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The Perceptions of Adult Patients Who Experience Needle Fear During Cosmetic Injections

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Walden University

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Walden University

College of Nursing

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Julia Hoy

has been found to be complete and satisfactory in all respects,
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Walden University
2022

Abstract

The Perceptions of Adult Patients Who Experience Needle Fear during Cosmetic

Injections

by

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MSN, University of Texas at Tyler, 2015

MBA, University of Kansas, 1985

BSN, Bowling Green State University, 1977

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Nursing

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Abstract

Adult patients receiving cosmetic injections frequently experience needle fear symptoms which results in patient discomfort, suffering, and poor injection outcomes. The needle fear experience contributes to a decreased quality of life and possible avoidance behaviors involving other medical treatments requiring needles. Researchers have conducted quantitative studies which explored interventions on pain reduction but there are no qualitative studies from the perspectives of adults experiencing needle fear. The purpose of this research study was to explore the perceptions of needle fear in adult patients receiving cosmetic injections in a medical office setting. The interpretative phenomenological approach was used to provide an understanding of needle fear from the perspective of adult participants. Skinner's theory of operant conditioning was the theoretical framework used to inform the study. Semistructured interviews were conducted with eight participants to answer the research question. Thematic analysis of the data resulted in four themes: (a) anticipation of the injection event, a build-up; (b) reinforcing elements on needle fear feelings; c) strategies and skills easing needle fear; and (d) needle fear experience and consequences. This original research contributes to awareness and understanding the needle fear phenomenon. Increased understanding by nursing providers supports positive social change by improving patient outcomes and quality of life; reducing patient suffering; and providing insight on patient avoidance behaviors involving other medical injections such as blood draws, vaccination, and treatment of chronic medical conditions.

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Dedication

I dedicate this dissertation first to my husband, Phil, who supported me through the dissertation process with his love, encouragement, and sense of humor. As my soul mate, he understood my desire to further my education and complete my dissertation as a personal goal. I also dedicate this work to my children, Lauren, and Mark, to my daughter-in-law, Katie, and to my granddaughter, Olivia, who are my inspirations for looking ahead to the future. Lastly, I want to dedicate this dissertation to my constant, loving companions, Lucy, and Stella, who brought me unconditional love and comfort.

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Chapter 1: Introduction to the Study

The World Health Organization (2019) identified the prevalence of injections as one of the most common medical procedures in the world; 16 billion injections occur worldwide annually, 90%-95% are therapeutic injections, and 5%-10% are immunizations and other injections. Injections are common procedures in the aesthetic industry for adult patients seeking cosmetic injections. The American Society of Aesthetic Plastic Surgery (ASAPS) (2019) publishes an annual report for both surgical and nonsurgical cosmetic procedures. According to the latest data, ASAPS (2019) reported over 2.6 million cosmetic injections occurred in the United States in 2018. In addition, the reported injections increased by 38.7% from 2014 to 2018, and adult women ages 18 years and older accounted for 92.3% of the cosmetic injection market (ASAPS, 2019).

Despite the prevalence of injections, healthcare providers have observed fear of needles and injections as a significant barrier to medical treatment observed by healthcare providers. Sahin and Eser (2018) noted that adults experience injection anxiety due to the perception of expected needle pain. In one study, 30.6% of adult patients reported needle fear (Celek & Khorshid, 2015). McLenon and Rogers (2018) conducted a meta-analysis on needle fear and determined it occurs among approximately 20%-30% of adults ages 20-40 years, and needle fear is far more prevalent among female patients at all age ranges regardless of geographic area (McLenon & Rogers, 2018). Although adult cosmetic procedure patients represent a small portion of the annual medical injections as

established by the World Health Organization (2019), a percentage of these patients receiving injections also includes patients who experience needle fear.

The topic of my study is the phenomenon of needle fear in the context of the adult patients receiving cosmetic injections. The findings from this study will add to the existing knowledge of the topic and provide insight into the perceptions of adult cosmetic procedure patients who experience the needle fear. These findings will have potential implications for positive social change by improving quality of life for adult cosmetic procedure patients. Greater awareness of patients' perceptions can inform nursing professionals' practices, resulting in improved quality of life for patients and reduction in suffering during cosmetic injection treatments.

In Chapter 1, I describe the background of the needle fear phenomenon and the significance of the phenomenon, and I discuss the rationale for the study and the existing gap in the literature. The research problem, purpose, and research question are also identified. I propose the theoretical framework, nature of the study, and the methodology for the study. Finally, I discuss the potential social implications that could result from the study.

Background of the Study

The phenomenon of needle fear has been well documented in existing research. However, needle fear and fear of injection have predominately been studied in the pediatric population. Studies have been conducted using randomized trials to analyze the effects of an intervention to reduce needle pain and anxiety in the pediatric patient (Hedén et al., 2020; McLenon & Rogers, 2019; Ueki et al., 2021). Concepts identified in

this research were comparable: needle fear, anxiety, and pain (Appendix A; Hedén et al., 2020; McLenon & Rogers, 2019; Ueki et al., 2021). Studies of the pediatric population using qualitative and quantitative approaches have occurred in the vaccine administration setting as well (Kuntz et al., 2019; Ueki et al., 2021).

Some qualitative research of the pediatric population has focused on different perspectives related to patient care and injection procedures. Filbet et al. (2017) studied nurses' perceptions while caring for pediatric oncology patients receiving treatments involving needles and discussed the topic of pain prophylaxis. Research has been conducted with pediatric patients experiencing chronic needle procedures, such as diabetes and rheumatic disease (Sørensen et al., 2021; Tremolada et al., 2021).

Qualitative studies have been conducted to explore multiple perspectives, including those of the pediatric patients themselves. Karlsson et al. (2016) explored the lived experiences of children and their perception of support during needle-related medical procedures using the lifeworld hermeneutic approach. Researchers have used a qualitative approach to explore strategies children use to manage fear and pain during needle-related procedures in the hospital environment (Kleye et al., 2020). In addition, Noble et al. (2020) studied children's perspectives of needle fear in the dental procedure setting

Studies of injection and needle fear have not only focused on children. However, research studies with a focus on the adult population have primarily occurred in the contextual setting of routine immunization/vaccination treatments (McLenon & Rogers,

2019). Miloyan and Eaton (2016) used logistic regression analysis in their quantitative study to estimate the prevalence of blood-injection-injury phobia in older adults.

Adult cosmetic procedure patients have not been well represented in the research literature. Randomized controlled trials have been used to analyze the effects of various interventions (cold, vibration, topical numbing) on level of pain perception during cosmetic injection procedures in adult patients (Chorney et al., 2019; Guney et al., 2017; Li et al., 2017; Salmerón-González et al., 2021; Zeiderman et al., 2018). But research of this patient population in the nursing discipline is limited to nonexistent. Specifically, qualitative studies exploring adult cosmetic procedure patients' perspectives related to needle fear have not been documented in a primary study. A summary of the current research literature by discipline is represented in Appendix A. The lack of current primary research on the needle fear phenomenon among this patient population represents a gap in knowledge in the nursing discipline.

The phenomenon of needle fear in the context of adult patients receiving cosmetic injections is the topic of interest for the study. The prevalence of needle fear in the general population has been identified in the existing literature as have the health outcomes resulting from injection avoidance (Celik & Khorshid, 2015; McLenon & Rogers, 2018). National aesthetic societies have documented the increasing number of cosmetic injections (ASAPS, 2019), indicating a need for additional research of this patient population. Needle fear prevalence is relevant to the nursing discipline as nurses are providers of cosmetic injections.

In my own practice, I encounter aesthetic patients expressing needle fear daily, which led to my interest in the phenomenon. An aesthetic practice is a different contextual setting from a medical office where injections are necessary for prevention of disease and maintenance of health. Cosmetic injections are elective in nature and can require multiple injections during one office visit, whereas typical immunizations involve a single injection. Although patients demonstrate or express needle fear, they continue to seek out these injection treatments. I have noted emotional, behavioral, and physical responses to needles/injections on a wide spectrum from mild to extreme including syncopal episodes. In this study, I will seek to address this gap in nursing knowledge using a qualitative phenomenological approach to explore the needle fear phenomenon from the patients' perspectives.

The intent of this study is to understand the adult cosmetic patients' experiences of needle fear: background, influences, and behavior. To gain understanding of these experiences, a qualitative phenomenological study to explore patient perceptions of needle fear is appropriate. The findings will guide and inform my practice to provide an improved experience for these patients and ultimately, improved patient outcomes. Using the basis of the findings, my future goal would be to explore an intervention in a quantitative study to determine effectiveness on the experience of needle fear.

The intended audience for the study includes nurses, doctors, nurse practitioners, and physician assistants who provide injection treatments to the aesthetic patients. The findings of this qualitative study can contribute to the understanding patients experiencing high levels of needle fear. Informing aesthetic practice may lead to new

procedures, protocols, and interventions that could improve patient satisfaction and quality of life. Due to the lack of existing research, a qualitative study to understand the experience is a realistic first step before undertaking a quantitative, experimental study. Awareness and consideration of this practice problem by healthcare providers performing injections is an essential step toward improved patient outcomes. Improving the patients' quality of life and consideration of patient suffering may inform aesthetic practices and stimulate positive social change.

Problem Statement

The research problem that prompted me to search the literature is the frequent observation of needle fear expressed or exhibited by patients during injection treatments in my aesthetic practice. Injection procedures have been identified as one of the most common medical procedures in the world: 16 billion injections worldwide annually, 90-95% therapeutic injections, and 5-10% immunizations and other injections (The World Health Organization, 2019). A review of the current literature revealed primary research on the phenomenon of needle fear and the significance of the social problem. Relevant research demonstrating the statistical prevalence of the phenomenon in the population supports justification for the study of needle fear and is applicable to the nursing profession (McLenon & Rodgers, 2019; McMurty et al., 2016; Miloyan & Eaton, 2016). In one study, 30.6% of adult patients reported needle fear (Celek & Khorshid, 2015). McLenon and Rogers (2019) researched needle fear using a meta-analysis and determined prevalence of needle fear to approximate 20-30% of adults aged 20-40 years

of age. Aesthetic patients receiving cosmetic injections represent a specific population experiencing needle fear.

In my practice, aesthetic procedures commonly involve multiple injections during a single treatment. ASAPS (2019) reported over 2.6 million cosmetic injections annually in the United States. The statistics on the prevalence of needle fear in the population and the number of cosmetic injections performed annually inspired my interest in the topic relevant to my clinical practice: What are the perceptions of adult patients who experience needle fear during cosmetic injections?

Cosmetic injections are elective and not necessary for healthcare. These individuals can choose not to receive these treatments and to prevent experiencing the phenomenon. However, in my aesthetic practice, patients who experience needle fear continue to routinely receive cosmetic injections knowing that they will experience symptoms of needle fear. These patients express routine avoidance of other injections necessary for optimal wellness while continuing to seek cosmetic injections on a regular basis.

Needle fear/injection fear has been correlated with avoidance behaviors. Researchers have explored avoidance behaviors relevant to health maintenance procedures: routine lab draws, compliance with injection treatments necessary for chronic medical conditions (such as diabetes), and vaccine hesitancy (Duncanson et al., 2021; Hanberger et al., 2021; McLenon & Rodgers, 2019; McMurty et al., 2016; Tremolada et al., 2021). Fear conditioning and overgeneralization to stimuli may be responsible for a

connection between needle fear and avoidance behavior (Asok et al., 2019; Dunsmoor & Murphy, 2015; Glogan et al., 2019).

Aesthetic patients typically receive multiple injections at each office visit. Injections for some healthcare maintenance procedures require only one needle insertion as in the setting of vaccination or lab draws. Interestingly, in one study exploring the pediatric patient, researchers found that a preadolescent population scored higher needle fear ratings when associated with an increase in each additional same-day injection (Baxter et al., 2017). In contrast, aesthetic treatments requiring multiple injections during one office visit are different when compared with usual medical treatments requiring a single injection.

The needle fear phenomenon extends to injection treatments that promote optimal health and wellness such as vaccination. Recently, the phenomenon of needle fear has been identified as a barrier to COVID-19 vaccination (Freeman et al., 2021). In the United Kingdom, researchers found that approximately 10% of the adults who screened positive for blood-injury-phobia were more likely to report COVID-19 vaccine hesitancy (Freeman et al., 2021). Researchers discussed the importance of using evidence-based interventions with the pediatric population to address needle fear and prevent COVID-19 vaccine hesitancy (Young et al., 2021). A research study involving healthcare workers explored the significance of needle fear and avoidance of influenza vaccination: one in six healthcare workers in long-term facilities and 1 in 13 hospital healthcare workers demonstrated avoidance behavior related to flu vaccination for employment (McLenon & Rogers, 2019). Another recent study revealed the lack of blood donation volunteers due

to needle fear (Zucoloto et al., 2019). Needle fear experienced in the adult population negatively impacts quality of life as reflected in these associated avoidance behaviors.

My study is intended to explore individual perceptions in a specific population from the patient perspective (which has not been realized in the current literature) to include perceptions relevant to potential avoidance behaviors impacting health maintenance, prevention of disease, and injection treatments for chronic medical conditions that improve quality of life and provide optimal health outcomes. Although researchers have investigated the needle fear phenomenon, the topic has not been explored in this way: the perceptions of adult patients who experience needle fear during cosmetic injections have not been studied and this represents a gap in the literature.

The specific research problem that my study will address is the lack of nursing information on the perceptions of individuals who experience needle fear during cosmetic injections. A qualitative study is appropriate to explore patient perceptions. The study will contribute to positive social change through increased awareness of the needle fear problem, consideration of potential interventions to improve patients' quality of life and reduce suffering and avoidance behaviors that impact health and optimal wellness.

Purpose of the Study

The purpose of this study is to explore the perceptions of needle fear in adult patients receiving cosmetic injections in a medical office setting. The phenomenon of interest will be explored from the adult aesthetic patient's perspective which has not been previously identified in the current research. The intent is to gain a better understanding of the needle fear phenomenon from the patients' perspective in this population.

Stimulating change in nursing care for these patients based on the study's findings is the practice goal. Further, bringing awareness to nursing providers of cosmetic injections through the study's dissemination may fulfill positive social change through improved patient outcomes and quality of life.

Research Question

The research question for my qualitative study is: What are the perceptions of adult patients who experience needle fear during cosmetic injections? The question informs the gap in nursing knowledge relevant to the specific population and context. A qualitative study will allow me to address the research question from the patients' perspective.

Theoretical Foundation

Skinner's operant conditioning theory will provide the framework and ground the study (Skinner, 1935; 1963). Skinner developed the theory of operant conditioning to describe learned behavior and the importance of behavioral reinforcement (Skinner, 1963). Early behavior is shaped by the perception of consequences and trial and error that originates from a stimulus (Skinner, 1963). Skinner identified that reinforcement strengthened behavioral response (Skinner, 1963). Over time, learned behavior that results from an initial stimulus can become conditioned by reinforcers (Skinner, 1963). Reinforcers strengthen the behavioral response to a stimulus and can be positive or negative in direction (Skinner, 1963). Reinforcers may exist in the environment naturally and over time, become associated with the behavior and the consequence of behavior (Skinner, 1963). The behavior becomes operant when it becomes conditioned by

reinforcers (Skinner, 1963). The researcher emphasized the complexity of the reinforcing stimulus (the operant) in shaping behavior and the importance of considering the potential for numerous stimuli to exist at once in shaping one consequential behavior (Skinner, 1963).

Concepts derived from the operant conditioning theory support my research study to explore the aesthetic patients' perceptions of needle fear during cosmetic injections. Based on Skinner's theory, the conditioned behavior of needle fear and the stimuli, reinforcers, behavioral responses, and consequences of the behavior are the main concepts applicable to explore patients' perceptions. Applying these concepts, the phenomenon of needle fear can be defined as an acquired, learned, and conditioned response to a stimulus that is associated with an unpleasant outcome (Skinner, 1935; 1963). I will be using concepts from Skinner's theory to frame and construct my semi-structured interview guide and inform the open-ended questions. In Chapter 2, I will further describe Skinner's theory and its application.

The logical connections between the theoretical framework and the nature of my study include the exploration of the adult patients' perceptions based upon concepts derived from Skinner's theory: acquired, learned, and conditioned needle fear experiences and the patients' perceptions of reinforcing stimuli. The problem identified by this study is the lack of nursing information on the perceptions of individuals who experience needle fear during cosmetic injections. The main concepts from the operant conditioning theory identified above are pertinent to exploring the perceptions of the adult patient and addressing the research question. Using semi-structured interview

questions, the purpose of the study is to explore patient responses related to the stimuli, reinforcing elements, and consequential behaviors that play a role in patients' perceptions of the needle fear phenomenon (Skinner, 1935; 1963). The assumptions from the theory that explain conditioned behavior are: (a) the effect of a stimulus results in a specific behavior, (b) the process can be reinforced by other factors, and (c) reinforcers become associated with the process and strengthen the behavioral response (Skinner, 1935; 1963).

Nature of the Study

To address the research questions in this study, I will use a qualitative interpretative phenomenological research design based on Beck's *Introduction to Phenomenology* (Beck, 2021). Husserl developed the philosophy of phenomenology to describe the essence of pure experiences (Beck, 2021). This approach is appropriate to explore the experiences of needle fear during cosmetic injections from the point of view of the individuals who live the phenomenon. For the planned research design, I will need the participants' responses to interview questions to understand the patients' perceptions of the needle fear phenomenon (van Manen, 2017). I will be using purposive sampling to recruit participants who will be key informants representing exemplars of the phenomenon within the contextual setting to answer the research question. Using phenomenology as my methodology will allow me to explore the patients' perceptions and experiences of the needle fear phenomenon in depth to uncover the essence of the needle fear phenomenon.

Interpretative phenomenology will guide data analysis. I will use thematic analysis which is appropriate to reflect, interpret, and identify themes among participants

(Beck, 2021; van Manen, 2017). Reflection and insight into needle fear and capturing the perceptions will involve interpreting participants' meaning to accurately transform the thematic data into text (van Manen, 2017). Data points for the research study include the individuals' interview responses, the interview guide, and my recorded notes and memos. Data collection will continue until no new themes are identified and data saturation has occurred.

Definitions

Needle fear: The phenomenon of needle fear will be generally defined as an acquired, learned, and conditioned response to needles/injections that is associated with an unpleasant outcome (Creswell & Creswell, 2017; Dunsmoor & Murphy, 2015; Glogan et al., 2019).

Aesthetic: The term, aesthetic, originates from the Greek word, *aisthetikos*, meaning perception of the senses (Bouhadana et al., 2021). The term has been used in philosophical research in reference to the study of beauty and taste and later, in the discipline of plastic surgery in reference to reshaping the body to improve patient appearance and self-esteem (Bouhadana et al., 2021). For the purposes of the study, aesthetic is defined as relating to a perceived sense of beauty. The phenomenon of interest will be explored from the adult aesthetic patient's perspective which has not been previously identified in the current research.

Assumptions

The participants' responses are vital to this phenomenological study to explore the patients' perceptions of needle fear. For the results to reflect an accurate analysis of the

data, the major assumption when gathering information during the interview process is that the participants are providing an honest description of their own experiences.

The sample size for a qualitative phenomenological study is typically small. The sample is representative of the population of interest through purposive sampling: the adult patient receiving cosmetic injections. The research design of interpretative phenomenology assumes that the data analysis and findings are solely my interpretations as the researcher (Beck, 2021).

Scope and Delimitations

The purpose of the research study is to explore individual perceptions of the needle fear phenomenon. The research question has been stated: What are the perceptions of adult patients who experience needle fear during cosmetic injections? Interpretative phenomenology was the approach that aligned most appropriately with the research question in exploring these individual experiences and allows me to interpret the data as the sole researcher.

Three methodologies were considered: individual interviews, case study, and focus groups. I chose not to use focus groups as individuals might not fully express their experiences of needle fear in this setting. The goal was to gather data across several individuals, compare the data, and perform thematic analysis. For this reason, I rejected case study as a methodology.

Initially, the gate control theory of pain was explored as one of the theoretical frameworks. Further study of Skinner's operant conditioning theory led to the conclusion that the proposed research study was not based on the concept of needle pain alone, but

rather the phenomenon of needle fear. Skinner's theory was chosen as the sole theoretical framework for the research study.

Limitations

An important point in qualitative study using small sample size is that findings cannot be generalized to the general population as in quantitative analysis and large sample sizes (Burkholder et al., 2016; Theofanidis & Fountouki, 2018). The findings of the study can only be applied to the study population of interest, the adult cosmetic patient (Burkholder et al., 2016). This population has not been previously studied in current research on the needle fear phenomenon using a qualitative approach.

Considering strategies for adequate sample size and data saturation, I will use several means of recruitment to ensure that there is an adequate number of participants, and I will not close recruitment prematurely while completing analysis (Smith & Noble, 2014). The plan is to use social media, professional network connections from private offices, and a nursing society communication to membership with permission for the purposes of recruitment.

Researcher bias is a challenge in qualitative research that needs to be addressed through reflexivity (Smith & Noble, 2014). To promote researcher objectivity, I will need to be aware of my own experiences, biases, and judgements related to needle fear. Strategies for reflexivity include reflection, thorough recording of notes, memos, and journals, and omitting discussion of my personal experiences during the interviews (Creswell & Creswell, 2018).

Participants can affect results by providing answers not representative of their true experiences (Theofanidis & Fountouki, 2018). Interviewees may respond to the questions in a way to please the researcher (Theofanidis & Fountouki, 2018). I will need to communicate to participants how important their own perceptions are in gathering information that is truly representative. This will need to be communicated in the interview introduction. I will emphasize that rich description of their own perceptions can convey true meaning of the phenomenon (Creswell & Creswell, 2018).

The data for qualitative research should reflect accuracy and credibility. The data is nonnumeric and represented by words and context. For the data to be believable, I will need to address strategies to achieve credibility: prolonged engagement, reflexivity, and constant comparison (Burkholder et al, 2016). The interviews will be recorded and transcribed. There will be fees associated with a recording and transcription service. I will need to cross-check the audio recording against the transcribed data to ensure accuracy.

Qualitative analysis is not generated by a succinct statistical software program but rather by interpretative coding by a human researcher as the research instrument. Lack of data reliability can become a barrier to accurate study findings. Strategies to promote reliability include code definition, constant comparison and cross-checking of codes, and coding cycles (Burkholder et al., 2016; Smith & Noble, 2014).

Confidentiality and privacy are ethical concepts that support the welfare of the study's participants (Ravitch & Carl, 2016). Demands on the participants' time will need to be considered. Other challenges related to confidentiality and privacy include proper

secure storage of data, de-identification of the participants, and information provided to the participants that reflects how the research findings will be used and disseminated (Ravitch & Carl, 2016).

Significance of the Study

Significance to Practice and Nursing Discipline

This study is significant in that a qualitative research study considering the adult cosmetic patients' perspectives on needle fear would represent an original contribution and address a gap identified in the literature. The study will provide an understanding of the patients' perceptions related to the needle fear phenomenon and will create positive social change by increasing awareness of the problem to improve the patients' quality of life through interventions or further research (Walden University, 2015; 2018). The intended audience for the study includes the wide range of providers administering these injections and caring for these patients: nurses, nurse practitioners, physician associates, and physicians. An increased understanding could inform aesthetic practice leading to new interventions, protocols, and guidelines to improve the patient experience and quality of life. Exploring individual perceptions of the phenomenon will increase understanding of needle fear and consider the impact of avoidance in healthcare behaviors.

Significance to Theory

The study will address the research question relevant to the phenomenon of needle fear in a specific population which has not been explored: What are the perceptions of adult patients who experience needle fear during cosmetic injections?

Skinner's operant conditioning theory is the framework for the study using an interpretative phenomenological approach. The main concepts from the theory will be applied to inform the interview questions: stimuli, reinforcers, behavioral responses, and consequence (Skinner, 1963). The theory as a framework to the study will represent an original contribution and application of Skinner's theory in the nursing discipline.

Significance to Social Change

Yob described an important concept related to positive social change: a small positive change can cause a ripple effect leading to bigger change (Walden University, 2015). I can raise awareness of the problem through a qualitative study that is shared not only in my immediate medical office with other providers, but also through a local area aesthetic injector society (Walden University, 2015). The findings may be shared further through an aesthetic society poster or publication. Advocating for improved patient experience, improved quality of life, reduced suffering, and positive patient outcomes are goals of the research and support positive social change (Walden University, 2015).

The American Society for Aesthetic Plastic Surgery (2016) estimated that 4.6 million botulinum toxin injection treatments were administered to cosmetic patients in the United States. The impact of continued episodes of needle fear (to include those experienced in the aesthetic office) may negatively influence patient quality of life through behavioral changes such as vaccine hesitancy (McMurtry et al., 2016). In the United Kingdom, researchers conducted a research study to analyze the relationship between vaccine hesitancy and needle phobia (Freeman et al., 2021). The research findings revealed that 26% of adults screened positive for blood-injury-phobia and that

10% of these adults were more likely to report COVID-19 vaccine hesitancy (Freeman et al., 2021). An understanding of the needle fear phenomenon from the patients' viewpoint may promote strategies to improve needle exposure events.

Considering a wider scope of positive social change, understanding needle fear could reduce avoidance of necessary medical care (lab work, immunizations, prescriptive medical injection treatments in chronic conditions, blood donation) and promote healthy patient outcomes. Awareness and consideration of this practice problem by healthcare providers performing injections is an essential step towards improved patient outcomes.

Summary and Transition

Chapter one provided an overview of the current literature which supports the significance and relevance of the needle fear phenomenon in the population. The background described the research topic of interest and identified a gap in knowledge in the nursing discipline. The social problem of the needle fear phenomenon was discussed, and a research problem was identified: the gap in the literature is that the perceptions of adult patients who experience needle fear during cosmetic injections have not been explored. The purpose of my study is to explore the perceptions of needle fear in adult patients receiving cosmetic injections in a medical office setting. I have chosen an interpretative phenomenological research design to address the research question: What are the perceptions of adult patients who experience needle fear during cosmetic injections? The theoretical framework and the concepts of Skinner's theory of operant conditioning will inform the study's interview questions to answer the research question. Purposive sampling will be used to identify participants who can provide rich description

of the needle fear phenomenon from their perspectives. Significance of my research study was identified relative to practice and nursing discipline, theory, and social change.

Chapter 2 provides a comprehensive review of literature of the needle fear phenomenon, the current studies relevant to needle fear in the adult cosmetic patient, and an exploration of Skinner's operant conditioning theory.

Chapter 2: Literature Review

Medical treatments requiring injections are common across global populations (WHO, 2019). Needle fear is statistically significant and a prevalent phenomenon in the general population of the United States and relevant to the nursing discipline as nurses are the primary providers of injection treatments (Duncanson et al., 2021; McLenon & Rodgers, 2019; McMurty et al., 2016; Miloyan & Eaton, 2016). Cosmetic injections are a subset of needle treatments which are elective in nature. The aesthetic patient population has not been widely studied in the current literature involving the needle fear phenomenon although patients express and display needle fear in practice based on my professional experience.

The needle fear phenomenon has been associated with avoidance behaviors (vaccine hesitancy, noncompliance with injections involving chronic health conditions, noncompliance with lab draws) related to health maintenance and wellness (Duncanson et al., 2021; Hanberger et al., 2021; McLenon & Rodgers, 2019; McMurty et al., 2016; Tremolada et al., 2021). The specific research problem that my study will address is the lack of nursing information on the perceptions of individuals who experience needle fear during cosmetic injections. The study is relevant and meaningful to explore individual perceptions of needle fear from the patient perspectives in a population that is not represented in the research. The study will explore patient perceptions related to avoidance behaviors which may impact patient quality of life.

The purpose of this qualitative study is to explore the perceptions of needle fear among adult patients receiving cosmetic injections in a medical office setting (Creswell

& Creswell, 2017). The literature review involves the needle fear phenomenon represented in current research. Identification of key concepts is essential for the process of exploration by the researcher: development of interview questions and creating an awareness of the concepts that are expressed during participant interviews. The literature review will involve identifying a gap in the research and supporting the rationale for conducting the study.

In Chapter 2, I will discuss the interpretative phenomenology and the qualitative research design that was used for the proposed study. The operant conditioning theory will be described, including the theory's application to the study. Current literature in various disciplines will be addressed to identify background information involving needle fear across time and the general concepts associated with the phenomenon. I also address elective procedures requiring needles. I will summarize the findings based on the literature review to conclude the chapter.

Literature Search Strategy

Keywords were used to conduct a review of the current literature using the following search engines: MEDLINE with Full Text, CINAHL, Embase, Google Scholar, Ovid, ProQuest, SAGE Journals, ScienceDirect, and Thoreau Multi-Database. Keywords were *research, fear, phobia, needle fear, injection fear, needle anxiety, cosmetic injections, needle phobia, vaccine hesitancy, immunization, injections, needle, dental, and avoidance behavior*. Boolean operators of “and,” “not,” and “or” were used to guide the search. Scholarly peer-reviewed journals were selected for this review which were published between 2017 and 2022.

Theoretical Framework

B. F. Skinner, a psychologist and researcher, developed the theory of operant conditioning based on his studies at Harvard University (Skinner, 1935). Skinner studied the behavior of rats not only in a stimulus-response approach, but he also considered reinforcing stimuli on behavioral consequences (Skinner, 1935). The theorist observed that a reinforcing stimulus resulted in a stronger behavioral response which could be represented in a positive or negative direction (Skinner, 1935; Skinner, 1963). Skinner's research demonstrated the process in which behavior becomes conditioned by various stimuli (Skinner, 1935).

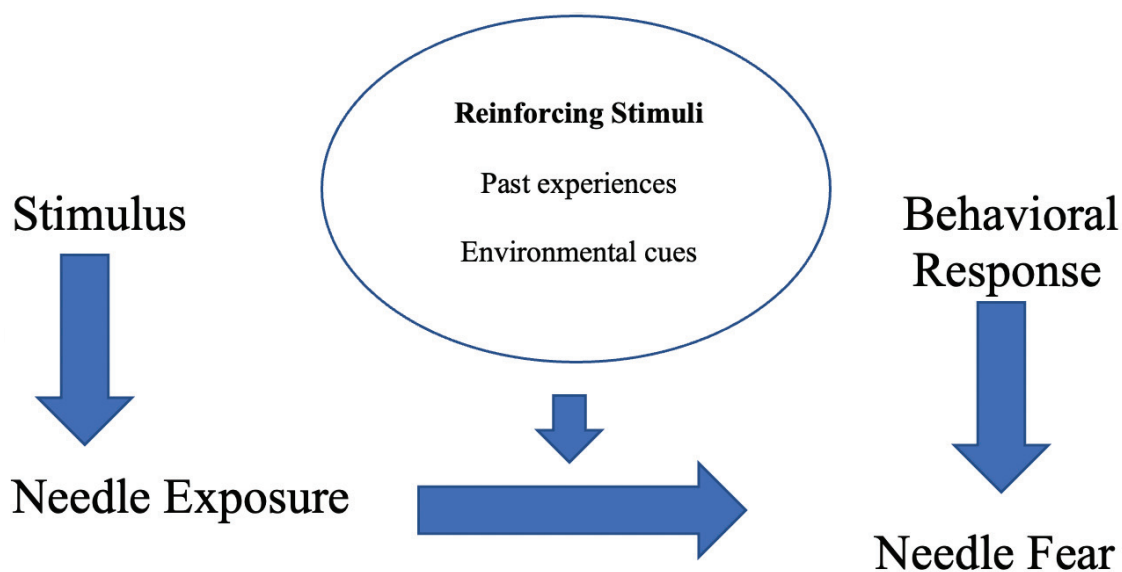
In 1963, Skinner introduced the concept of controlling behavioral consequence and controlling rate of response (Skinner, 1963). Skinner observed that increasing the reinforcing stimulus caused an increase in the consequential behavior which he termed operant conditioning (Skinner, 1963). Removing the consequence of behavior resulted in a decreased rate of response (Skinner, 1963). Skinner termed this decreased rate of response as extinction (Skinner, 1963). The author emphasized the complexity of the reinforcing stimulus (the operant) in shaping behavior and the importance of considering the potential for numerous stimuli to exist at once in shaping one consequential behavior (Skinner, 1963).

Skinner's theory can be applied to patients' behaviors related to needle fear. Researching the needle fear phenomenon may uncover reinforcing stimuli and modifying factors that strengthen the consequential behaviors exhibited during injections. Figure 1 symbolizes these relationships. The theoretical framework emphasizes the potential of

numerous stimuli existing simultaneously which may condition one behavior. The study will include in-depth interviews to allow participants to express perceptions of stimuli and factors that reinforce their consequential emotional and physical behaviors of needle fear.

Figure 1

The Needle Fear Phenomenon Based on Skinner's Theory of Operant Conditioning



Literature Review

Fear is an acquired and adaptive emotion that is expressed when humans experience a threatening stimulus (Asok et al., 2019; Dunsmoor & Murphy, 2015). Behavioral reactions based on the experiences of fear promote survival (Asok et al., 2019). Learned behavior is an integration of past experiences and memories due to previous exposure to the stimulus. Over time, fear conditioning occurs when a stimulus

associated with a threat elicits a specific response (Asok et al., 2019; McMurtry et al., 2016). Fear generalization occurs as an adaptive response when additional factors or environmental cues become associated with the stimulus (Asok et al., 2019; Dunsmoor & Murphy, 2015; Glogan et al., 2019). These factors may be intrinsic (previous experience, memory, genetic background, gender differences) and extrinsic (early life stress, environmental; Asok et al., 2019; Sorge & Totsch, 2017). Increased fear generalization may occur when the emotional aspect of the fear-producing event is intensified (Dunsmoor & Murphy, 2015).

Overgeneralization

Exposure to a needle (a threatening stimulus) elicits extreme behavioral responses in some individuals. In these cases, fear generalization has become maladaptive resulting in abnormal behavioral responses (Asok et al., 2019). In some instances, overgeneralization occurs when the individual adopts other perceptual cues during the threatening experience which have never been associated with the original threat (Asok et al., 2019). Overgeneralization is a characteristic observed in anxiety and stress-related disorders (Asok et al., 2019; Glogan et al., 2019).

Excessive overgeneralization may lead to avoidance behaviors (McMurtry et al., 2016; Meulders et al., 2017; Glogan et al., 2019). The phenomenon of needle fear may include the maladaptive aspects of overgeneralization which lead to avoidance behaviors. Approximately 10% of COVID-19 avoidance cases among adult patients were due to blood-injection-injury fear (Freeman et al., 2021). Injection fears were found to be higher in Black and Asian ethnic groups compared with White ethnic groups and correlated with

a higher degree of vaccine hesitancy measured by two self-reported tools: blood-injection-injury fear screening assessment and a blood-injection fears questionnaire (Freeman et al., 2021). Vaccine non-compliance due to needle fear has been found in 6.6% of a Canadian adult population (Taddio et al., 2012). Needle exposure and needle fear behaviors in adult cosmetic patients have the potential to impact avoidance behaviors. Avoidance behaviors negatively influence attainment of optimal health and quality of life. The proposed study involves exploring perceptions of adult cosmetic injection patients and the potential avoidance behaviors associated with needle fear.

Cosmetic Injections

Cosmetic injections are performed in a variety of settings worldwide, including medical offices (plastic surgery, dermatology) and medical spas. Approximately 10.6 billion cosmetic injections were performed worldwide in 2020 (Michas, 2022). Patients receiving cosmetic injections such as neuromodulator and dermal filler injections are adults both male and female.

Cosmetic neuromodulator injections such as Botox and Dysport are used for facial rejuvenation, prevention of wrinkles, and improvement in the appearance of facial rhytids (Alam & Tung, 2018). Prescriptive medications work by relaxing muscle motion and are injected into muscle tissue (Alam & Tung, 2018). Typical duration of effect is 3 to 4 months (Alam & Tung, 2018). The short duration of effect requires patients to seek retreatment three to four times per year. During an office visit for one treatment, several injections are given using a fine and small gauge needle. Full treatment of the upper face

(forehead, between the brows, around the eyes) may require up to 20 or more injections for one treatment.

Cosmetic dermal filler injections such as Juvederm, Restylane, Sculptra, and Radiesse are used for facial rejuvenation and facial volume replacement (Alam & Tung, 2018; Dhillon & Patel, 2020). These prescriptive medications and medical devices function by stimulating collagen and adding structure, volume, and lift (Alam & Tung, 2018; Dhillon & Patel, 2020). Injections may include different anatomical areas: face (cheeks, chin, jawline, temples, facial wrinkles), neck, décolleté, and parts of the body (Alam & Tung, 2018; Dhillon & Patel, 2020). One office treatment requires multiple injections depending upon the anatomy treated (such as cheeks, chin, lips). The product may be injected superficially in the lip, under muscle and directly above bony structures, or into the subcutaneous fat/deep skin layer (Alam & Tung, 2018; Dhillon & Patel, 2020). Duration of effect is typically 6 months to 1 year and patients seek treatment one to two times per year for maintenance of effect (Alam & Tung, 2018; Dhillon & Patel, 2020).

The Adult Population and the Needle Fear Phenomenon

The research literature which focused on the adult population yielded few results. In these current research studies, researchers used quantitative design approaches and analyzed the effectiveness of specific interventions on anxiety, fear, pain, and patient satisfaction during needle-related procedures: blood donation, lab draws, medical injections, and vaccination (Khanra et al., 2018; Kowalsky et al., 2018; Sahin & Eser, 2018; Trost et al., 2017; Yayla & Ozdemir, 2019). There were no current qualitative studies found in the peer-reviewed research literature in the adult population.

Fear Concepts: Blood, Injection, and Needles

The fear concepts of blood and needle visual exposure, injection, and fainting were explored in the adult population using quantitative research design. Researchers analyzed the effectiveness of specific interventions (such as respiratory regulation, focused muscle tensing, and video simulation) on self-reported fear with visual exposure to blood and needles (Kowalsky et al., 2018; Trost et al., 2017). Researchers using simulated blood draws with participants found no statistically significant difference in presyncopal symptoms among the interventions (respiratory regulation and muscle tensing) compared with no treatment (Kowalsky et al., 2018). A cross-sectional survey analyzed by Zucoloto et al. (2019) with primary care patients explored the concepts of blood fear, injection fear, and fainting due to injection fear. The researchers concluded that fear of blood, fear of injections and fear of fainting were significant barriers to blood donation in Brazil (Zucoloto et al., 2019). Women participants exhibited the highest scores for fear of injection and fear of blood compared to male participants (Zucoloto et al., 2019). In summary, these adult research studies identified needle fear concepts: blood exposure, needle exposure, injection fear, and fear of fainting.

Pain and Anxiety

The concepts of needle pain and anxiety related to needles/injections were identified in studies which analyzed the effectiveness of specific interventions (Khanra et al., 2018; Sahin & Eser, 2018; Yayla & Ozdemir, 2019). Validated, self-reported, pain and anxiety scales were used to evaluate interventions with adult participants. Researchers found that use of the Helfer skin tap technique was more effective than

standard injection technique in reducing pain in adults (Khanra et al., 2018).

Additionally, researchers found that using a vibration device during injection reduced post injection pain and improved patient injection satisfaction compared to a control group (Sahin & Eser, 2018). Furthermore, researchers found that the use of one essential oil (lavender) for aromatherapy prior to injection demonstrated significant reduction in pain scores compared to the control group (Yayla & Ozdemir, 2019). However, one other essential oil was not effective in pain reduction and aromatherapy did not significantly reduce self-reported anxiety with injections (Yayla & Ozdemir, 2019). In conclusion, some interventions (aromatherapy, skin tap, vibration) were shown to reduce pain and improve patient satisfaction in the adult population.

Systematic literature reviews were located. These reviews explored the concepts of pain with vaccination (Cull et al., 2021) and needle fear (Duncanson et al., 2021; McLenon & Rogers, 2019). The references cited by these publications provided citations of original research and prevalence data reflecting the significance of the needle fear phenomenon for the proposed study.

Needle Fear and the Adult Cosmetic Population

The literature review involving needle fear in the adult cosmetic patient demonstrated few current research studies. One published article by Brackenbury (2019) was not original research but rather a description of needle phobia and a description of options for clinical management. Fallahi et al. (2021) performed a literature review of 10 research articles based on the concept of pain reduction during cosmetic injections. These

two articles were not included in the final literature review as they did not represent original research.

The review specific to the population of interest settled on six original research articles. The researchers all used a quantitative research design approach to study. No original research was located with a qualitative design approach. Studies by the researchers were randomized-controlled trials which analyzed the efficacy of specific interventions on needle pain/injection pain: topical and vapocoolant anesthesia, cold/ice, and vibration (Chorney et al., 2019; Guney et al., 2017; Li et al., 2017; Özücer & Halit, 2020; Salmerón-González et al., 2021; Zeiderman et al., 2018). The concept analyzed in these studies was needle pain rather than needle fear. There were no articles discovered on the phenomenon of needle fear in the specific population and contextual setting of the proposed study. The lack of current research on the needle fear phenomenon using a qualitative design in the population of interest demonstrates a gap in the research literature. This gap is significant to nursing providers who provide these injections as research knowledge thus far as not considered the patient perspective. The gap represents a lack of research knowledge and awareness of the problem which may reduce quality of patient care, impact patient suffering, and result in poor patient outcomes. Awareness of the patients' lived experiences and perceptions will promote social change by improving patients' quality of life during injections to include those required for optimal health maintenance (routine lab draws, vaccination, injections required in chronic medical conditions). In this qualitative study, I explore the perceptions of the cosmetic patient on

the needle fear phenomenon. The research will explore needle fear from the patients' perspective and represent original research in this population and context.

Chapter Summary

The literature review was conducted to discover current studies to address the research question: What are the perceptions of adult patients who experience needle fear during cosmetic injections? Key concepts relevant to the needle fear phenomenon were identified. A gap in the current research literature was found to support the proposed study: there were no current qualitative research studies on the needle fear phenomenon found based on the population of interest and the contextual setting. This qualitative study represents original research. Increasing awareness and providing knowledge from the patient's perspective will advance social change by reducing patient suffering, improving quality of life, and supporting positive patient outcomes.

The emotion of needle fear has been observed clinically across a broad spectrum of individual and unique experiences. Interpretative phenomenology is an appropriate research design to address the study's purpose: to explore the perceptions of needle fear in adult patients receiving cosmetic injections in a medical office setting. The research design will inform the interview and data collection process while exploring the unique perceptions of each participant with the consideration that each experience has equal value (Beck, 2021; Smith, 2017; Smith & Osborne, 2015; van Manen, 2017). The study guided by interpretative phenomenology will seek the meaning and essence of needle fear across the participants.

Based on Skinner's theory of operant conditioning, needle exposure can be described as the stimulus which results in the consequential behavior of needle fear (Skinner, 1963). The reinforcing stimuli and modifying factors which strengthen needle fear behavior are important elements to explore during the individual interviews. The perceptions of individual participants will be explored to uncover the operant stimuli that have become associated with needle fear as described by Skinner.

Chapter 3 will describe the research design and the rationale for applying interpretative phenomenology to the study. The role of researcher in a qualitative study is examined and includes a discussion of trustworthiness and ethics. The methodology will be discussed in detail.

Chapter 3: Research Method

The purpose of the study is to explore the perceptions of needle fear in adult patients receiving cosmetic injections in a medical office setting. The needle fear phenomenon has not been previously explored from the adult aesthetic patient's perspective based on the review of current literature. Chapter 3 includes the research design and the rationale for use. I discuss my role as a researcher in this qualitative study. The methodology of the study is then reviewed, and I address the following components: participant selection, the research instrument, participant recruitment, data collection, and the data analysis plan. Last, issues of trustworthiness and ethical considerations are addressed in this chapter.

Research Design and Rationale

The research question for this study is: What are the perceptions of adult patients who experience needle fear during cosmetic injections? For this study, I have defined the phenomenon of needle fear as an acquired, learned, and conditioned response to needles/injections that is associated with an unpleasant outcome (see Creswell & Creswell, 2018; Dunsmoor & Murphy, 2015; Glogan et al., 2019). The research tradition I will use to address the research question is qualitative using an interpretative phenomenological design.

Origins of Phenomenology

The descriptive philosophy of phenomenology was developed by German philosopher, Husserl, to enlighten and stimulate exploration of research study beyond the traditional objective scientific approach (Beck, 2021; Frechette et al., 2020). Husserl

challenged research scientists to separate themselves from their own biases, presuppositions, past experiences, and prejudices to examine phenomena with a natural, fresh approach to discover the pure essence of experience as opposed to factual scientific data (Beck, 2021; Miller et al., 2018). Husserl encouraged free imagination towards a science of essences, an eidetic science (Beck, 2021).

Phenomenological Elements

To mitigate subjectivity within phenomenology, various cognitive and practical strategies are employed. These strategies include epoché, reduction, and intentionality. By employing these strategies, a researcher can better assure they are seeing the phenomenon as experienced by those experiencing it, rather than through the lens of their own biases.

Epoche. The epoché supports our ability to study phenomena in a new way with a fresh conscious (Moustakas, 2011). Husserl coined the Greek word, epoché (meaning to stay away from) to embrace the idea of separation from taken-for-granted attitudes, preconceived ideas, biases, and beliefs (Beck, 2021; Frechette et al., 2020). Bracketing is a mathematical term Husserl used to symbolize separation of previous assumptions and beliefs (Beck, 2021) and stands for the process of engaging in epoché.

Reduction. In addition to the mindset of epoché, the strategy of reduction is also key to conducting phenomenological research. Husserl described the natural attitude as the perspective of everyday life based on presuppositions and prior experiences (Beck, 2021). According to Husserl, reduction was defined as a process in which the phenomenological researcher frees himself from the natural attitude to allow phenomena

to be viewed simply as it presents itself without presuppositions (Beck, 2021). To achieve phenomenological reduction, the researcher adopts an attitude of wonder to investigate the experience as it is lived rather than as approached with preconceived assumptions and beliefs (Beck, 2021). Moustakas (2011) described the steps of reduction to include bracketing and the attitude that each lived experience has equal value and importance until pure meaning or essence is uncovered.

Intentionality. Last, intentionality must remain at the forefront of a researcher's process when conducting phenomenological research. In the practice of phenomenological study, intentionality refers to researchers being fully committed and directed to an awareness of the participants' experiences as the object of research (Beck, 2021). These three elements, epoche, reduction, and intentionality, were adopted by Husserl in his approach to phenomenological research.

Interpretative Phenomenology

The philosophy of phenomenology may be viewed with different lenses: in a descriptive manner or with a method of interpretation. Descriptive phenomenology involves methodologies for finding the meaning of an experience and describing the essence of the experience (Beck, 2021). Using descriptive phenomenology, the researcher brackets or sets aside his own presuppositions (Beck, 2021). Hermeneutic phenomenology, also known as interpretative phenomenology, seeks understanding through an interpretative approach. Van Manen viewed interpretative phenomenology as the understanding of lived experience through examples that represented the phenomenon (Beck, 2021). In interpretative phenomenology, the examples of lived experiences from

research participants provide insight and meaning beyond prior understanding of a phenomenon which may have been based on theories or preconceived concepts (Beck, 2021). Various scholars have developed interpretive phenomenology over time including Heidegger, Benner, and Smith.

Heidegger

Heidegger, a student of Husserl, developed the different focus within phenomenology as interpretative rather than descriptive (Beck, 2021). A philosopher, he is considered the original founding theorist for hermeneutics and interpretative phenomenology (Frechette et al., 2020). Focusing on the nature and meaning of being in the world and viewing experience as being inseparable from the world, Heidegger emphasized human existence as a state of being in the world with temporal and spatial relationships (Beck, 2021; Horrigan-Kelly et al., 2016). Fundamental to Heidegger's philosophy, the concept of *time* was described as the way humans interpret and understand phenomena (Beck, 2021). For Heidegger, time refers to how human experience is individual in nature and considers the social context and the context of interaction with others (Horrigan-Kelly et al., 2016). Heideggerian interpretative phenomenology proposed an uncovering of the layers in everyday existence that are present but have been hidden or forgotten (Frechette et al., 2020). Heidegger emphasized that researchers cannot separate themselves from the world during the study of phenomena: in contrast, descriptive phenomenology requires bracketing of the researcher's own preconceived ideas/experiences. Researchers (such as Benner and

Smith) have adopted Heidegger's interpretative phenomenological approach and applied additional concepts over the course of time.

Benner

Using Heidegger's interpretive phenomenological approach, Benner clarified further how to practically undertake interpretive phenomenological research. Benner approached phenomenological data interpretation as an analysis of both the whole text and parts of the text and suggested completing analysis with a comparison between the parts and the whole (Beck, 2021). This constant back and forth movement between the parts and the whole is symbolized as a hermeneutic circle (Beck, 2021). Benner emphasized participant storytelling and researcher active listening to gain rich narratives of the lived experiences (Beck, 2021). Multiple interviews with the same participants and small group interviews were identified by Benner as methods to arrive at meaningful data (Beck, 2021). Using data from multiple interviews (same participants) to arrive at interpretations, Benner adopted three interpretative strategies for phenomenological study: paradigm identification (a strong example of a specific meaningful pattern), an exemplar case (focused characteristics that illustrate the paradigm), and thematic analysis (back and forth study across the cases as smaller units to identify meaningful patterns; (Beck, 2021). Additionally, Benner validated her work with expert review from researchers who shared similar cultural orientation (Beck, 2021). Applying Benner's approach to interpretative phenomenology, the researcher uses constant comparison of the data which has been obtained through multiple interactions using the same

participants and considers the viewpoints of reviewers. Smith applies interpretative phenomenology with different concepts about data collection and analysis.

Smith

Jonathan Smith, a health psychologist from the United Kingdom, further developed and codified the research design of interpretive phenomenology, calling it interpretive phenomenological analysis (IPA) which is based on a dual approach: (a) exploring participants' experiences with researcher interpretation and (b) consideration of the researcher's own ideas which are used to understand participants' meaning of the phenomenon (Beck, 2021; Miller et al., 2018). Smith identified three primary theoretical underpinnings for IPA: phenomenology, hermeneutics, and ideography (Smith, 2017). First, Smith used Husserl's notion of examining personal experience as it is revealed without influence from prior theories or beliefs of the researcher (Smith, 2017). Second, Smith adopted hermeneutics (consistent with Heidegger's philosophy) and recognized the meaning of personal experience as interpreted by both the participant and researcher (Smith, 2017). Third, Smith noted that each participant's particular experience should be studied in detail to focus on individual meanings. The exploration of this individual focus is termed ideography: the equal consideration of each individual case to (a) identify patterns across cases while (b) noting that how an individual interprets a phenomenon may vary from other participants with similar lived experiences (Miller et al., 2018; Smith, 2017; Smith & Osborn, 2015). IPA research does not focus on predetermined sample size as the purpose is not generalizability to the population (Miller et al., 2018). Smith used small, homogenous participant samples (three to six participants) to study

phenomena. Benner and Smith grounded phenomenological research with Heidegger's interpretative approach while applying contrasting methods of data collection and analysis.

Rationale for Research Design

The interpretative phenomenological design is based on Beck's *Introduction to Phenomenology* (Beck, 2021). This design is appropriate to explore the experiences of needle fear during cosmetic injections from the point of view of the adult participants who live the phenomenon. The design will lead to an understanding of the patient's living in the moment of needle fear and provide a patient's history of their own experience. As the researcher using this approach, I will be interpreting findings considering my own experience as I seek to understand the meaning of others and their perspectives. In this way, each unique experience being portrayed intersects with the researcher's own interpretation of the individual's experience. I will use Smith's approach to interpretative phenomenology by using one in-depth, semi-structured interview per participant and developing six to ten open-ended questions based on the key concepts identified in the literature review (Beck, 2021; Smith, 2017; Smith & Osborn, 2015). In summary, interpretative phenomenology is an appropriate research design to explore the perceptions of needle fear allowing the meaning and essence of each patient's perceptions to be of equal value (Smith, 2017).

Prior to selecting interpretative phenomenology as the qualitative approach for the proposed study, I considered other research design. Grounded theory is not appropriate for the study because the research goal is not to create new theories. Designs using a case

study or focus groups were considered but the decision was made not to use focus groups so that individuals would feel free to express their perceptions without perceived judgement from others in a group setting. A case study would not allow consideration of how different individuals find meaning in the needle fear phenomenon as described by Heidegger (van Manen, 2017). I concluded that using interpretative phenomenology would allow exploration of the phenomenon among individuals across a defined population to answer the research question while considering my own interpretation as the sole researcher (Smith, 2017).

Phenomenological research provides in-depth descriptions and interpretations when the research participants are permitted to provide narration and reveal how the phenomenon has impacted their lives (Alase, 2017). In-depth descriptions occur when open-ended interview questions are used. Phenomenology would direct the research study to uncover the lived experience of needle fear and its meaning relevant to the participants (Gray et al., 2017; Sloan & Bowe, 2014). This approach would give direction and focus to explore the essence and true nature of needle fear in this population (Gray et al., 2017; Sloan & Bowe, 2014). Interpretative phenomenology supports exploration of the perceptions across individuals in an in-depth, essential manner.

Role of the Researcher

The importance of self-awareness in qualitative research plays a key role in producing a quality study. Knowing yourself and intrinsic biases as well as what you notice during observations or interactions is part of the ongoing process (Patton, 2015; Ravitch & Carl, 2016). Background, passion about the phenomenon, and life experiences

influence interactions in the researcher role (Patton, 2015; Ravitch & Carl, 2016).).

Awareness of my own presence during the interview (tone of voice) will be essential to maintain neutrality and reduce bias. Ravitch and Carl (2016) recommend the use of personal memos throughout the research process for reflection, awareness of bias, and confirmation and interpretation of data. Recorded reflective notes and memos during the interview process will support self-awareness during data collection.

I cannot use my own patients for the study and be in the researcher role. My position as their provider creates bias and a power imbalance and places me in a position as a professional expert. This power relationship can influence true participant expression relevant to the phenomenon. The participant may feel that they are judged negatively if the severity of their experience is expressed. Therefore, to control bias, I will use participants that are unknown to me.

The process of reflexivity examines the researcher's place in the research study. Self-awareness and examination of my own reactions, assumptions, expectations, and biases as a researcher are an important part of the methodology chosen for the research. My own reflexive writing will promote a critical self-awareness throughout the research process through examination of my own thoughts using memos, written notes, and journal entries. I do not experience the fear and anxiety that my patients demonstrate. These feelings are real, although I do not understand the extent and severity of their perceptions. As a researcher hoping to fully explore patient perceptions, I cannot express or show judgement with the participants. Consequently, I will plan to project neutrality throughout the data collection process.

Methodology

Participant Selection Logic

Using the planned research design, participants will respond to interview questions regarding their perceptions of the needle fear phenomenon (van Manen, 2017). Purposive sampling will be used to recruit participants who will be key informants and represent exemplars of the phenomenon within the contextual setting to answer the research question (Burkholder et al., 2016, Creswell & Creswell, 2018; Patton, 2015). The goal of sample size in a phenomenological qualitative study is to obtain sufficient interview data that will result in data saturation (Burkholder et al., 2016; Creswell & Creswell, 2018; Queirós et al., 2017). Sample size has been described as 3-15 participants (Burkholder et al., 2016; Creswell & Creswell, 2018). Burkholder et al. (2016) noted that sample size is often between 8 and 12 participants. Sample size is determined when saturation occurs in data collection at which no new information or themes are observed (Guest et al., 2006). In their analysis of data saturation, Guest et al. (2006) found that after reviewing 60 in-depth interviews, coding was completed with 12 interviews. In an analysis of PhD theses from a website data base, Mason (2010) found that a mean of 25 participant interviews was used in phenomenological studies. Based on this information, I plan to conduct a minimum of 12 interviews. However, as the data analysis unfolds after each interview, I can determine when data saturation occurs (when no new themes are identified).

Inclusion criteria for the sample population will be applied to the adult cosmetic patient receiving injections in a medical office setting. The inclusion criteria selected for

sampling participants include the following: adults 18 years and older, residence in the United States, cosmetic injection treatment within the past 18 months, and prior experience or feelings of needle fear. The rationale for the criteria of treatment in the past 18 months is to secure a sample that demonstrates current experience. Purposive sampling based on the criteria will provide an appropriate study population to answer the research question.

I will recruit participants through a personal network of cosmetic practitioners within the United States. The use of Instagram direct messaging may be used to contact cosmetic practitioners to request research assistance for the purpose of participant sampling. These practitioners provide cosmetic injections and, in some instances, own their own private practices. Based on practitioners' approval, I will provide an invitation for their patients to participate (including an introduction to the study) to be posted in the practice (Appendix B). Recruitment invitations would address ethics related to privacy and confidentiality: deidentification of participants by coding names, password protected data, notification of the dissemination process of study findings, and final data erasure after completion of the research (Ravitch & Carl, 2016). Practitioners will be requested to post study information only and will not be obtaining informed consent or collecting data. The invitation and introduction will identify the criteria for study inclusion: age 18 years and older, residence in the United States, cosmetic injection treatment in the past eighteen months, and feelings/experiences of needle fear. The initial request by the patient to participate will be made via email contact to. Verification of inclusion criteria will be confirmed via email communication between myself and the interested participant. A

small stipend in the form of an Amazon® \$25.00 gift card will be provided to participants as a thank you for participation. In summary, the above-described procedure will represent the primary method of participant recruitment.

Additional recruitment will occur through social media platforms and through a request for research assistance with the International Society of Plastic and Aesthetic Nurses (ISPAN), a professional aesthetic nursing society. A call for research assistance will be made to ISPAN nursing members who perform cosmetic injections. A request will be made to nursing members to post participant invitations in their professional practices for the purpose of sampling for the study. Contact information and an introduction to the study with inclusion criteria will be provided to ISPAN members and potential participants. Members will be requested to post participant invitations only and will not be obtaining informed consent of the participant. Initial interest in participation will be made by the participant via email contact. Email communication with potential participants will be used to confirm inclusion criteria. However, final recruitment decisions would be based on IRB approval and feasibility.

Instrumentation

Interview Guide

Development. The aim of phenomenological interviewing is to elicit a personal description of a lived experience to describe a phenomenon in lived-through terms (Patton, 2015). The purpose of interviewing is to enter another person's perspective (Patton, 2015). Qualitative interviewing considers certain assumptions: the perspective of another person is meaningful, knowable, and can be made explicit (Patton, 2015).

Myers and Newman (2007) described the interview as an artificial situation: researchers are interviewing complete strangers. Patton (2015) describes interviewing as unnatural. As interviewers, we cannot assume that our participants understand what we are asking and what we intend to answer (Patton, 2015). Development of an interview guide ensures consistent use of the same questions with each interviewee and that the questions asked will answer the research question (Patton, 2015). Open-ended questions are appropriate in qualitative study to allow the participant to fully verbalize experiences and feelings (Patton, 2015).

Research into the phenomenon and the associated concepts will guide the development of research questions (Jacob & Furgerson, 2012). Scholarly peer-reviewed journals will be reviewed in the electronic literature to identify the main concepts related to the needle fear phenomenon while considering best practices for interview questions: open-ended and neutral, clear wording, and understandable (Myers and Newman, 2007; Turner, 2010). Patton (2015) recommended using sensory and feeling questions to understand lived experience.

An interview script guides the interview process, informs participants, and addresses important topics. The script explains the research topic and purpose for studying the phenomenon, ensures informed consent, discusses confidentiality, builds rapport, provides contact information, and provides follow-up information (Jacob & Furgerson, 2012). The development of interview questions will be grounded in existing research on the phenomenon and guided by Skinner's theoretical framework to answer the research question: What are the perceptions of adult patients who experience needle fear during

cosmetic injections? (Burkholder et al., 2016; Creswell & Creswell, 2018; Grant & Osanloo, 2014; Patton, 2015).

The interview guide will include an introduction to inform participants of the study's purpose: to explore the perceptions of needle fear in adult patients receiving cosmetic injections in a medical office setting. Demographic data will be obtained to include age, gender, months/years receiving cosmetic injections, frequency of cosmetic injection treatments per year, last cosmetic injection treatment, and type of cosmetic injection treatment (fillers, neuromodulators). Consequently, demographic data will be included in the study's results.

Open-ended questions are used in phenomenology to allow participants to fully express responses and provide rich description (Burkholder et al., 2016; Creswell & Creswell, 2018). Therefore, open-ended questions will be used in the semi-structured interview guide. In addition, content will be included to emphasize voluntary participation, provide contact information, and obtain informed consent as provided by the IRB. The interview guide will be included in the appendices.

Procedures for Recruitment, Participation, and Data Collection

Recruitment and Participation

Recruitment for participant sampling will be addressed as described above using three approaches: through a personal network of practitioners, social media communication, and request for research assistance (for the purpose of cosmetic patient study sampling) with ISPAN nursing members. Introduction of the study and criteria will be sent via email to cosmetic practitioners who express willingness to allow posting of

the study in their practice for the purpose of obtaining participant sampling. Practitioners will not be obtaining informed consent from participants but rather posting the study information and invitation to participate in their practices. The audience for the posting will be the adult cosmetic injection patient. The posting will include an introduction to the study, eligibility criteria, and email contact information (see Appendix B).

Interest in participation will be initiated from the participant using a provided contact email. Confirmation of eligibility will be made through email communication. Initial questions will be addressed via email. An assumption of the study as stated in Chapter 1 is that participants will provide honest information which includes meeting eligibility criteria. Informed consent will be obtained using documents provided by the IRB. A small stipend in the form of an Amazon® \$25.00 gift card will be provided to participants upon completion of participation.

Data Collection

The method of data collection in the phenomenological qualitative approach uses interviewing from its foundation in the fields of psychology and philosophy (Creswell & Creswell, 2018). In-depth, semi-structured interviews will be conducted with each participant using open-ended interview questions. The interview duration is 45-60 minutes. Interviews will be conducted using telephone, email, or virtual applications such as audio Zoom®. The interviews will be recorded, and a transcription tool, NoNotes®, will be used to transform the audio portion of the interviews into textual data form for analysis. NoNotes® is a secure platform for storage of data through encryption and is widely used in academic research.

Notes and memos will be recorded during the interviews which will become part of the data. Data collection tools will include an audio recording of each interview using an application (or if conducted via email the textual email responses will be the data), transcribed text via software application, Word® and Excel® tools for data compilation, and my personal notations and reflective writing. Data will be stored in a password protected computer. Participants' names will be de-identified through coding for confidentiality. This information will be stored in a separate file from the actual interview data for security. Data collection will continue until no new themes are identified and data saturation has occurred. Contact information will be provided to participants to include a method for accessing the results of the completed study.

Data Analysis Plan

The methods of data analysis for this interpretative phenomenological qualitative study will include open coding and thematic analysis (Alase, 2017; Burkholder et al., 2016; Creswell & Creswell, 2018; Grant & Osanloo, 2014; Patton, 2015; Saldaña, 2016; van Manen, 2017). Strategies for data analysis will include listening to audio recordings of the individual interviews, reading and reviewing the transcripts, recording notations, identifying emergent themes, and compiling and organizing themes (Alase, 2017; Saldaña, 2016). Thematic analysis begins with identification of codes and finding patterns: similar ideas and context from each interview that symbolize meaning (Saldaña, 2016). As the researcher of a phenomenological study, I will be generating the codes as an interpretative act (Saldaña, 2016). The iterative process continues with further reduction of the codes from all interviews into subthemes, and further reduction to

overarching themes (Alase, 2017; Saldaña, 2016; Smith & Firth, 2011). The process of constant comparison will be used between codes through the coding cycles as they are discovered in the text of the interviews (Alase, 2017; Saldaña, 2016). Manual coding will be performed with color coding of the data. Word® and Excel® will be used to organize the data (Burkholder et al., 2016; Grant & Osanloo, 2014; Meyer & Avery, 2009; Saldaña, 2016).

The data points in the research study are the individual responses to the interview questions expressed by the study's participants. Additional data points include the interview guide and my own recorded notes and memos that reflect my role as the research instrument. The following steps for data analysis are:

- Transcription of interview data
- Comparison of original audio recording and transcription text for accuracy
- Applying data elements (interview data, memos, journal notes, first impression meaningful words) into Excel® data tool
- Read and reread individual transcripts separately to identify codes using two separate passes
- Read and reread memos, interview notes, observations, and field notes to analyze interpretation of codes and integrate within final code development
- Iterative back and forth examination between the transcripts and codes to arrive at interpretative themes

Issues of Trustworthiness

Qualitative inquiry illuminates meaning of phenomena, considers and attempts to understand context and why it matters, captures personal experiences and perspectives, and explores how things work (Patton, 2015). Phenomenology is a methodology used to approach qualitative research inquiry. Alase (2017) described interpretative phenomenology as appropriate when the aim of the qualitative study is to understand the lived experience of participants. Therefore, interpretative phenomenology is appropriate to understanding the lived experience of needle fear with the study's participants.

Trustworthiness is the criteria for examining the quality of a qualitative research inquiry: the extent to which one can have confidence in the study's findings (Lincoln & Guba, 1985). The study's quality is identified by exploring certain elements: credibility, transferability, dependability, and confirmability (Lincoln & Guba, 1985; Patton, 2015; Shenton, 2004; Tracy, 2010). The elements of trustworthiness are further described below.

Credibility

The criteria of credibility support the notion that the study's findings accurately reflect the reality as seen by the participants (Lincoln & Guba, 1985; Patton, 2015; Shenton, 2004; Tracy, 2010). Skinner's operant conditioning theory will guide the study and inform concepts. First, I will seek familiarity with the needle fear phenomenon with an exhaustive exploration of the research literature and through my own personal exposure to the phenomenon in my medical practice. Second, I will use purposive sampling to identify relevant cases guided by the inclusion criteria. Third, I will obtain

informed consent from participants. Fourth, I will use semistructured interviews using open-ended questions to allow the participants to fully express their narrative and support prolonged engagement. The interviews will be transcribed verbatim. Fifth, I will compare the transcribed data with the original audio recording to ensure accuracy. Finally, I will conduct triangulation of the data by including diverse sources of data for analysis: participant interviews, journal memos, and interview notes. These well-defined steps will support credibility of the study's findings.

Transferability

Lincoln and Guba (1985) described transferability relevant to qualitative inquiry: the applicability of the findings based on comparable contexts. Transferability considers whether conditions are similar enough to make the findings applicable (Lincoln & Guba, 1985). This qualitative study will examine the phenomenon in the context of a specific patient population and setting. The findings from this study will be narrow in focus and scope using a small sample size and will not be transferable to the general population. Therefore, the results are only applicable to comparable populations and the specific context.

Dependability

My documentation throughout the research process will enhance dependability with a thorough description of the research design, data collection procedure details, and procedural details that would invite replication of the study (Lincoln & Guba, 1985; Patton, 2015; Shenton, 2004; Tracy, 2010). A description of the recruitment and sampling of participants will be included in the study. The development of the interview questions

and interview guide will be described. Data collection through audio recording and verbatim transcription will support a trustworthy process. I will use memos and notes during and immediately after the interview to provide an accurate depiction of the data. Detailed description of the research process will support replication of the study.

Confirmability

The findings of the study should represent the experiences, perceptions, and beliefs of the participants rather than the researcher's preconceived ideas about results. The importance of self-awareness in qualitative research plays a key role in producing a quality study. Knowing yourself and your biases as well as what you notice during interactions is part of the ongoing process during a qualitative research study (Ravitch & Carl, 2016). Your background, your passion about the phenomenon, and your life experiences influence your interaction as the role of researcher (Ravitch & Carl, 2016).

I will record personal memos throughout the research process as described by Ravitch and Carl (2016) for reflection, self-awareness of personal bias, and confirmation and interpretation of data. In the role of provider and nurse practitioner, I have awareness of patients' expression of needle fear. However, not all patients experience this fear at the same level, rather it is a spectrum of fear that I have observed. Furthermore, I cannot assume to know why some patients experience these feelings while others do not. That is part of the study's exploration: to gain understanding of this phenomenon. In addition, as a provider of injections, I cannot assume that the only issue is needle pain. Therefore, I need to be open to other factors that might influence the phenomenon.

I will use Excel® as a documentation and data analysis tool to guide the process of coding and themes between the interviews. This format will allow me to further document journal notes, memos, and thoughts. The organization of the data in this manner will allow a simultaneous and seamless approach to the iterative process of data analysis. Documentation of all elements will authenticate the data. In summary, documentation of the entire process provides a trail to demonstrate confirmability of the findings.

Ethical Procedures

I will apply for IRB approval for the research study and follow Walden University IRB guidelines. IRB appropriate forms will be used for the study. Invitations for recruitment will be carefully worded to ensure participants' understanding. I will not be using protected populations in this research study: children, prisoners, mentally/emotionally disabled individuals, or residents of any facility. Data will be stored electronically using Word® and Excel® and will be password protected on my personal computer. I am the sole user of my personal computer, and no other individual has the password for access.

Participant confidentiality is an important requirement for ethical research. I will inform participants of the private and confidential nature of this study in the invitation and consent forms. Participants recruited for the study will be unknown to me and not patients in my personal practice. De-identification of the participant's direct identifiers (name, address, contact information) will take place after the transcription is obtained and this data will not be disclosed to others. Coded names will be assigned to the participants

and sole identification will be retained in a password protected electronic location. These steps will ensure anonymity and confidentiality of the participants.

I will obtain informed consent of each participant: statement of the study's purpose, benefits, risks, and time commitment for the individual interviews. Participation will be voluntary. I will inform participants that they may leave the study at their will. The interview data will not be used for future dissertation or other study and per guidelines will be destroyed five years after completion of the dissertation. (Walden University, 2020). Participant information will include my contact information, committee contact information, information on dissemination of findings, and instructions for participant access to the study's findings. In summary, these steps will inform participants and ensure ethical aspects of the study.

Summary

This chapter addressed the research design that I chose as appropriate to address my research question: What are the perceptions of adult patients who experience needle fear during cosmetic injections? I propose to use an interpretative phenomenological approach to the qualitative study to explore the perceptions of the individual participants related to the needle fear phenomenon. I considered the role as researcher of the study to include self-awareness, bias, and the reflexive means to address these issues.

I described various aspects of the study's methodology: participant selection, research instrument, data collection, and data analysis. Participant selection will be purposive to identify those individuals who meet the inclusion criteria and can provide thick description of their own perceptions necessary to answer the research question.

Interviews will be used for data collection. Data collection will conclude when no new information is identified from the data, and data saturation occurs. Data analysis for the design will include coding and thematic analysis.

Issues of trustworthiness were discussed relevant to a qualitative study: credibility, transferability, dependability, and confirmability. Ethical procedures will inform the study beginning with application for IRB approval and following through with IRB guidelines and appropriate forms.

Chapter 4 provides a discussion of the study's findings and application of the findings to address the research question. The chapter gives a comprehensive description of the data collection and data analysis elements of the study. Data analysis will reveal themes interpreted from the data by this researcher.

Chapter 4: Results

Introduction

The purpose of this qualitative study was to explore the perceptions of needle fear in adult patients receiving cosmetic injections in a medical office setting. I used the interpretative phenomenological method of inquiry to explore the lived experiences of needle fear in adult patients receiving cosmetic injections. This approach was chosen to provide an understanding of needle fear from the point of view of the adult participants who live the phenomenon allowing the meaning and essence of each participant's perceptions to be given equal value (Beck, 2021; Smith, 2017). I conducted semistructured, in-depth interviews to understand the meaning of needle fear from individual perspectives after receiving institutional review board approval (IRB approval 07-11-22-1007997). Skinner's theory of operant conditioning (Skinner, 1963) was the theoretical framework I used to inform the open-ended interview questions, to collect the data, and answer the research question: What are the perceptions of adult patients who experience needle fear during cosmetic injections? Using an iterative process, I performed thematic data analysis to identify codes and patterns from each interview as an interpretative act (Alase, 2017; Saldaña, 2016). In this chapter, I discuss the research setting, demographics, data collection and analysis, trustworthiness, and results.

Research Setting

Participants in the study were unknown to me and recruited through my professional network across the United States. I contacted network professionals to request assistance for participant sampling via email and social media messaging. The

professional contacts posted the participant invitation (Appendix B) in their private practices and were not involved in data collection or obtaining informed consent. I selected eight participants who met the inclusion criteria for the interview process. Interviews were conducted over a 7-week time frame. Phone interviews were conducted with each participant after informed consent was obtained via email. A convenient time for interview was chosen by the participant. I conducted interviews in privacy to protect the participant's responses. Participants were made aware that interviews were being recorded. Recording and transcription of the data was performed using a secure platform, NoNotes®.

Demographics

Eight participants were selected for interview based on the inclusion criteria: adults 18 years and older, residence in the United States, cosmetic injection treatment within the past 18 months, and prior experience or feelings of needle fear. Demographic characteristics were collected for the study during the individual interviews and are shown in Table 1.

Table 1*Demographics*

Gender	Age	Time receiving	Frequency	Type	Last injection
Female	25-66 years	8 mos-25 years	3–4-month intervals	Neurotoxin/filler	1-2 mos

Data Collection

Data collection was obtained as described in Chapter 3 from eight participants by phone interview using open-ended questions between July 22, 2022, and August 9, 2022. Open-ended, in-depth interview questions were used based on the developed interview guide (Appendix C). Participants were given time to reflect and answer the interview questions to establish rich description and to answer the research question. I clarified questions and responses when requested and was able to obtain thorough responses to the interview questions. The interviews were recorded and transcribed using NoNotes®, a secure, encrypted platform. After the transcripts were obtained, I de-identified and saved the data in a separate folder on a password-protected computer used only by me as the sole researcher in the study. The interview times ranged from 10 minutes to 22 minutes. Some participants answered questions directly while others required clarification and additional time to reflect. Each participant received a \$25 Amazon gift card via email after completion of the phone interview. The transcripts were reviewed two times with the audio recording to ensure accuracy. Limitations of conducting phone interviews were experienced: while I was able to hear tone of voice, I was not able to view body language

and facial expression. I could not control the participant's environment during the phone interview. During and immediately after each interview, I recorded reflective notes and memos. After obtaining the first two transcripts, I began reviewing the data for meaningful words and similar patterns among the responses. Data saturation was met after conducting eight interviews and no new patterns and codes were identified.

Data Analysis

A method of organizing and analyzing the data began after obtaining the first transcript. I developed an Excel® spreadsheet with individual tabs for each de-identified interview text. Columns were added to each interview tab for the data: interview question with corresponding interview response, reflective notes and memos, first-pass meaningful words, first codes, second codes, and themes. Initially, I reviewed the audio recording with the transcribed text twice to ensure accuracy. Reviewing the audio recording allowed me to hear pauses indicating participant reflection. After this initial step, I copied and pasted each question with the corresponding response into the worksheet for that interview along with my notes and memos. With each interview, I examined the text for meaningful words. After each additional interview, I used constant comparison between the data points to identify similar patterns. The iterative process led to the identification of codes. An exhaustive search for new codes and keywords provided a refined list with two-pass coding. Finally, further reduction of the data allowed me to arrive at overarching themes among the codes. The themes, subthemes, and codes are displayed in Table 2.

Table 2*Themes, Subthemes, and Codes*

Themes	Subthemes	Codes
Anticipation of injection event: a buildup	Thoughts and feelings leading to the event	Apprehension, fear of unknown, potential discomfort, provider skill level/knowledge, anxiety, anticipation, and buildup of emotion
Reinforcing elements on needle fear	Associated factors reinforcing the needle fear	Past experiences, environmental triggers, needle visualization, emotions (anxiety, nervousness, fears, stress), thoughts, physical symptoms (sweating, increased heart rate and breathing, fidgeting, jaw clenching, nausea, headache, muscle tension), provider-related influences
Strategies and skills easing needle fear	Improving the injection experience	Self-calming, coping, and distraction strategies (breathing technique, tapping, avoiding needle visualization, provider strategies (numbing, icing, talking), provider techniques
Needle fear experience and consequences	Consequences of the needle fear on quality of life	Blood draws, acupuncture, TB shot needle fear, IVs, avoidance behavior, vaccination, dental work

Evidence of Trustworthiness

Credibility

The study's findings must accurately represent the participant's reality and experience of the needle fear phenomenon to capture the criteria of credibility. As described in chapter 3, I followed steps to ensure accuracy of the data and to identify the adult population representing the phenomenon under study within the defined context. First, the participants were selected using purposive sampling to represent the population under study, and I ensured each participant met the inclusion criteria prior to the interviews. Second, each participant provided informed consent by email. Third, during the phone interview, each participant was encouraged to take ample time to respond allowing full reflection and prolonged engagement to the open-ended questions. This step supported credibility by allowing rich description to be obtained. Fourth, I compared the audio recordings with the transcribed text using two separate passes to ensure accuracy. Finally, I conducted triangulation of the data by using diverse sources (interviews, journal memos, personal notes) during analysis.

Transferability

The criterion of transferability is determined based on the applicability of the findings on similar conditions and contexts (Lincoln & Guba, 1985). This qualitative study explored the perception of needle fear in the context of a specific participant population and setting using a purposive sample size of eight individuals meeting the inclusion criteria. Although rich description was provided by the participants, the findings of this study are narrow in focus and scope within a small sample size and are

not transferable to the general population (Lincoln & Guba, 1985). However, the study's findings may be applicable to other patients receiving cosmetic injections in other settings.

Dependability

Dependability in research allows replication of the study by another researcher when a thorough description of the research process has been provided. I have documented and provided description of the process throughout my research: design, recruitment and participant sampling, data collection and analysis, and procedural details. Collaborative weekly conference calls with my committee chair guided a continual review of the research process. Additionally, committee review provided support and approval of the study's development and the completion of expected guidelines for qualitative research.

Confirmability

The criterion of confirmability is ensured when the study's findings represent the perceptions and reality of the participants and not the researcher's ideas or biases about the phenomenon under study or the results (Ravitch & Carl, 2016). During each interview, I reflected on patient responses and my personal thoughts, understanding, and experience. These reflections were recorded as memos and personal notes in the Excel® documentation of each interview. The recorded tool was a document trail that authenticated data during analysis of codes and themes.

Study Results

Thematic analysis of the data collected from the participant interviews yielded four themes. The themes were developed from reduction of codes that were identified from the interview data including meaningful words and similar patterns identified across the participants (Saldaña, 2016).

Theme 1: Anticipation of the Injection Event: A Build-Up

The main portion of the interview was conducted after collection of participant demographics. I used one main interview question to understand the meaning of the needle fear experience to the participant: Can you describe an example of a time you experienced needle fear during your cosmetic injections? Participants described their own experiences chronologically prior to arriving at the appointment before the actual injection event. Initially, participants shared feelings of apprehension, uncertainty, anxiety, loss of control, and nervousness. Secondly, physical symptoms were identified during this initial part of the experience to include headache and jaw clenching. In addition, all eight participants expressed a fear of the unknown and concern involving the possible consequences of the treatment. Needle exposure was identified as the leading source of feelings about discomfort and possible poor outcomes. Finally, several participants voiced concerns about the skill and expertise of the provider. In summary, I analyzed the thoughts, feelings, and physical symptoms as an anticipatory build up as an initial phase of the needle fear experience (Table 3).

Table 3*Anticipation of Injection Event: A Buildup*

Theme	Description	Participant	Response
Anticipation	The thoughts, feelings, and physical symptoms associated with the needle fear experience leading up to the actual injection event.	P1	“My fear was just I didn't know what to expect and how painful it was going to be.”
		P2	“I definitely had a perception that I thought it was going to be a really long service, but I don't know why but I thought it was going to take 30 minutes or something like that with needles in my body.”
		P3	“It is just that unknown of how it's going to be done or what is going to happen.”
		P4	“It is also the anticipation of what if something goes wrong. Because they tell you

Theme	Description	Participant	Response
			sometimes your eye can droop, sometimes this can happen you might have to come back for something, and I think when I first heard that it was the anxiety of having to come back for something to fix.”
		P5	“I would totally say it’s the nervousness for this just kind of unexpected or just not knowing what to expect. Maybe there is also a little bit of nervousness as to like how much pain I am going to feel; I think every time I go its different in terms of just like the discomfort level I don’t know why but there are some times that are

Theme	Description	Participant	Response
			like less painful than others but definitely there are some spots where I get pretty nervous about.”
		P6	“There is always some measure of fear particularly with the Juvederm and the fillers because I always bruise pretty badly and the fear not only of the needles but of the results of those needles and yeah; that is generally associated with that.”
		P7	“I think also one of the big things for me is I'm waiting for it to get worse. It's like okay, with the worse, it's going to get worse, so it's like the apprehension of what's to come.”

Theme 2: Reinforcing Elements on Needle Fear Feeling

Descriptions of the needle fear experience included accounts involving feelings, thoughts, and physical symptoms during the actual injection treatment. The participants shared feelings of nervousness, stress, anxiety, and concern involving discomfort which reinforced the needle fear response. The participants recalled that these emotions and feelings had become acquired over time and had become associated with the needle fear experience. Further, the participants identified physical symptoms: feeling hot, sweating, an increased heart rate and breathing, gastrointestinal symptoms, difficulty focusing, muscle tension, increased body movements, and headache. Additionally, needle visualization was identified as a primary concern for five of the eight participants. Visual sight of the needle before and during injection was identified as a reinforcing element to the needle fear experience. Also, one participant described hearing discussion of the injection process as evoking greater needle fear. Lastly, participants reflected on past experiences (and associated memories) and environmental triggers as influencing the experience during the actual injection treatment. In sum, the participants identified feelings, physical symptoms, environmental triggers, and memories that had become associated with their experiences and had become reinforcing elements acquired over time (Table 4).

Table 4*Reinforcing Elements on Needle Fear Feelings*

Theme	Description	Participant	Response
Reinforcing elements	The aspects identified by participants that reinforce the feeling of needle fear and have become associated with the phenomenon: physical symptoms, emotions, environmental triggers, and past experiences.	P2	“I think I definitely was kind of paying attention to the practitioner and like what she was doing, and I remember noticing when she pulled out a syringe because then that made my heart pump a little bit faster. So, the visual exposures.”
		P4	“Needles laying there on the table and me seeing them. I try to like focus on the ceiling or kind of think about pleasant thoughts thinking that it’s going to be over in five minutes, but I just try to look at something else like when I saw that tray yesterday. I’m kind of calm unless I see the needles and then I realize looking at them. If I don’t see it, I feel like

Theme	Description	Participant	Response
			I'm better off. Something about having a needle in your face is just a little different to me."
		P5	"I think when you have a previous experience when you are like hey, I know that that bothers me, and that needle bothers me, or that fear. I think that that can kind of elevate your fear of the next time that you get it."
		P6	"I bruised really badly, and it was super, super uncomfortable, so I honestly didn't have anything done for probably two years after that. It caused a great deal of fear for the next one."
		P7	"Well, my hands sweat, and my feet will sweat, my heart rate probably is elevated."

Theme	Description	Participant	Response
		P8	“Well, it is all always the same - in a room that appears to look like a medical room always. I work at a med spa, and we have it set up pretty much similar to what you would be if you were in a clinic. It is not actually very aesthetically pleasing. I think that adds to it.”

Theme 3: Strategies and Skills Easing Needle Fear

Participants reported strategies that reduced the negative experience of needle fear during the interviews. The strategies that were voiced could be described as self-calming, distracting, and coping skills. Participants reflected on their own skills that distracted them from needle visualization, a leading element reinforcing the needle fear response: actively avoiding sight of the needle, focusing on another point, breathing, and tapping techniques, and jaw clenching as a distraction tool. In addition, the study participants emphasized effective strategies that the provider used to reduce needle fear during treatment: tapping, icing, provider techniques (such as frequent needle changes), and numbing the skin pre-injection. In sum, these strategies were identified by the participants as improving the perceptions of the injection experience.

In contrast, participants recounted provider behavior that negatively impacted the injection experience. While one participant above identified tapping by the provider as helpful, another participant perceived the technique as annoying. Another participant reflected that talking by the provider could take the focus away from the work of injecting resulting in a poor outcome. Lastly, a participant noted that nervous behavior on the part of the provider negatively impacted the experience. The provider's skill, behavior, technique, and expertise were described by participants as reinforcing elements of the needle fear experience that could impact perception both positively and negatively. In summary, the participants shared their own strategies and described provider strategies characterized as easing needle fear (Table 5).

Table 5*Strategies and Skills Easing Needle Fear*

Theme	Description	Participant	Response
Easing the experience of needle fear	There are strategies and skills identified by the participants that are self-calming, distracting, and coping to improve the experience. These included provider strategies and skills as well.	P1	“I tried to zone myself out. I think I was just staring up, so just distracting myself without thinking of the actual needle process.”
		P4	“I do certain things to calm myself down and it honestly doesn’t hurt, but I also think it’s my breathing technique and my tapping technique that helps. I felt like the tapping kind of desensitized my fear a little bit.”
		P7	“Well, I kind of try to focus on one spot, maybe on the ceiling, depending on what position I’m in. I try to focus on one spot, so I’m definitely not looking around

Theme	Description	Participant	Response
			because I also don't want to catch sight of what's going on.””
		P7	“The other thing I've noticed over the years is that they are changing needles more frequently because I remember years ago it's like okay, needle's dull, and they would use the same one for all the little spots. And now they will change it out more frequently and I don't know if it's in my head or what, but it seems like when the newer needle comes out, it's not as painful.”
		P8	“I tend to clench my jaw like before they insert the needle whether it would be for the time, I had filler, or Botox, or anything, or even getting my blood drawn. Yes, before the needle

Theme	Description	Participant	Response
			is being inserted. I don't know if it's my natural way of distracting myself from the needle, but I tend to clench my jaw."

Theme 4: Needle Fear Experience and Consequences

The consequences of the needle fear experience on daily life and on other medical treatments requiring needle injections were described by participants during the interviews. Participants in the study recalled needle fear experiences during acupuncture, blood draws, and intravenous infusion. Interestingly, one participant discussed a perceptive difference between receiving tattoos and receiving blood draws or intravenous infusion: the participant viewed blood draws and intravenous infusion as actual piercing of the skin or entering a vein compared with the perception of tattooing as a surface treatment. Additionally, a participant recounted similar feelings of needle fear one week after receiving cosmetic injections during a TB skin test and the enduring presence of needle fear feelings. Finally, in contrast, one participant felt that continued, regular, cosmetic injections improved the injection experience during blood work and receiving shots. In summary, participants expressed the impact that the needle fear experience has had on their thoughts and behavior involving other medical treatments requiring needles (Table 6).

Table 6*Needle Fear Experience and Consequences*

Theme	Description	Participant	Response
Needle fear experiences and consequences	Participant descriptions of how the experience of needle fear has affected daily life and avoidance of medical treatments requiring needles/injections	P2	“Definitely, any blood draws. I have a lot of anxiety and partially just veins freak me out so like the thought of a needle going into my vein is like the worst-case scenario for me. So, I have only had to have blood draws or an IV a very small handful of times in my life and every time that I have, that has been a very challenging experience for me.”
		P4	“I don’t like blood test; I don’t like any ... like I just don’t like it. I don’t think I’ve always been that way but, it’s worse lately.”
		P4	“I try to do it in the morning then I don’t have to think about it all

Theme	Description	Participant	Response
			day. And I also ... I don't drink any caffeine; I don't drink anything that would cause me to have any kind of anxiety on an extra level."
		P8	"I got a TB test, and I was telling the nurse I was freaking out. It is like, oh my God, but again I had those same symptoms. I was sweating, my palms were sweating, my heart was beating faster, and I was clenching my jaw."
		P8	"Even though I know that I am freaked out by needles, it is still going to happen; I don't think anything changes."

Summary

This qualitative study used an interpretative phenomenological method of inquiry to explore the perceptions of needle fear in adult patients receiving cosmetic injections in

a medical office setting. I used open-ended questions to answer the research question: What are the perceptions of adult patients who experience needle fear during cosmetic injections? Participants provided rich description of their own perceptions of needle fear during cosmetic injections with four themes identified: Anticipation of the injection event: A build-up, reinforcing elements on needle fear feelings, strategies and skills easing needle fear, and needle fear experience and consequences. Each theme was discussed and supported by direct quotes from the participants.

Chapter 5: Discussion, Conclusions, and Recommendations

Introduction

The purpose of this study is to explore the perceptions of needle fear in adult patients receiving cosmetic injections in a medical office setting. Interpretative phenomenology was the method of inquiry used for this quality study to explore the perceptions of needle fear in adult patients receiving cosmetic injections in a medical office setting. The methodology allowed me to explore perceptions from the point of view of the individuals who live the experience of needle fear in an in-depth manner to uncover the essence of the phenomenon. In Chapter 5, I interpret the findings and discussed a comparison between the study's findings and the peer-review literature. Skinner's theory of operant conditioning was used as a framework to analyze and interpret the findings. Additionally, I address the study's limitations, recommendations for nursing practice, and implications for positive social change.

Interpretation of Findings

I conducted this research using a qualitative methodology with thematic data analysis resulting in four themes: a) anticipation of the injection event, a buildup; b) reinforcing elements on needle fear feelings; c) strategies and skills easing needle fear; and d) needle fear experience and consequences. The review of literature revealed no current qualitative studies with the adult population on the needle fear phenomenon. The few current studies involving adult cosmetic patients were quantitative: randomized-controlled trials which analyzed the effectiveness of interventions on pain during cosmetic injections (Chorney et al., 2019; Guney et al., 2017; Li et al., 2017; Özücer &

Halit, 2020; Salmerón-González et al., 2021; Zeiderman et al., 2018). This qualitative study explored the needle fear phenomenon rather than on the concept of pain. Analysis of the phone interviews revealed pain and the anticipation of pain as concepts within the needle fear experience while also identifying other elements of the phenomenon.

Participants noted strategies used by providers to improve the injection experience to include numbing, icing, and tapping. One participant felt the use of tapping by the provider was a positive distraction during injection while another participant felt the tapping was “annoying.” These contrasting views were not confirmed in the literature as no research was found on tapping techniques during injections and the adult cosmetic patient. One participant noted that topical numbing reduced discomfort during injections. This confirmed information reported by Salmerón-González et al. (2021). This quantitative study concluded that three analgesic methods including topical numbing cream provided better pain control compared with no treatment (Salmerón-González et al., 2021). Due to the lack of current studies in the adult cosmetic patient and needle fear, no other information was found that could confirm or disconfirm the study’s findings.

Skinner’s theory of operant conditioning informed this study. Skinner developed the theory of operant conditioning to explain learned and acquired behavior. In addition to the stimulus-response aspect of behavior, Skinner further developed the theory to examine reinforcing stimuli on behavior consequence (Skinner 1935; 1963). The theorist noted that reinforcing stimuli resulted in a stronger behavioral response in a positive or negative direction (Skinner 1935; 1963). The process of learned consequential behavior involves behavioral response that becomes conditioned by various stimuli and was

termed operant conditioning by the researcher (Skinner, 1935; 1963). Skinner emphasized the importance of considering the potential for numerous stimuli to exist at one time in shaping one consequential behavior (Skinner, 1963).

For this qualitative study, the definition of needle fear was described based on Skinner's theory: an acquired, learned, and conditioned response to needles/injections that is associated with an unpleasant outcome. The participants identified reinforcing stimuli (both in positive and negative direction) that influenced the consequential behavior (needle fear) with needle exposure representing the original stimulus. Related to the first theme, anticipation of the injection event, participants identified thoughts, feelings, and physical symptoms that had become associated with the event even before arrival to appointments. Participants described fear of the unknown and thoughts of potential negative consequences as reinforcing stimuli to the needle fear experience. Anticipation of discomfort, poor outcome, and needle exposure were identified as strengthening the needle fear behavior. The second theme, reinforcing elements on needle fear feelings, reflected the participants' emotions and physical symptoms that positively reinforced needle fear. Environmental triggers and memories were described as reinforcers on the needle fear behavior. The leading reinforcing stimulus was identified as the actual visualization of a needle. Strategies and skills easing needle fear were analyzed as the third theme. The participants reported strategies and skills (breathing, tapping, numbing, focusing) used by providers and the participants themselves that decreased needle fear. The final and fourth theme analyzed, needle fear experience and consequences, described the consequential behavioral responses based on needle

exposure and reinforcing stimuli to include avoidance behavior and continued needle fear behavior on medical treatments involving injections. In conclusion, the themes identified during data analysis aligned with Skinner's theory of operant conditioning (Table 7).

Table 7

Theory of Operant Conditioning

Construct	Definition	Theme
Stimulus	The initial stimulus that results in a particular specific behavioral response based on the perception of consequences	Reinforcing elements on needle fear feelings-the original stimulus described as needle visualization
Behavioral response	Learned behavior based on trial and error that results from an original stimulus	Anticipation of the injection event: the build up Needle fear experience and consequences
Reinforcing stimuli	Various stimuli that have become associated with the response and reinforces/strengthens the response. The stimuli may act on the response in a positive or negative direction	Reinforcing elements on needle fear feelings
Operant Behavior	The behavioral response is conditioned by reinforcers over time and becomes operant	Reinforcing elements on needle fear feelings

This qualitative study explored individual perceptions of the needle fear experience. During phone interviews with participants, I reflected on the pauses during participant responses. The pauses allowed the participants time to reflect on their own

thoughts and ideas before responding. I noted that perhaps these participants had never fully reflected or considered their own needle fear experiences. This original study extends knowledge in the nursing discipline as it contributes a record of needle fear experiences from the perspectives of the participants/patients which has not been previously explored. The response from the participants provides information about strategies that could be explored to improve clinical experience. The findings provide an understanding of the needle fear phenomenon from diverse individual experiences involving a specific contextual population which is further addressed in the study's limitations.

Limitations of the Study

The qualitative study used a small sample size in the context of a specific population (the adult cosmetic patient) using purposive sampling and therefore, the findings are not transferable to the general population. Rich description was provided by the participants that answered the research question. However, the findings are narrow in scope and are applicable only to the population of interest (Burkholder et al., 2016). The population demonstrated a wide range of ages within the female gender. The sample size for the study was eight participants who met the inclusion criteria. Data saturation was demonstrated using this sample size.

I relied on the participants to be truthful in their contributions to the study. At the beginning of each phone interview, I invited participants to take ample time for reflection and response to obtain meaningful descriptions. Probing questions were used when appropriate to gain deeper understanding. The descriptive interviews were audio recorded

and transcribed. The transcripts of each interview were cross-checked with the audio recordings for accuracy.

Researcher bias is a potential limitation when conducting a qualitative study. Reflective notes were recorded during and immediately after each interview. These notes were transferred to the Excel worksheet for each interview. This organizational process allowed access to both participant responses and personal memos simultaneously during the iterative process of data analysis. Based on the study's findings and the narrow scope of the research, further recommendations are addressed.

Recommendations

This qualitative study represents original research in the adult population. The literature review at the time of this research demonstrated no current qualitative research using the adult population on the needle fear phenomenon. The results of this study are not transferable to the general population due to the small sample size and contextual setting. Further studies are needed to explore the phenomenon in the adult population in different contextual settings. Studies in the adult population are needed to explore the effects of needle fear on avoidance behavior surrounding medical treatments requiring injections for health maintenance and optimal wellness.

Nursing practice involves routine use of needles and injections. Nursing is an appropriate discipline for further studies with adults on the needle fear phenomenon. Based on the results of this study, patient care could be improved if nursing providers gathered patient medical history on needle fear during patient intake. The results of the study demonstrated that nursing providers used helpful strategies to reduce needle fear. It

was noted by participants that the skill and expertise of the provider was a participant concern due to the possibility of poor aesthetic outcomes and poor needle experiences. Nursing protocols and strategies to address needle fear should be studied and evaluated to contribute to evidence-based nursing research on clinical needle fear using both qualitative and quantitative methodologies. As the results of this study are not transferable to the general population, the nursing discipline can further contribute to qualitative research on the phenomenon by exploring additional adult populations and settings. The research findings on the needle fear phenomenon in the adult cosmetic patient have further implications for the nursing discipline.

Implications

The study will contribute to positive social change by increasing awareness and understanding of the needle fear experience from the perspective of the adult cosmetic patient. This original study bridges a gap found during the review of literature. The current research literature at the time of this study demonstrated only a few quantitative studies in the adult population and contextual setting. These quantitative studies explored the effectiveness of interventions on pain. The research findings from this study revealed numerous and varied feelings, thoughts, behaviors, physical symptoms, environmental triggers, and past experiences that reinforced the needle fear phenomenon, not only pain. First, nurse providers of cosmetic injections may use the findings to formulate practice protocols and evaluate interventions to reduce patient suffering and improve quality of life for individual patients. The interventions and improved experiences may impact patient behavior involving other medical injections and treatments such as lab draws,

injections for chronic medical conditions, and vaccination. Secondly, nurse providers can use the findings to explore their own behavior involving patient care. The study results revealed that the perceptions of nursing expertise and skill level influenced patient behavior during injections. Nursing providers can expand and improve skills, achieve credentialing, gain further clinical experience, and consider different injection techniques (such as changing needles more frequently during a single treatment as suggested by one participant). Thirdly, awareness of the patients' lived experiences and perceptions will promote social change by improving patients' quality of life during injections to include those required for optimal health maintenance (routine lab draws, vaccination, injections required in chronic medical conditions). The findings may be valuable for nursing providers in other settings where injections are routinely given such as public health settings and primary care where vaccination hesitancy may exist. Finally, nursing studies to explore patient intake screening and nursing interventions may reduce patient suffering and improve quality of life.

Conclusions

This qualitative research study used an interpretative phenomenological approach to explore to explore the perceptions of needle fear in adult patients receiving cosmetic injections in a medical office setting. The nature of the study allowed perceptions of individuals who live the needle fear experience to be identified to uncover the essence of the phenomenon. Thematic analysis of the data demonstrated four themes: Anticipation of the injection event: a buildup, reinforcing elements on needle fear feelings, strategies and skills easing needle fear, and needle fear experience and consequences.

The findings of this qualitative research demonstrated that diverse concepts other than pain contributed to the phenomenon of needle fear. Identifying these concepts supports additional research in the nursing discipline to further develop and evaluate protocols and strategies to improve the patient experience. Assessment of individual experience and history is an important first step in addressing the needle fear phenomenon in the adult population. The study's findings can be used to further nursing research and positively influence social change by reducing patient suffering, improving injection experience that may be applied to medical injections, and improve quality of life.

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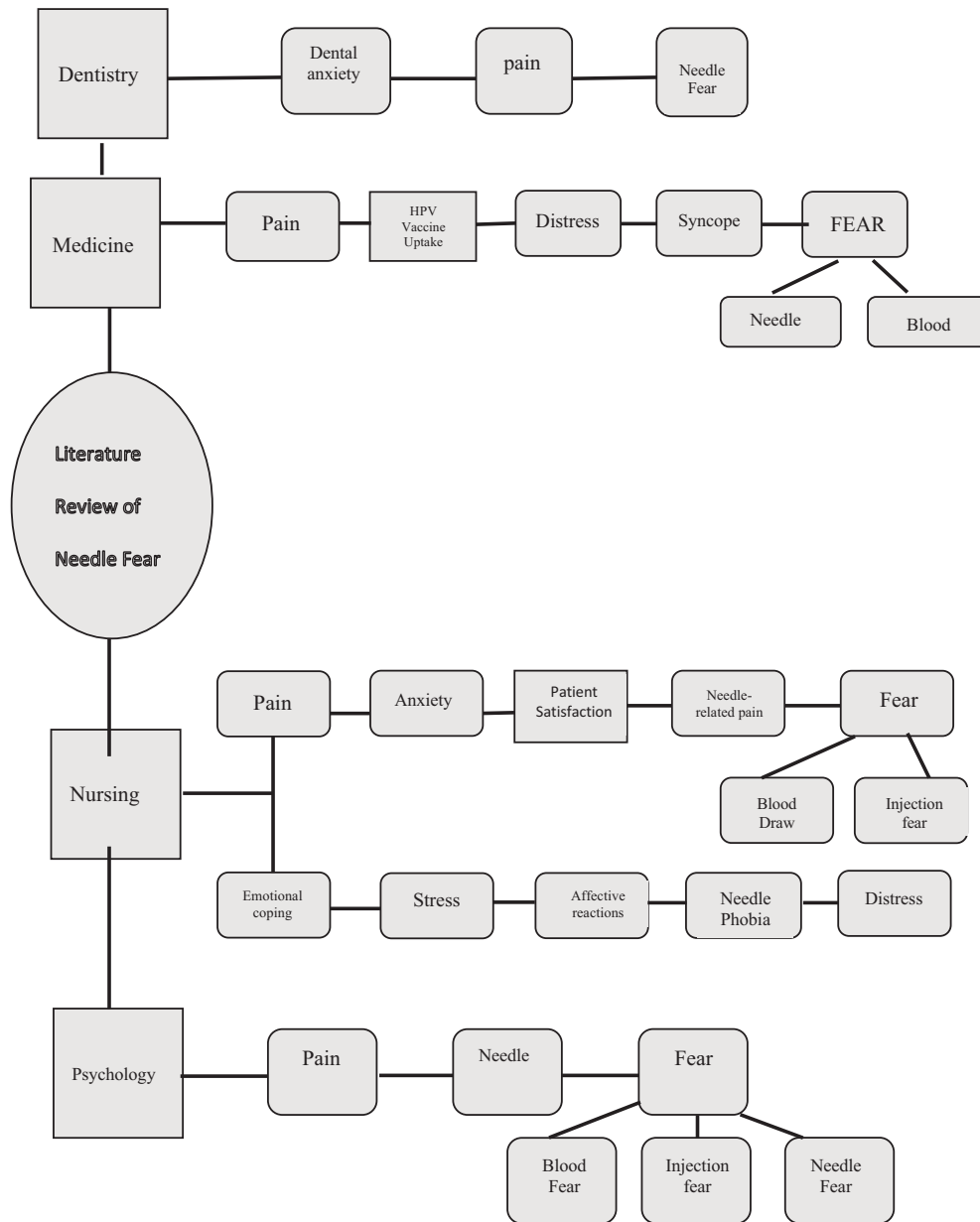
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Appendix A: Literature Exploration Needle Fear: Key Concepts



Appendix B: Participant Introduction to Study

The Experience of Needle Fear During Cosmetic Injections

My name is Julia Hoy, and I am conducting a research study to explore patients' experiences of needle fear during cosmetic injections to fulfill requirements for a doctoral degree in nursing at Walden University. I have worked in the aesthetic industry as a nurse and nurse practitioner for over 20 years. My responsibilities in this role involved providing cosmetic injections to patients. During my career, I observed patients expressing and demonstrating behavior related to needle fear. The interviews I wish to conduct for the study will be with participants who see themselves as individuals who experience needle fear during cosmetic injections.

Study Purpose

There is little research which has explored the personal experience of needle fear in adult patients receiving cosmetic injections, the impact it may have on daily life, and how the experience may influence other healthcare actions which require injections. The purpose of the study is to explore personal perceptions of the needle fear experience. I hope to increase awareness and understanding of needle fear for providers of cosmetic injections so that interventions can be developed to support patients for improved experiences. The interview provides an opportunity for you to share your personal experience and contribute to the knowledge gained from the research.

Interview Information

Participation in the study is entirely voluntary and you will be asked to sign a consent form if you agree to participate.

The interview will be conducted by phone and take approximately 45-60 minutes. The interview will be recorded and then copied into a written document. Your name and information that you provide in the interview will be protected and your identification changed to provide confidentiality. The information collected will be kept for five years and protected so that only myself as the researcher and my research committee have access to the interview data.

You may choose to withdraw from the interview at any time. Due to the timely nature of the research, I request that if you decide to withdraw after the interview that you do so within two weeks of completion.

Contact Information

My contact email information is:

Appendix C: Interview Guide

Interview Guide Worksheet

Phenomenon of Interest: Needle Fear in Adult Cosmetic Patients

Research Question: What are the perceptions of adult patients who experience needle fear during cosmetic injections?

Framework: Skinner's Theory of Operant Conditioning-learned behavior and importance of behavioral reinforcement

Methodological approach: Interpretative Phenomenology

Introduction

Hello, my name is Julia Hoy, and I am a PhD student at Walden University. Thank you for participating in this research study. I am a nurse practitioner and have been practicing aesthetic medicine for 20 years. A large portion of the treatments I provide to my patients are cosmetic injections. Many patients have expressed anxiety and needle fear/injection fear during procedures. Some patients demonstrate extreme physical symptoms. The focus of my study is to understand what needle fear means to you. This research is meant to help practitioners like myself provide a better experience, decrease suffering, and improve quality of life during injections.

You provided an informed consent to participate in the study. You may decide to stop participating any time during the study. The phone interview will be recorded and copied into text. This process ensures that your responses accurately represent your responses to the interview questions. Personal information and your interview responses

will be kept confidential and private. All information will be stored in a password protected computer only known to me.

Please provide as much detail as you would like to include when answering the questions as your responses are valuable to the study. You may decline to answer any question as well. Do you have any questions before we begin?

Background Questions

I would like to start with some background questions to get to know you and your background related to needle fear.

- What is your age?
- How long have you been receiving cosmetic injections (months/years)?
- How many times per year do you receive cosmetic injection treatments?
- How long ago was your last injection treatment?
- What type of treatments do you receive during injections-Botox®, fillers?

Main Interview

- Can you describe an example of a time you experienced needle fear during your cosmetic injections?

Probing Questions

- What feelings did you experience during the treatment?
- What physical symptoms did you experience if any? How did your body react?

- What did you notice about your surroundings or environment?
- What other things might have been associated with your feelings during your experience?
- How have your feelings of needle fear during cosmetic injections influenced your daily life or other medical injections?

Final Question

Thank you for sharing your feelings and experience of needle fear.

- In summary, do you have any other thoughts that you would like to share that might be useful to the study?

Closing Statement

Thank you for participating in this study and for your time. You may withdraw from the research study and your data will be removed and destroyed. My contact information is being provided to you:

ProQuest Number: 29993813

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