presented throughout the study and during the data analysis. One delimitation became a limitation at the conclusion of my study.

Delimitations

Mauch and Birch (1998) described a delimitation as a factor that “is controlled by the researcher” (p. 105). The delimitations increased as I experienced difficulty securing participants for my study. I began my study with different criteria for participation than how I concluded my study. The evolution of the revision process was discussed in Chapter three. I initially had the intention to study participants’ preparedness to manage the behaviors of patients with ASD, who were dentists over the age of 18 and with a novice level of experience. I sought to understand their preparedness and how it may have been influenced by the revised dental and dental hygiene standards. There was a gap in the literature focused on dental professionals treating patients with ASD and their preparedness to manage the behaviors of patients. I wanted to complete a document analysis of each dental professional’s office.

I originally launched my study with IRB approval for dentists who had less than four years of experience, because the participants' perspectives would be current with revised curricular standards that required treatment of patients with special needs, though ASD was not specifically included. I sent out 312 recruitment letters or emails to potential participants who fit my criteria in three Northeastern states. I sent out follow-up letters or emails. I was able to recruit one participant through the mass mailings which resulted in 0.003% participation rate.

I sent emails to administrators from seven universities seeking their permission to access their alumni for participation in my study. I suggested that the university's alumni secretary could send my recruitment email and consent form to their alumni to protect the alumni's confidentiality rights. Administration from one university agreed to assist me; however, university personnel eventually decided to pursue their own similar study with their alumni and declined participation. The administration from the other six universities declined to participate in my study. I experienced great difficulty securing participants who were dentists with all levels of experience, dental hygienists, and dental assistants even with the revised consents.

Limitations

“A limitation is a factor that may or will affect the study in an important way, but *is not under control* of the researcher” (Mauch & Birch, 1998, p. 104). An eventual limitation of my study resulted from the delimitations. I was not able to secure participants within a narrow criteria focus. My study was broad in two areas. My participants included dentists and dental hygienists with a wide range of experience in their profession ranging from a novice level to a veteran, retired status. The wide range of experiences may have affected the results. The greater quantity of patients with ASD that the participants treated influenced the adaptations that were made for the patients and the preparedness of the participants. Although some of my participants

with a novel level of experience felt prepared to manage the behaviors of patients with ASD, the results cannot be generalized that all novel dentists who treat several patients with ASD will feel prepared to manage the behavior of patients with ASD.

The participants posed another limitation with my study. The quantity of declines to participate in my study may be indicative of the overall lack of preparedness of dental professionals to treat patients with ASD and discuss the topic. It is impossible to conclude that all of the participants felt prepared to treat patients with ASD and therefore agreed to participate in my study. The consideration of this limitation raised a concern that only participants who believed they were well prepared to treat patients with ASD participated in my study.

I did not have full participation with every data collection method. There were three participants who did not participate in the online survey. I sent one reminder email to the three participants. I did not receive a visual tour from one of the participants who participated via phone for his interview because he lived in Massachusetts. Another participant participated via phone because of the convenience with childcare. I did not receive a virtual tour of her office. The participants were offered the opportunity to send me digital images of their dental office, but I did not receive any images. One participant provided one journal entry regarding treating a patient with ASD. I did state that journaling was optional, which resulted in a limitation to my study. The results may have been differed if all of the participants participated in every data collection method in my study. I may have gathered more information from the document analysis that may have shown other adaptations that the participants used that they neglected to mention in the interview to manage the behavior of patients with ASD during dental treatment.

A final limitation in my study was the connection of some of the participants. There were some participants who at some point in time throughout their career worked at the same dental

practice. The participants' preparedness may have been influenced by each other. I did not include data that revealed their connection within my study to protect their confidentiality.

Recommendations for Future Research

I have several recommendations for future research as a result of the delimitations and limitations of my study, as well as suggestions for additional research focused on ASD. I recommend four qualitative, prospective studies. A phenomenological study of solely novice dentists is recommended to study the influence of preparedness after receiving curriculum with the revised dental and dental hygiene standards that are proposed for the summer of 2019. Caregiver involvement was an unexpected theme in my study. The participants revealed mixed feelings on the support of caregivers. Positive and negative undertones and explicit references were provided to me by the participants. Therefore, I suggest a phenomenological study of caregivers' perceptions of how dental providers manage the behaviors of their children during dental treatment.

Dental professionals are not the only providers who must manage the behaviors of patients with ASD. I recommend future phenomenological studies of the influence of preparedness for other types of doctors who provide routine care for patients with ASD such as, optometrists, ophthalmologists, otolaryngologists, pediatricians, and gynecologists. I recommend a future case study on a patient with ASD who has never had dental care to observe the desensitization process toward the acceptance of dental care over time. Finally, I recommend a quantitative study with the use of pre and post results to determine dental professionals' ability to manage the behaviors of patients with ASD after specific continuing education on desensitization methods.

Summary

Managing the behaviors of people with ASD may be challenging because of the behaviors that are commonly exhibited. People with ASD deserve dental professionals who manage their behaviors effectively while providing excellent dental care that is equivalent to the care that typically developing people receive. Knowledge of how to manage the behaviors of people with ASD during dental treatment should commence during the dental professionals' higher education training. The training should include ample opportunities for the students to gain knowledge on ASD, learn and practice desensitization methods, and adapt real dental environments to reduce stimuli for patients with ASD. The training should set the stage for novice dentists entering their professional careers.

Patients with ASD could have successful dental appointments when the dental professionals employ strategies to reduce sensory stimulation. The strategies accompanied with desensitization techniques and individualizing appointments may include visual, auditory, tactile, olfactory, and gustatory adaptations. Common educational methods may be utilized such as video modeling, Social Stories™, and visual schedules. Dental providers should be reflective in their practices to create acceptance of dental care for their patients with ASD.

There are benefits for patients and dental providers. Patients may experience less anxiety and dental fear leading to dental acceptance and ultimately greater dental and overall health. Treating patients with ASD may be rewarding for dental providers. Dental providers may reap intrinsic rewards treating the subpopulation of patients with ASD when the appropriate time and attention is given to each patient.

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Appendices

Appendix A: IRB Approval Letter

LIBERTY UNIVERSITY.

INSTITUTIONAL REVIEW BOARD

April 16, 2018

Kelli A. Trenga

IRB Approval 3204.041618: A Phenomenological Study of Novice Dentists' Preparedness to Manage the Behaviors of Patients with Autism Spectrum Disorder During Dental Treatment Experiences

Dear Kelli A. Trenga,

We are pleased to inform you that your study has been approved by the Liberty University IRB. This approval is extended to you for one year from the date provided above with your protocol number. If data collection proceeds past one year, or if you make changes in the methodology as it pertains to human subjects, you must submit an appropriate update form to the IRB. The forms for these cases were attached to your approval email.

Thank you for your cooperation with the IRB, and we wish you well with your research project.

Sincerely,

Administrative Chair of Institutional Research
The Graduate School

LIBERTY
UNIVERSITY.

Liberty University | Training Champions for Christ since 1971

Appendix B: Final Consent Form

The Liberty University Institutional
Review Board has approved
this document for use from
4/16/2018 to 4/15/2019
Protocol # 3204.041618

CONSENT FORM

Dentists', Dental Assistants', and Dental Hygienists' Preparedness to Manage the Behaviors of Patients with Autism Spectrum Disorder During Dental Treatment Experiences

Kelli A. Trenga
Liberty University
School of Education

You are invited to participate in a research study entitled "Dentists', Dental Assistants', and Dental Hygienists' Preparedness to Manage the Behaviors of Patients with Autism Spectrum Disorder (ASD)". You were selected as a possible participant because you are a practicing, licensed dentist, dental assistant, or a dental hygienist, have treated at least one patient with ASD in your practice, and are 18 years of age or older. **I am not seeking experts in the field of autism, but rather competent, professionals in the field of dentistry.** Please read this form and ask any questions you may have before agreeing to participate in the study.

Kelli Trenga, a doctoral candidate in the School of Education at Liberty University, is conducting this study.

Background Information: The purpose of this study is to explore how dentists' preparedness affect their manageability of behaviors for patients with ASD during dental treatment experiences.

Procedures: If you agree to be in this study, I would ask you to do the following things:

1. Complete a face-to-face interview in your dental office. This may take up to 30 minutes. I will audio record our interview. If you live beyond 3 hours of my home, an interview via phone, or a virtual interview will occur (Skype or Facetime).
2. I would also like to take a tour of your dental office, to take pictures of the inside of your office, and to collect non-confidential, relevant documents for analysis. This may take up to 10 additional minutes. If you live beyond 3 hours of my home, a virtual tour or pictures of your dental practice can be emailed to me.
3. Complete an online survey. This will be a short open-ended survey and will take approximately 10 minutes to complete.
4. Complete journal entries if you treat a patient with ASD during my data collection period. This is optional but is greatly encouraged.
5. Lastly, you will be asked to review the accuracy of the transcription of your interview. This may take up to 20 minutes.

Risks: The risks involved in this study are minimal, which means they are equal to the risks you would encounter in everyday life.

Benefits: There are no direct benefits to participants in this study. Benefits to society include understanding of dentists', dental assistants', and dental hygienists' preparedness to treat patients with ASD.

Confidentiality: The records of this study will be kept private. In any sort of report, I might publish, I will not include any information that will make it possible to identify a subject.

The Liberty University Institutional
Review Board has approved
this document for use from
4/16/2018 to 4/15/2019
Protocol # 3204.041618

Research records will be stored securely, and only the researcher will have access to the records. I may share the data I collect from you for use in future research studies or with other researchers; if I share the data that I collect about you, I will remove any information that could identify you, if applicable, before I share the data. I may ask permission to include various pictures that I take of your dental office, and I will send you the picture(s) via email for your approval. I may include your blank patient form, but I will not include your name, dentist office name, or any other distinguishing factor.

- Participants will be assigned a pseudonym. If the university that you attended is discussed, a pseudonym will also be used for the university. I will conduct the interview at your dental office in a private location to protect your privacy and what you disclose to me.
- Data will be stored on a password locked computer and may be used in future presentations. Pseudonyms will also be used when making presentations about the results of the study. After three years, all electronic records will be deleted.
- Interviews will be recorded and transcribed. Recordings will be stored on a password locked computer for three years and then erased. Only the researcher will have access to these recordings.

Voluntary Nature of the Study: Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with Liberty University. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships.

How to Withdraw from the Study: If you choose to withdraw from the study, please contact the researcher at the email address/phone number included in the next paragraph. Should you choose to withdraw, data collected from you will be destroyed immediately and will not be included in this study.

Contacts and Questions: The researcher conducting this study is Kelli Trenga. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her at (814) 720-8603 or ktrenga@liberty.edu. You may also contact the researcher's faculty advisor, Dr. Billie Jean Holubz, at bjholubz@liberty.edu.

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Institutional Review Board, 1971 University Blvd., Green Hall Ste. 1887, Lynchburg, VA 24515 or email at irb@liberty.edu.

Please notify the researcher if you would like a copy of this information for your records.

The Liberty University Institutional
Review Board has approved
this document for use from
4/16/2018 to 4/15/2019
Protocol # 3204.041618

Statement of Consent: I have read and understood the above information. I have asked questions and have received answers. I consent to participate in the study.

The researcher has my permission to audio-record/video-record me and take pictures of my dental office as part of my participation in this study.

Signature of Participant

Date

Signature of Investigator

Date

Appendix C: Recruitment Letter

[[Insert Date]

[Recipient]

[Title]

[Company]

[Address 1]

[Address 2]

[Address 3]

Dear [Recipient]:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The purpose of my research is to explore the preparedness of dentists to manage the behaviors of patients with autism spectrum disorder (ASD), and I am writing to invite you to participate in my study. **I am not seeking experts in the field of autism, but rather competent, professional dentists.**

If you are a practicing dentist, have treated at least one patient with ASD in your practice, are 18 years of age or older, and are willing to participate, you will be asked to complete a face-to-face interview in your dental office. This may take up to 30 minutes. I can conduct the face-to-face interview at your convenience during the day, evening, or on the weekend. I will audio record our interview. The purpose of the audio recording is so that I can transcribe the interview accurately. I am the only person who will hear the recording. I would also like to take a tour of your dental office, to take pictures of the inside of your office, and to collect non-confidential, relevant documents for analysis. This may take up to 10 additional minutes. You will also be asked to complete an online survey. This will be a short, open-ended survey and will take approximately 10 minutes to complete. You will be asked to complete journal entries if you treat a patient with ASD during my data collection period. Although this is an optional requirement, it is greatly encouraged. Journaling may take up to 10 minutes to complete per entry. Lastly, you will be asked to review the accuracy of the transcription of your interview. This may take up to 20 minutes. If your dental practice is more than 3 hours away from my home, you will be asked to complete an interview via phone, or a virtual interview via Skype or Facetime. I will also ask that you email me pictures of your dental office or provide a virtual tour.

It should take approximately 1 hour and 10 minutes for you to complete the procedures in total. Your name and other identifying information will be requested as part of your participation, but the information will remain confidential.

To participate, go to <https://www.surveymonkey.com/r/WVX8JLW> and complete a quick screening survey. I will contact you after you have completed the screening survey to inform you if you meet the criteria to participate in the study. I will schedule an interview with you if you meet the criteria.

Attached to this email is a consent form. The informed consent document contains additional information about my research; please sign the informed consent document after I have informed you that you meet the criteria to participate in the study, and return it to me before or at the start of the face-to-face interview.

Thank you in advance for your consideration in helping me contribute to the growing field of dentistry.

Sincerely,

Kelli Trenga
Doctoral Candidate

Appendix D: Recruitment Email

[Insert Date]

[Recipient]

[Title]

[Company]

[Address 1]

[Address 2]

[Address 3]

Dear [Recipient]:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctoral degree. The purpose of my research is to explore the preparedness of dentists to manage the behaviors of patients with autism spectrum disorder (ASD), and I am writing to invite you to participate in my study. **I am not seeking experts in the field of autism, but rather competent, professional dentists.**

If you are a practicing dentist, have treated at least one patient with ASD in your practice, are 18 years of age or older, and are willing to participate, you will be asked to complete a face-to-face interview in your dental office. This may take up to 30 minutes. I can conduct the face-to-face interview at your convenience during the day, evening, or on the weekend. I will audio record our interview. The purpose of the audio recording is so that I can transcribe the interview accurately. I am the only person who will hear the recording. I would also like to take a tour of your dental office, to take pictures of the inside of your office, and to collect non-confidential, relevant documents for analysis. This may take up to 10 additional minutes. You will also be asked to complete an online survey. This will be a short, open-ended survey and will take approximately 10 minutes to complete. You will be asked to complete journal entries if you treat a patient with ASD during my data collection period. Although this is an optional requirement, it is greatly encouraged. Journaling may take up to 10 minutes to complete per entry. Lastly, you will be asked to review the accuracy of the transcription of your interview. This may take up to 20 minutes. If your dental practice is more than 3 hours away from my home, you will be asked to complete an interview via phone, or a virtual interview via Skype or Facetime. I will also ask that you email me pictures of your dental office or provide a virtual tour.

It should take approximately 1 hour and 10 minutes for you to complete the procedures in total. Your name and other identifying information will be requested as part of your participation, but the information will remain confidential.

To participate, go to <https://www.surveymonkey.com/r/WVX8JLW> and complete a quick screening survey. I will contact you after you have completed the screening survey to inform you if you meet the criteria to participate in the study. I will schedule an interview with you if you meet the criteria.

Attached to this email is a consent form. The informed consent document contains additional information about my research; please sign the informed consent document after I have informed you that you meet the criteria to participate in the study, and return it to me before or at the start of the face-to-face interview.

Thank you in advance for your consideration in helping me contribute to the growing field of dentistry.

Sincerely,

Kelli Trenga
Doctoral Candidate

Appendix E: Recruitment Letter Follow-Up

Insert Date

Recipient

Dentist

Company

Address 1

Address 2

Address 3

Dear [Recipient]:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctoral degree. Last week a letter was sent to you to invite you to participate in a research study. This follow-up letter is being sent to remind you to respond to the survey if you would like to participate and have not already done so. The deadline for participation is [Date]. **As a reminder, I am not seeking experts in the field of autism, but rather competent, professional dentists.**

If you are a practicing dentist, have treated at least one patient with ASD in your practice, are 18 years of age or older, and are willing to participate, you will be asked to complete a face-to-face interview in your dental office. This may take up to 30 minutes. I can conduct the face-to-face interview at your convenience during the day, evening, or on the weekend. I will audio record our interview. The purpose of the audio recording is so that I can transcribe the interview accurately. I am the only person who will hear the recording. I would also like to take a tour of your dental office, to take pictures of the inside of your office, and to collect non-confidential, relevant documents for analysis. This may take up to 10 additional minutes. You will also be asked to complete an online survey. This will be a short, open-ended survey and will take approximately 10 minutes to complete. You will be asked to complete journal entries if you treat a patient with ASD during my data collection period. Although this is an optional requirement, it is greatly encouraged. Journaling may take up to 10 minutes to complete per entry. Lastly, you will be asked to review the accuracy of the transcription of your interview. This may take up to 20 minutes. If your dental practice is more than 3 hours away from my home, you will be asked to complete an interview via phone, or a virtual interview via Skype or Facetime. I will also ask that you email me pictures of your dental office or provide a virtual tour.

It should take approximately 1 hour and 10 minutes for you to complete the procedures in total. Your name and other identifying information will be requested as part of your participation, but the information will remain confidential.

To participate, go to <https://www.surveymonkey.com/r/WVX8JLW> and complete a quick screening survey. I will contact you after you have completed the screening survey to inform you if you meet the criteria to participate in the study. I will schedule an interview with you if you meet the criteria.

Included with this letter is a consent form. The informed consent document contains additional information about my research; please sign the informed consent document after I have informed you that you meet the criteria to participate in the study, and return it to me before or at the start of the face-to-face interview.

Sincerely,

Kelli A. Trenga
Doctoral Candidate

Appendix F: Recruitment Email Follow-Up

Insert Date

Recipient

Dentist

Company

Address 1

Address 2

Address 3

Dear [Recipient]:

As a graduate student in the School of Education at Liberty University, I am conducting research as part of the requirements for a doctoral degree. Last week an email was sent to you to invite you to participate in a research study. This follow-up letter is being sent to remind you to respond to the survey if you would like to participate and have not already done so. The deadline for participation is [Date]. **As a reminder, I am not seeking experts in the field of autism, but rather competent, professional dentists.**

If you are a practicing dentist, have treated at least one patient with ASD in your practice, are 18 years of age or older, and are willing to participate, you will be asked to complete a face-to-face interview in your dental office. This may take up to 30 minutes. I can conduct the face-to-face interview at your convenience during the day, evening, or on the weekend. I will audio record our interview. The purpose of the audio recording is so that I can transcribe the interview accurately. I am the only person who will hear the recording. I would also like to take a tour of your dental office, to take pictures of the inside of your office, and to collect non-confidential, relevant documents for analysis. This may take up to 10 additional minutes. You will also be asked to complete an online survey. This will be a short, open-ended survey and will take approximately 10 minutes to complete. You will be asked to complete journal entries if you treat a patient with ASD during my data collection period. Although this is an optional requirement, it is greatly encouraged. Journaling may take up to 10 minutes to complete per entry. Lastly, you will be asked to review the accuracy of the transcription of your interview. This may take up to 20 minutes. If your dental practice is more than 3 hours away from my home, you will be asked to complete an interview via phone, or a virtual interview via Skype or Facetime. I will also ask that you email me pictures of your dental office or provide a virtual tour.

It should take approximately 1 hour and 10 minutes for you to complete the procedures in total. Your name and other identifying information will be requested as part of your participation, but the information will remain confidential.

To participate, go to <https://www.surveymonkey.com/r/WVX8JLW> and complete a quick screening survey. I will contact you after you have completed the screening survey to inform you if you meet the criteria to participate in the study. I will schedule an interview with you if you meet the criteria.

Included with this letter is a consent form. The informed consent document contains additional information about my research; please sign the informed consent document after I have informed you that you meet the criteria to participate in the study, and return it to me before or at the start of the face-to-face interview.

Sincerely,

Kelli A. Trenga
Doctoral Candidate

Appendix G: Address Disclosure

Hello,

I received your contact information from the Pennsylvania Licensing System Verification service. If this is your home address, rather than your business address, it is because this address was listed with the state of Pennsylvania. Thank you in advance for your consideration in helping me contribute to the field of dentistry.

Respectfully,
Kelli Trenga

Appendix H: Journaling Procedures

Journaling Procedures

Please journal about your experience treating a patient with Autism Spectrum Disorder (ASD). Please include your thoughts prior to, during, and after treatment. Include as many details as possible to help me understand your experience managing the behaviors of a patient with ASD during dental treatment.

Appendix I: Survey Questions**Survey Questions**

1. How many patients with ASD have you treated as a practicing dentist?
2. Describe the age range of patients with ASD that you have treated.
3. Describe the dental atmosphere and environment in your dental office that would encourage successful treatment for patients with ASD.
4. What are your strengths in treating patients with ASD?
5. What are your weaknesses in treating patients with ASD?
6. Describe how you individualize dental treatment for patients with ASD. Please write not applicable if you do not individualize treatment.