Spring 2020

Impulsivity as a Trait Predictor in Baccalaureate Nursing Students

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IMPULSIVITY AS A TRAIT PREDICTOR IN BACCALAUREATE NURSING STUDENTS

by

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A Dissertation
Submitted to the Graduate School,
the College of Nursing and Health Professions
and the School of Leadership and Advanced Nursing Practice
at The University of Southern Mississippi
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy

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May 2020

Published by the Graduate School

THE UNIVERSITY OF SOUTHERN MISSISSIPPI

ABSTRACT

Impulsive personality traits have been linked to pathological decision making in individuals who possess the trait. Impulsive pathological decision making may include acts of aggression, divergence, risky behavior, lack of self-care, etc. The purpose of this study was to examine impulsive personality traits among nursing students. Traditional students are defined by the following characteristics: earns a high school diploma, enrolls full time immediately after finishing high school, are financially dependent on parents, and either do not work during the school year or works part-time (the exception to the rule) (Choy, 2002). A non-traditional nursing student is defined as students who possess one or more of the following characteristics: delayed enrollment (does not enter post-secondary education in the same year that he or she finished high school), part-time enrollment for at least part of the academic year, financial independence (for financial aid), full-time employment while enrolled (at least 35 hours per week), has dependents (other than a spouse), single parents (either not married or married but separated), general education development (GED) recipient or certificate of completion (Choy, 2002; USDE, 2018). Depending on the number of characteristics they possess, the current study used a non-traditional student characteristics questionnaire to further breakdown the baccalaureate nursing students into the following groups traditional, minimally nontraditional, moderately/highly nontraditional. The purpose of this study was to examine impulsive personality traits among nursing students.

The results suggested that nursing students with impulsive personality traits are at risk for providing unsafe patient care which indicates a need for cognitive interventions. The setting of the research took place in a large multi-campus university in Mississippi.

Traditional and non-traditional baccalaureate nursing students were used for the sample. A sample total of 109 nursing students were divided into two-three groups of 25-53 participants. An independent t-test was used for data analysis to distinguish among traditional and non-traditional nursing students. An analysis of variance (ANOVA) statistical procedure was utilized to examine the differences between the three groups of nursing students. The Kirby Monetary Choice Questionnaire (MCQ) was utilized to obtain participants impulsivity scores.

The results of the study suggest a significant difference (0.05 level) between traditional and non-traditional nursing students. A positive correlation was found between impulsivity scores and participants working full time. No significant difference was found among traditional, moderately/highly non-traditional, and minimally non-traditional nursing students. The results of this study determined a need for cognitive interventions for non-traditional nursing students (especially those who work full time) so that they may better manage their impulsive behavioral tendencies.

ACKNOWLEDGMENTS

Special thanks to my committee chair and academic advisor, Dr. Patsy Anderson, as well as my other committee members, Drs. Karen Rich, Elizabeth Tinnon, Hwanseok Choi, and Kevin Freeman, for their ongoing contributions towards my ever-developing education and career goals.

DEDICATION

My deepest expression of gratitude and love that I extended to my family. To my mother, Bobbie Pasco, who believed in me and encouraged me to reach my graduate school goals. To my father, Patrick Joseph Pasco Sr., who impacted my decision to earn a Doctor of Philosophy degree. He led by an example with his strong will, resilience, work as a physician as well as having earned degrees in both psychology and English. To both my siblings, Amy and Patrick Joseph Jr., for helping to provide me with the grit it takes to finish this degree.

Finally, the fruition of my career would have never occurred without the love for my son, Joseph Michael. Every moment of my graduate school life was driven by the desire to provide a better life and become a great role model for him. Those precious moments I missed during his infancy and toddler years were spent researching topics to help me learn how to be a better mother so that he may grow to be a successful adult.

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ILLUSTRATIONS

LIST OF ABBREVIATIONS

AACN	American Association of College of Nurses
ACL	Administration for Community Living Aging Integrated Database
ADL	Activities of Daily Living
ANOVA	Analysis of Variance
APA	American Psychological Association
ARNNL	Association of Registered Nurses of Newfoundland and Labrador
BMI	Body Mass Index
CDC	Centers for Disease Control and Prevention
DMS	Diagnostic and Statistical Manual of Mental Disorder
EDT	Experiential Discounting Task
GED	General Education Development
GPA	Grade Point Average
IOM	Institute of Medicine
MCQ	Kirby Monetary Choice Questionnaire
NCSBN	National Council of State Board of Nursing
NCES	National Center for Educational Statistics
NIOSH	U.S. National Institute for Occupational Safety and Health
SAT	Scholastic Aptitude Test
SPSS	Statistical Package for the Social Sciences

CHAPTER I - INTRODUCTION

Individuals with impulsive personality traits are at risk for pathological decision making that may result in unsafe patient care. This could be detrimental for the patient as well as the nurse that provides the care (Ayduk et al., 2000; Daugherty & Brase, 2010; Huskinson et al., 2015; Mischel et al., 1989; Reynolds & Schiffbauer, 2004). "An impulse can be defined as the choice of a small, short-term gain at the expense of a large, long-term loss. It often is described by such terms as spend thriftiness, temptation, or seduction" (Ainslie, 1974, p. 485). Research has suggested that impulsivity is the basis of pathological decision making involved in problems of aggression, substance abuse, obesity, a disregard for personal safety, and neglect self-care (Ayduk et al., 2000; Daugherty & Brase, 2010; Huskinson et al., 2015; Mischel et al., 1989; Reynolds & Schiffbauer, 2004). These behaviors are likely to be triggered by stress (Reynolds & Shiffbauer, 2004).

According to the Bureau of Labor Statistics, growth in the registered nurse (RN) workforce will increase from 2.9 million in 2016 to 3.4 million in 2026, leading to a need for 203,700 nurses to replace retired nurses and fill newly created positions in the year 2020 (Torpey, 2018). The American Association of Colleges of Nursing [AACN] (2019) reported that insufficient staffing raises the stress levels of nurses, which lowers their job satisfaction and drives them out of the field.

Decreased nurse job satisfaction is one factor contributing to the nursing shortage that has been attributed to impulsivity (Applebaum et al., 2010; Villaume & Hasson, 2017). Impulsive nurses under stress may be at greater risk of providing poor quality of care, experiencing an occupational injury, and decreased job satisfaction (Applebaum et

al., 2010; Reynolds & Schiffbauer, 2004; Sauter, et al.,1999; Taylor et al., 1999). Nurses who remain in the profession must learn to counter impulsive tendencies that contribute to increased stress and decreased job satisfaction. The ability to control impulses (self-control) is imperative for safe, successful nursing work performance (Kirby et al., 2005; Mischel et al., 1989; Reynolds & Schiffbauer, 2004). Long term rewards for successful nursing performance may include workplace safety, pay raise, and self-esteem (Ainslie, 1975; Maslow, 2012; Reynolds & Schiffbauer, 2004). However, immediate pleasurable rewards often overcome those long-term rewards in individuals with impulsive personality traits.

Delay discounting is a term used to quantify impulsivity using a hyperbolic curve (Ainslie, 2017). Delay discounting refers to a preference reversal (impulse choice) that results in discounting a later larger reward in favor of a smaller reward obtainable closer in time (e.g., choosing to receive $15 today over $20 in one month) (Kirby & Marakovic, 1995; Odum, 2011; Perkins & Freeman, 2017). Mazur (1987) discovered, in his experimentation with pigeons, that the degree of delay discounting may be calculated based on a hyperbolic curve that provides data (*k* parameter) for quantifying impulsivity. Thus, the hyperbolic curve produces a *k* parameter, which may be used to describe a subject's level or rate of discounting, which fluctuates with the amount of time it takes to receive the reward (Green & Myerson, 2004). Delay discounting expresses subjects perceived reduction in the value of the reward due to the length of time it takes to receive the reward. The resulting *k* value denotes the level of impulsivity or discounting rate (Kirby, 2009; Kirby, et al., 1999). Thus, the higher the *k* the more impulsive the individual. The Kirby Monetary Choice Questionnaire (MCQ) is a tool used to calculate

delay discounting rates (Kirby, 2009; Kirby & Finch, 2008; Kirby & Petry, 2004). The Kirby (MCQ) provides a means to study humans or groups of humans using a questionnaire.

Problem

Stress has been suggested to trigger impulsive behavior (Reynolds & Shiffbauer, 2004). Stressful work environments in the nursing profession can exacerbate pathological decision making in impulsive people (DeVries et al., 1991). The nature of nurses' work demands that they practice prudence while caring for patients. In 2013, Rich described Zaner's unavoidable trust by postulating that patients are forced, in their most vulnerable states, to trust healthcare professionals. Nurses are in a position of power and must practice restraint when treading on the fragility of patients' dignity and trust.

The AACN (2019) suggested the nursing shortage presents a problem for the future of nursing, which will be exacerbated by the aging nursing workforce at retirement age (Buerhaus et al., 2017), insufficient nurse faculty due to an aging workforce, inadequate staffing levels contributing to stress and job dissatisfaction (Aikin et al., 2017), and the increase in life expectancy for baby boomers. The AACN (2019) reports multiple studies linking the connection between patient safety and the appropriate level of nursing staff (Aiken et al., 2017; Kavanagh et al., 2012; Tubbs-Cooley et al., 2013).

Nursing students must complete nursing school and continue to work in the nursing profession. However, the stress of the job can lead to job dissatisfaction, workplace injury, and adverse events that can cause nurses to leave the field (Applebaum et al., 2010; Reynolds & Schiffbauer, 2004; Sauter et al., 1999). Stress and job dissatisfaction may affect the quality of nursing care provided to patients, which

consequently can lead to adverse events (Institute of Medicine [IOM], 2000). Examples of common workplace injuries include needle sticks and back strain (Palumbo et al., 2009). Stress in the nursing profession is a global problem that needs to be addressed so that patients, as well as nurses, remain safe (Applebaum et al., 2010). Impulsive personality trait is a well-researched area that has been related to several outcomes, including pathological behavior, grade point average, and Scholastic Aptitude Test (SAT) scores. However, little or no research aimed at impulsive personality traits among nurses who provide patient care. Nursing students may vary in their impulsivity traits. Therefore, this study examined whether impulsive personality traits differ at a significant level, among traditional and non-traditional nursing students.

Research Questions

Research questions were generated as a means to distinguish between traditional and non-traditional nursing students. The research questions addressed in the pilot study were:

1. Is there a difference in impulsive personality traits between traditional and non-traditional nursing students?
2. What are the differences in impulsive personality traits among the three groups of non-traditional students (minimally non-traditional, moderately non-traditional/ highly non-traditional, traditional)?

Purpose

The purpose of the research was to examine impulsive personality traits among baccalaureate nursing students. Individuals with impulsive personality traits have a greater tendency for pathological behavior at work (Reynolds & Schiffbauer, 2004).

Nursing student impulsivity scores will be investigated so that nurses at risk for unsafe patient care may be identified and provided with interventions to offset their impulsive behavioral tendencies.

Theoretical Framework

The inability to delay gratification has been used interchangeably with impulsivity and delay discounting. This dissertation was based on Walter Mischel's theory of delay of gratification. Mischel's theory arose from the marshmallow study, which was first conducted in 1970 by Mischel and Ebbesen at Stanford University. In this study, preschool children were offered a choice of either a less desirable immediate reward or a delayed more preferable reward (e.g., one marshmallow now versus two marshmallows later). Mischel also conducted follow up studies that showed a positive correlation between the delay of gratification with the following adolescent academic performance (Ayduk et al., 2000; Mischel et al., 1988; Mischel et al., 1989), better social skills (Ayduk et al., 2000; Mischel et al., 1988; Mischel et al., 1989), higher SAT scores (Mischel et al., 1989), higher levels of positive functioning (self-esteem, self-worth, coping ability) (Ayduk et al., 2000; Mischel & Ayduk, 2004), greater educational attainment (Mischel et al., 1989), as well as lower body mass index (BMI) in adulthood (Ayduk et al., 2000; Schlam et al., 2013).

The procedure for the original delay of gratification study (Mischel & Ebberson, 1970) consisted of children age 3 years 6 months to 5 years 8 months. The median age being 4 years 6 months. In this experiment, the children were presented with the choice of a less preferred immediate reward or a more preferred delayed reward. The rewards consisted of either pretzels or animal cookies. The children were placed in a room with a

table, chair, and a two-way mirror which was mounted on the wall so the experimenters may observe the children. The experimenters explained to the children that they may have the less preferable award immediately or they may wait until the experimenter returns (15 minutes) to receive the more preferable delayed reward. The rewards were offered to the children differently in varying experimental conditions. Experimental conditions included were as follows: the child was left waiting in the room with both the delayed more preferred reward and the immediate less preferred reward, with either the delayed more preferred or the immediate less preferred, or with an option of neither rewards. This basic procedure was modified and studied a variety of ways by differing experimenters. The Kirby delay discounting questionnaire is an alternative form used to study this basic concept.

Master of Delay of Gratifications

Contrary to the experimenter's original theory, the predicted results were opposed to the obtained results (Mischel & Ebberson, 1970). The original theory postulated that the focus on the reward would help the delay of gratification. On the contrary, the results of the experiment suggested that the delay of gratification increased when the reward was not present in the room. Furthermore, the children that devised ways to distract themselves from the reward were able to delay gratification for longer periods. The children practiced diversional strategies such as not looking directly at the reward, covering their eyes, singing songs, playing games with hands and feet, or attempting to fall asleep. The most significant finding was that the delay of gratifications was decreased with an increase in the magnitude of frustration caused by the tempting presence of the reward.

Follow-Up Studies

Mischel conducted many follow up studies after the initial attention in the delay of gratification was conducted. In 1980, Mischel and colleagues found a correlation between the delay of gratification with academic, social, and coping competencies in adolescence (Mischel et al., 1980). In 1989, Mischel and colleagues found a correlation between delay time and SAT scores (verbal and quantitative). Watts, Duncan, and Quan (2018) found a correlation between the delay of gratification and achievement at age 15. Other follow up studies by Mischel correlated a delay of gratification with BMI in adulthood (Schlam et al., 2013).

Definition of Terms

To better understand the current study a list of operational and conceptual terms was created. For the purpose of this study, the following operational and conceptual definitions were used:

Conceptual Definition of Terms

- Delay Discounting is defined as the decline in the subjective value of reward due to the function of time (Ainslie, 1975).
- Hyperbolic Curve "describes the decline in the effectiveness of rewards as the rewards are delayed from the time of choice. Such curves predict a reliable change of choice between some alternative rewards as a function of time" (Ainslie, 1975, p. 463).
- Indifference Point. The point in time at which the subjective value of the immediate and delayed rewards is equivalent (Kirby et al., 1999).

- Hyperbolic Model. Defined as a quantitative model used to determine the rate of discounting (*k*) using the integration of behavior over multiple observations (rather than a set of observations). The formula used to measure *k* values by the following: V=A/ (1 + *k*D). V = indifference point; A = the amount of reward; D = delay to the reward; *k* = free parameter.
- *k*. The rate of discounting (level of impulsivity). The higher the *k* value the more impulsive the individual. Typical *k* value range between 0.0-0.05.

Operational Definition of Terms

- Hyperbolic Curve. Calculated using the Kirby 27 Item MCQ.
- *k*. The term used to describe the scaling factor or value produced from the analysis of data using the hyperbolic model.

Assumptions

For the current study to be relevant, we must assume certain things. The following assumptions were exercised in this study:

1. Anyone can be impulsive.
2. Examples of impulsive behavior in areas or professions other than nursing provided by statistical studies suggest the same behaviors may be present in nursing.
3. Examples of impulsive behavior among nurses are due to impulsive pathological decision making.
4. Stress and time management may not be the only effect on impulsivity.
5. Respondents will answer the survey honestly.
6. The instruments chosen accurately represent the concept examined.

Limitations

Due to the following limitations, the results of the study may not accurately portray the true relationship among the groups of students.

1. The research participants were obtained using convenience sampling consisting of nurses in one southern Mississippi college of nursing, thus limiting representations and generalizations to the overall population. The small sample was primarily composed of white/non-Hispanic females from

one university in one region of the United States. A true representation of all age groups present in nursing was not shown in the sample. An important detail to note since age has been shown to correlate positively with impulsive personality traits (Green et al., 1999; Green & Myerson, 2004).

2. Incidence prevalence bias was present because the most impulsive nursing students may be absent from the population due to attrition or lack of acceptance to the program. Neyman bias (incidence-prevalence bias) which suggests that the results of the study offer a distorted frequency of exposure due to, in this case, a series of survivors included in the study (Delgado-Rodríguez & Llorca, 2004).
3. Also, the varying times of survey administration in the classroom may have caused selection bias.
4. Missing and extreme responses may have caused measurement bias (Polit & Beck, 2012). Extreme responses may occur when a participant selects a particular recurring pattern (e.g., selection of delayed choice every time) without considering what the question is asking.
5. The study was conducted at one point in time which may produce different results if conducted at another point in time (Levin, 2006).

Significance of the Study

The nursing profession is filled with work-related stress, adverse events, and job dissatisfaction (AACN, 2019; IOM, 2000; Taylor et al., 1999). Adverse events may be defined as an event that causes harm to the patient as a result of medical care (Levinson & General, 2008). Work-related stress has been shown to trigger impulsive behavior at

work (Reynolds & Shiffbauer, 2004). Sources of work-related stress contributing to job dissatisfaction include high workloads, inadequate staffing, lack of good relationships with coworkers, lack of resources, a lack of understanding between job expectations and the actual environment as well as the nature of nurses' work (Taylor et al., 1999). For these reasons, nurses leave the field. In light of the nursing shortage, care should be focused on retaining all nurses so that nurse staffing does not continue to decline.

Inadequate levels of nursing staff have been found to contribute to stress and unsafe patient care. A study was conducted in 2014 that suggested a 7% increase in patient morbidity within 30-day admission when nurses' workload was increased by one patient (Aiken & Griffiths, 2014). Tubbs-Cooley, Cimiotti, Silber, Sloane, and Aiken (2013) noted that the likelihood of hospital readmission increased significantly when RN's were assigned to four pediatric patients**.** Nurse retention is needed in order to combat this nursing shortage and, thus, ensure patient safety.

Impulsivity has been suggested to contribute to problems with safety in the workplace (Reynolds & Schiffbauer, 2004; Sauter et al., 1999). Impulsive personality trait has been linked to aggressive behavior, substance abuse, disregard for safety, and neglect of self-care (Ayduk et al., 2000; Daugherty & Brase, 2010; Huskinson et al., 2015; Mischel et al., 1989; Reynolds & Schiffbauer, 2004). Impulsive personality trait has not been researched in the nursing field. Nursing students, as well as nurses, will benefit from an awareness of the effect impulsive personality traits have on the quality and safety of patient care. Retention may be attained by raising awareness and offering cognitive educational training. Cognitive training should aim to help nurses offset their

impulsive behavioral tendencies. In doing so, they may appropriately manage work-related stress thus feel more satisfied with the nursing profession.

Summary

"Delay discounting refers to the decrease in the present value of a future outcome as the delay to that outcome increases" (Kirby, 2009, p. 457). Aggressive behavior, substance abuse, a disregard for safety, and neglect of self-care have been linked to pathological decision making in impulsive individuals (Ayduk et al., 200; Daugherty & Brase, 2010; Huskinson et al., 2015; Mischel et al., 1989; Reynolds & Schiffbauer, 2004). Workplace stress has been shown to trigger impulsive behavior. Nurses with impulsive personality traits are at risk of providing unsafe patient care due to pathological decision making caused by workplace stress. The current study examined impulsive personality traits in baccalaureate nursing students. The Kirby 27 MCQ was utilized to obtain the impulsivity score in baccalaureate nursing students. The current study was a pilot study that generated a sample using a convenient sampling method from one southern Mississippi college of nursing. This small homogenous sample limited generalization to the general population. This chapter includes a description of the problem, definitions of terms, and research questions. The theoretical framework and purpose of the research were also presented. Chapter II includes the review of the literature, the method for obtaining the literature, and cites literature supportive of each concept in the study in support of the research objectives.

CHAPTER II – REVIEW OF THE LITERATURE

The review of the literature suggested a need for structured cognitive training for nurses with impulsivity personality traits. Furthermore, impulsive personality trait may be used as a trait predictor in baccalaureate nursing students. Deductive reasoning allowed for the synthesis of information that began with general and ends with the specific. The study explored the following key variables: impulsivity, impulsivity as an occupational risk, impulsivity as an occupational risk in the nursing profession, delay discounting, and undergraduate baccalaureate nursing students. Impulsivity was first generally defined, and then described by specific pathological behaviors associated with impulsive personality traits. These behaviors include risky behavior, addictive behaviors, and aggressive behavior. Second, impulsive personality trait was described as an occupational risk. In doing so, further analysis of stress and time management was also addressed while describing impulsivity as an occupational risk. Third, impulsive personality trait was described as an occupational risk in the field of nursing. Furthermore, stress was identified as a trigger of impulsive pathological decision making that may affect nursing workplace safety, nursing time management, aggressive behavior in nursing, and addictive behavior in nursing.

In addition, delay discounting was examined and described using the following concepts hyperbolic curves, point of indifference, hyperbolic model, design variations and group characteristics, animal designs, and human designs with hypothetical rewards. Next, Kirby's work using hypothetical and real rewards were examined. Lastly, undergraduate students were defined and categorized into traditional and non-traditional students. The University of Southern Mississippi virtual library and internet search

engines including PubMed and Google Scholar providing full-text searches of magazines, journals, and publications were used in the literature review. A total of 192 articles were used. Older foundational research dated back to the largest players in the impulsivity research. The most recent dates of articles were used for scholarship research on impulsivity in nursing.

Impulsivity

Impulsivity has been addressed in the literature by a variety of disciplines including psychology, economics, and sociology (Ainslie, 1975). Impulsivity has a variety of definitions but generally refers to the following "an impulse can be defined as the choice of a small, short-term gain at the expense of a large, long-term loss. It often is described by such terms as spend thriftiness, temptation, or seduction" (Ainslie, 1974). The use of several terms applied interchangeably in the literature to describe aspects of impulsivity include the inability to delay gratification (Mischel et al., 1989), lack of self-control (Ainslie, 1974; De Ridder & Gillebaart, 2017), lack of self-discipline (Duckworth & Seligman, 2005), inability to envision a future time perspective (Keough et al., 1999), and delay discounting (Freeman & Perkins, 2017). Impulsivity has been linked to a variety of pathological behaviors including mania, personality disorders (such as borderline personality disorder), attention-deficit/hyperactivity disorder (ADHD), and substance abuse disorders (Evenden, 1999; Moeller et al., 2001). Other impulsive psychiatric conditions noted in the Diagnostic and Statistical Manual IV and V (APA, 2000, APA, 2013) include intermittent explosive disorder (IED), pyromania, kleptomania, pathological gambling, trichotillomania, suicidal behavior, aggressiveness, and certain forms of criminality.

Socialization may be defined as “the process beginning in early childhood by which individuals acquire the values, habits, and attitudes of society” (“Socialization”, n.d.). A degree of homogeneity is found within groups that arise from socialization processes found in societal norms, values, beliefs, customs, and patterns of responses (Stein et al., 1968). Future time perspective (planning towards some appropriate future time for impulse gratification) was found to be a part of the socialization process. Sociology or social psychology suggests that deferred gratification is related to achievement across all class levels (Straus, 1962). Cloninger (2005) postulated that the ability to control one’s impulses is addressed in the Christian tradition as temperance (modesty, self-control). In Christian culture, the ultimate reward for controlling one’s impulses is going to heaven after death. Plato addressed impulsivity in his cardinal virtue temperance. Plato proposed the three major characterizations of temperance are self-knowledge, self-control or self-mastery, and order or harmony (Kenney, 2016).

Impulsivity has a plethora of related definitions due partly to the fact that there are a variety of opinions of socially acceptable behavior (Evenden,1999). Socially acceptable behavior may differ from one culture to another, from one age to another, or from one era to another. What is socially acceptable to Generation X may not be acceptable to the Baby Boomers. Evenden (1999) explained that impulsivity is identified by a variety of related phenomena that may be classified under the particular “variety of impulsivity” (p. 350). Different forms of impulsivity are governed by multiple biological influences. In 1957, Twain was the first to categorized impulsivity into several distinct behavioral characteristics, which include flexible motor control, physical status, positive progressiveness, tenacious self-control, and aggressive instability. Cloninger (1987)

proposed a general biosocial theory of personality that divides the personality into three independent dimensions—novelty seeking, harm avoidance, and reward dependence. Impulsivity is a characteristic found throughout each dimension.

Self-control or the ability to deny impulses depends on the strength or weakness of the motivating factors (Baumeister et al., 1998). Thus, some impulses are stronger and more difficult to restrain. The literature presents varying definitions of self-control. Tangney, Baumeister, and Boone (2004) suggested that "self-control is the ability to override or change one's inner responses, as well as to interrupt undesired behavioral tendencies (such as impulses) and refrain from acting on them" (p. 274). Individuals with higher self-control have fewer impulse control problems such as binge eating and alcohol abuse. Lack of self-control is associated with social and economic phenomena such as overspending, overeating, abusing substances, or procrastinating (O'Donoghue & Rabin, 2000).

Risky Behavior

Volpp, Asch, Galvin, and Loewenstein (2011) suggested that individuals who value immediate gratification over future gains are more at risk for health issues (indulging in food today that may lead to obesity in the future or discounting daily medication that may prevent a future medical procedure). The addictive consumption of food associated with increased BMI was found to be related to impulsivity (DeVries et al., 2008; Schlam et al., 2013). Another example of risky behavior provided was sunbathing, which leads to the desired tan, yet promotes future melanomas (Daughtery & Brase, 2010). The negative consequences (skin cancer) that may arise from the immediate pleasurable activity (sunbathing) are disregarded.

Financial incentive interventions were found to be effective in encouraging healthy behavior for many subjects (Giles et al., 2014). Participants were offered financial incentives to increase their physical activity. The health benefits (rewards) of physical activity include less incidence of cardiovascular disease, depression, anxiety, and diabetes (Pedersen, 2006; Ströhle, 2009). However, in individuals with impulsive personality trait, the use of financial incentives to encourage healthy behavior was not shown to be effective (Giles et al., 2014).

Impulsive personality trait was found to be related to risky taxicab driving in a study completed in Hong Kong (Cheng et al., 2016). Public transport is tremendously affected by safe and professional taxi drivers. Unfortunately, taxi drivers in Hong Kong are the perpetrators of more car accidents than any other professional driving groups due to deliberate recklessness. The study was conducted using event-related potentials (ERP) in the brain (paired with high low risk-reward scenarios) to test impulsivity in two groups of taxi drivers. One group consisted of traffic offenders and one group consisted of nonoffenders. The groups were asked to choose between high-risk win cards and low-risk loss cards. The traffic offenders were found to be less sensitive to the consequences of behavior and more concerned with the magnitude of potential rewards. The offenders were more willing to take risks and were unable to wait to make decisions to compensate for their loss (if the prior card choice was a loss), suggesting that the offenders engaged in more risky behavior and thus were more impulsive.

Addictive Behavior

Substance (e.g., alcohol, drug, and tobacco) abuse disorders have also been correlated with impulsivity (De Wit, 2009; Keogh et al., 1999; Kirby et al., 1999). The

DSM-V characterized substance-related and addictive disorders (pathological gambling, sex addiction, shopping addiction) as conditions that activate the brain's reward system (APA, 2013). The brain reward system is responsible for the reinforcement of behaviors and the production of memories. This reward system can produce feelings of euphoria in some people when they take a drug (place a bet or buy a new suit). Individuals with lower levels of self-control are more at risk for substance abuse and addictive disorders due to an impairment of a brain inhibitory mechanism. Substance/medication-induced mental disorders can mirror independent disorders such as hallucinations, major depressive disorder, and anxiety syndromes (Aharaonovich et al., 2002; Dick et al., 2007; Shafe et al., 2009). Substance abuse, which may be caused by impulsivity, has been correlated positively with aggression (Coccaro et al., 2017).

Aggressive Behavior

Impulsivity has been linked with aggression (Garcia-Forero et al., 2008). Aggression is defined as the intent to harm or injure another object or person particularly if it is a result of an unpleasant situation (Berkowitz & Harmon-Jones, 2004). Aggressive behavior can be planned or unplanned (impulsive) physical and or verbal violence that often results in a crime (Barratt & Felthouse, 2003). Unplanned (impulsive) aggressive behavior may be effectively treated using conventional anticonvulsants (e.g., phenytoin, carbamazepine, and valproate) (Stanford et al., 2005). Examples of aggressive behavior include physical or verbal assault, sexual harassment, theft, vandalism, terrorism, spreading gossip, and domestic violence (Neuman & Baron; 1998).

The DSM-V combines impulse-control with disruptive and conduct disorders. These types of self-control disorders arise from unresolved emotions such as anger or

irritation (APA, 2013). Individuals with self-control disorders may act out (aggressively) to feel relief from tensions derived from unresolved emotions. Stealing (i.e., kleptomania) and fire setting (i.e., pyromania) are impulsive behaviors enacted to relieve internal tensions. Unlike other behaviors involving problems of emotional and/or behavioral regulation, these conditions are manifested in behaviors that violate the rights of others or are in conflict with their rights, including the rights of society or authority figures. These types of disorders include oppositional defiant disorder, intermittent explosive disorder, conduct disorder, antisocial personality disorder, pyromania, kleptomania, and other specified and unspecified disruptive, impulse-control, and conduct disorders (APA, 2013).

Impulsivity as an Occupational Risk

Individuals at greater risk for making impulsive choices can be a danger in any workplace. “One of the more subtle dangers to occupational health and safety is not endemic to any particular facet of the workplace itself. Rather, it originates from human choice and can manifest with particularly disastrous consequences in many workplaces” (Reynolds & Schiffbauer, 2004, p. 239). Human error may occur in the workplace when individuals choose more convenient immediate options over long term safe options. For example, a construction worker may choose to ride on the tines of a coworker’s forklift instead of walking. The worker discounted the long-term reward of safety for the immediate smaller reward of convenience. Interventions to prevent workplace injuries are available but require the individual to choose to use the device. An individual must choose to utilize a respirator to prevent the inhalation of a noxious substance, such as dust or pathogens. Workplace stress has been suggested to increases impulsive choice and can

thus contribute to injury (Reynolds & Schiffbauer, 2004; Sauter et al., 1999). In 2018, the U.S. Bureau of Labor Statistics estimated that the number of non-fatal occupational injuries was between 2,834,500. The number of fatal workplace injuries in 2018 was estimated to be 5,250. Individuals with impulsive personality traits may be responsible for some of these injuries and death.

Little research has been conducted related to the delay discounting model of impulsiveness and problems in occupational safety and health (Reynolds & Shiffbauer, 2004). Higher *k* values are indicative of a greater potential to disregard safety benefits due to uncertainty, time, and effort. Reynolds and Shiffbauer (2004) provided a hypothetical example of a construction worker to explain this phenomenon. In this example, a construction worker realized he needed more nails to complete the assembly of the roof. The construction worker had to choose between option A or B. Option A involved the choice of taking an unsafe shortcut across a partially constructed roof to obtain the nails. Option B involved the choice of climbing down a ladder to get the nails and climbing back up onto the roof. Option A, the unsafe alternative, would save him time and effort. Option B was much safer but would require more effort and time. The worker was faced with the choice of an easy unsafe immediate option or a safer option that required more time and effort. Individuals with impulsive personality traits are at risk for choosing this easier immediate unsafe option putting them in greater danger of occupational injury.

Stress

Stress may lead to more impulsive behaviors (DeVries et al., 1991). Reynolds and Shiffbauer (2004) reported work-place stress can trigger impulsivity. Job stress occurs

when the requirements of the job do no match the capabilities, resources, or needs of the worker (USHHS, 2014). Harmful physical and emotional responses resulting from these mismatched requirements can lead to poor health and even injury. The causes of stress include worker characteristics and working conditions. Personality and coping styles are worker characteristics that may be used to predict whether certain job conditions will result in stress. Villaume and Hasson (2017) suggested a relationship between impulsivity and more negative perceptions of the work environment and leadership behavior. An individual with an impulsive personality trait may view certain environmental conditions as stressful while people without impulsive traits may not find those same environments to be a problem (Villaume & Hasson, 2017).

However, working conditions with excessive workload demand and conflicting expectations are stressful for most people (USSHS, 1919). Stressful working conditions may include the following possible stressors: the design of the tasks, management style, interpersonal relationships, work roles, career concerns, and environmental conditions. Heavy workload, infrequent rest breaks, working long shifts, and unmeaningful hectic routine tasks that do not use workers' skills nor provide a sense of control are considered stressful due to the design of tasks that are common stressful working conditions nurses must bear. Stressors identified in management styles include lack of participation by the workers in decision making, poor communication in the organization, and lack of family-friendly policies. A lack of support or help from coworkers and a poor social environment was characterized as interpersonal relationship stressors. Work roles contributing to stress include conflicting or uncertain job expectations. Career concerns that contribute to stressful working conditions include job insecurity and lack of

opportunity for growth, advancement, or promotion and rapid changes for which workers are unprepared. Unpleasant or dangerous physical conditions are sources of environmental stressors. Examples of these stressors are crowding, noise, air pollution, or ergonomic problems. USDHHS (2002) suggested that further research is warranted on fatigue and workplace safety outcomes. Workplace safety and environmental stress are not fully understood despite research focused on the influences of stress and workplace safety (Reynolds & Schiffbauer, 2014; Sauter et al., 1999).

Individuals act more impulsively when exposed to stressful environmental conditions such as pain (Flora et al., 2003) and adverse noise (Applebaum et al., 2010; Flora et al., 1992). Flora, Wilkerson, and Flora (2003) conducted a study that used pain to induce stress through the application of pain. The participants were asked to choose between an immediate smaller monetary reward or a larger later reward while their hand was placed in either ice or warm water. Participants acted more impulsively in presence of induced stress through the application of pain. Flora and colleagues (1992) determined that participants were more impulsive in the presence of aversive noise produced by a computer. The participants were asked to choose between a smaller immediate reward or a larger delayed reward in the presence of adverse noise.

In the DSM-V (APA, 2013), stress is suggested as a risk factor for alcohol abuse. Studies suggest that both cigarette smoking and alcohol abuse are linked to stress (Cooper et al., 1992; Gorman, 1994; Parrot, 1995). Consequently, both alcohol and cigarette smoking have produced higher *k* values in studies using hypothetical delay discounting procedures, suggesting a possible link between stress and *k* values (Bickel et al., 1999; Vuchinich & Simpson, 1998).

Psychiatric disorders, such as substance abuse disorders, were found to have high comorbidity with impulsivity (Moller et al., 2001). USDHHS (1999) reported that stress levels can even contribute to mental health problems. Mantzios (2014) identified the connection between worry and impulsivity. Mantzios (2014) reported that worried military personnel were more likely to act out impulsively in attempts to cope with stress. Examples of impulsive reactions to stress may include more eating, smoking, alcohol, prescription drug abuse, or violence (Mantzios, 2014; Wainwright et al., 2016). Armed forces personnel who have to be incarcerated for their behavior have reported that mental health problems were the cause of their impulsive behavior (Wainwright et al., 2016).

Time Management

Impulsivity has been related to procrastinating versus punctually finishing tasks (O'Donoghue & Rabin, 2000). Procrastination has been characterized as the inability to control one's attention in order to overcome the more pleasant distraction (Eerde, 2003). "If procrastination is defined broadly, as a temporary preference for early reward at the expense of greater reward later, it becomes the same thing as impulsiveness" (Ainslie, 2010, p. 4). This preference for immediate rewards mirrors studies involving the lack of ability to delay gratification or control one's impulses (Ainsle, 1975; Mischel et al., 1988). Lay and Schouwenburg (1993) suggested that individuals with good time management skills score lower on the procrastination trait.

Procrastination is an unhealthy, emotionally-focused coping mechanism that impulsive individuals use to escape from stress (Lazarus & Folkman, 1984). The procrastinator follows his or her emotions rather than logic to destress in ways that may include surfing the internet and chatting with friends, rather than completing necessary

tasks. Good time management is a healthy problem-focused coping mechanism that can help to alleviate stress and facilitate productivity (Lay & Schouwenburg, 1993; Lazarus & Folkman, 1984). Macan, Shahani, Dipboye, and Phillips (1990) suggested a relationship between effective time management behaviors and subjective perception of somatic tension, satisfaction with one's job and life, and self-reported academic performance (e.g., Grade Point Average [GPA]). For example, an individual who chooses to watch television instead of spending his free time to pay his bills accrues late fees. The individual uses an emotionally-focused coping mechanism, thus discounting the future consequences of late fees for the immediate gratification of relaxing in front of the television.

Procrastination, a trait associated with impulsivity, is the enemy of effective time management (Eerde, 2003). Drucker (2018) suggested time management is a three-step process that is essential to effectiveness on the job. The first step is to record where an individual's time goes, identifying and eliminating time wasters. The second step is to allocate the remaining time into large blocks, which is also known as time blocking. The last step involves the consolidation of discretionary time and tasks.

Impulsivity as an Occupational Risk in Nursing

Stress in Nursing

Stress in the workplace has been correlated with impulsivity (Reynolds & Shiffbauer, 2004). Taylor, White, and Muncer (1999) suggested that stress in nursing is derived from two main sources, organizational factors and the caring element of nursing. Workload, relationships with superiors, and conflicts with multidisciplinary team members are organizational factors that lead to nursing stress. In addition, bureaucracy,

inadequacies of colleagues, and the nature of nursing work are factors declared as sources of stress in nursing. Taylor et al. (1999) proposed that the top four causes of stress in nursing are staffing levels, inadequate support, multiple roles, and patient suffering. Other factors endorsed as causes of stress in nursing include the nurse manager's behavior and powerlessness (feeling that one does not influence decisions). Furthermore, the nature of nurses' work is a significant source of stress due to the responsibility of caring for suffering people. Environmental conditions in nursing (e.g., noise from call lights, cardiac monitors, intravenous pumps, and bed alarms) may also contribute to stress caused by noise.

Workplace Safety. Workplace stress leads to more impulsive behavior, and thus can contribute to injury in healthcare settings (Reynolds & Schiffbauer, 2004; Sauter et al., 1999). One out of 10 hospital admissions result in adverse events that are, for the most part, preventable (De Vries et al., 2008). Adverse events may be defined as injuries caused by medical management or standards of care and not the underlying disease process for which the patient is hospitalized (Brennan et al., 1991). In 2000, the U.S. IOM reported that preventable medical adverse events were the leading cause of death in the United States. Examples of adverse events include transfusion errors, adverse drug events, wrong-site surgery, surgical injuries, preventable suicides, restraint-related injuries or death, hospital-acquired or other treatment-related infections, falls, burns, pressure ulcers, and mistaken identity.

Reynolds and Schiffbauer (2004) suggested that employees tend to undervalue the negative consequences of workplace safety procedures due to uncertainty (or delay) that those consequences will occur. Some occupational injuries can be prevented by specific

safety measures. As in other occupations, injuries often arise when nurses choose a smaller more immediate reward, such as convenience, over the long-delayed reward, such as safety. For example, a nurse may neglect to engage the safety mechanism on her intravenous access needles due to uncertainty about whether or not a needle stick injury will occur. Nurses often disregard patient safety as well as their safety when they forgo the use of gloves due to the inability to easily locate gloves when needed (DeVries et al.,1991). A nurse may discount the future possibility of contracting or passing on a contagious disease to a patient by choosing the immediate convenience of not applying personal protective equipment, such as a mask, goggles, or gown. The stress felt from fatigue, environmental factors, task design, poor management, unpleasant interpersonal work relationships, and career concerns may only compound the desire to act impulsively rather than prudently (Reynolds & Schiffbauer, 2004' USHHS, 1999). Reynold and Schiffbauer (2004) suggested that impulsivity is influenced by stressful environmental conditions such as sleep deprivation, or fatigue. Wu et al. (2013) conducted a study involving nurses in Japan, Chinese Taiwan, and the United States that revealed nurses working long hours reported deterioration in patient safety as well as increased problems with staffing and teamwork.

Time Management in Nursing. Stress has been correlated positively with impulsivity that affects a nurse's time management (DeVries et al., 1991). Job stress may be reduced by knowledge and use of proper planning and prioritizing during the nurse's shift (Said, 2014). Time management, identification of priorities, appropriate level and the number of staff and resources are essential to providing quality nursing care and to nursing professionalism (Nursing & Midwifery Council, 2015). "Proper planning

and good organization of time with the proper implementation of the plan and positive disposition towards wasting time gives us successful and effective management of time" (Said, 2014, p. 3).

Higher stress levels in the nursing occupation have been correlated negatively with problem-focused coping mechanisms (Shafaghat et al., 2018). Time management training was found to be effective in reducing nurses' occupational stress (Ghorbanshiroudi et al., 2011). However, some studies have found that nurses tend to choose emotionally-focused coping mechanisms to avoid stress on the job, such as surfing the internet rather than practicing time management (Shafeghat et al., 2018). Jeske, Briggs, and Coventry (2016) suggested that impulsive people are more likely to use social media during their work and personal time. Thus, impulsive nurses, using emotionally-focused coping mechanisms, may discount the delayed reward of safety achieved through timely medication administration or timely comprehensive shift change reports for the immediate reward of viewing social media.

"Professionalism is achieved through demonstrating an accountable, knowledgeable, visible, and ethical nursing practice and maintaining a professional presence" (Association of Registered Nurses of Newfoundland and Labrador [ARNNL], 2014, p. 1). Problems with self-control are associated with social and economic phenomena, such as punctually finishing a task or procrastinating (O'Donoghue & Rabin, 2000). For example, impulsive people may disregard or discount the negative repercussions of arriving at work on time or wearing the assigned uniform in lieu of focusing on the short-term reward of talking to a coworker. The Nursing and Midwifery Council code (2015) for professional standards of actions suggests keeping

clear, accurate records of events that should be completed at the time or as soon as possible after the event. If recorded after the event, documentation should state that the note was written after the event. An impulsive nurse may disregard accurate, timely documentation for some immediate smaller rewards, such as posting on social media.

Aggressive Behavior in Nursing. The Administration for Community Living Aging Integrated Database (ACL, 2016) reported elderly abuse complaints from nursing facilities in the United States in the fiscal year 2015. Complaints of abuse, gross neglect, and exploitation were divided into the following: 2.07% physical abuse, including corporal punishment; 1.44% gross neglect; 1.34% verbal/ psychological abuse, including punishment and seclusion; 0.56% financial exploitation; and 0.55% sexual abuse. The urge to steal and the failure to resist aggressive impulses are two impulse problems that may impede nursing performance.

The DSM-V characterized severe impulse problems as disruptive or conduct disorders (a failure to resist aggressive impulses) and kleptomania (urge to steal) (APA, 2013). Rowe and Sherlock (2005) suggested that the most frequent source of verbal abuse in a health care setting is nurses (27%), followed by patients' families (25%), doctors (22%), and patients (17%). The worker on worker violence (physical assault, verbal aggression, harassment, intimidation, threats, and bullying) was most commonly associated with nurses and patient care associates (Jackson et al., 2002). Violent events between workers have detrimental effects on hospital systems because they can lead to costly employee turnover (Hogh et al., 2011), low job satisfaction (Rosenstein, 2002), employee absenteeism (Rowe & Sherlock, 2005), and lack of employee commitment

(Demir & Rodwell, 2012). Violent events, such as verbal abuse and stealing, were linked to stress in caregivers' lives (Rowe & Sherlock, 2005) which has also been linked to impulsivity. In addition, Pillemer and Moore (1990) and Pillemer and Bachman (1991) suggested the strongest predictors of patient abuse were linked to situational factors among nurses including the level of conflict, alcohol use, stress, burnout, and response to aggression (as cited in, Payne, & Gainey, 2006). Stress experienced by respondents was due to feeling burned out from not having enough time to perform their expected duties.

In nursing homes, physical abuse may include other behaviors, such as inappropriate chemical or physical restraints (Schiamberg et al., 2012). Elderly nursing home residents' relatives completed a telephone survey regarding elder abuse and neglect by nursing home staff. The respondents reported that 24.3% of nursing home residents had experienced at least one incident of physical abuse by nursing home staff. The abuse was more likely to occur in a patient with one or more limitations of activities of daily living (ADL) such as bathing, dressing, toileting, getting in and out of bed or a chair, and eating. The ADL most associated with the most incidence of physical abuse is the inability to move around the facility without help.

Self-reported employee stress from working with physically aggressive patients was the most likely cause of physical abuse (Payne & Cikovic, 1995, as cited in Payne & Gainey, 2006). Patient abuse cases involving theft, which is often an impulsive act, are usually associated with lower-paid staff and individuals who have negative attitudes about older persons (Harris & Benson, 1998; Harris & Benson, 1999, as cited in Payne, & Gainey, 2006).

Addictive Behavior in Nursing. Using the Kirby 27 Item MCQ ($p<.05$) identified a correlation between delay discounting (impulsive personality trait) and opioid-dependent individuals (Kirby, Petry, and Bickel, 2004). In a one-year prevalence study of U.S. nursing employees, 17,085 (.52%) were reported to have substance abuse problems (Monroe et al., 2013). In exchange for the immediate maintenance of their addiction, these nurses discount the long-term consequences of drug abuse, such as the loss of employment, contractions of contagious disease, diminished relationships with family, problems with the law, abusing to the point of overdose, and death (Kirby et al., 1999). In 2018, the Centers for Disease Control and Prevention (CDC, 2018) reported that opioid use has become an epidemic in the United States that accounts for 66% of prescription or illicit opioid drug-related deaths in 2016. Nurses may have also experienced this epidemic first-hand by utilizing prescription narcotics themselves. The rise in the death rate is associated with the national push to adequately manage patients' pain through opioid prescriptions (Morone & Weiner, 2013). Healthcare providers considered pain to be a 5^{th} vital sign in attempts to alleviate this national push. Consequently, nurses with impulsive personality traits are expected to manage a patient's pain throughout an entire shift. In light of this epidemic, impulsive nurses with addiction problems have been tempted to divert narcotics.

Stress, such as that found in the nursing profession, may lead to more impulsive behavior (DeVries et al., 1991). Nurses are stressed from working long shifts and often suffer from fatigue and insomnia, as well as from physical and psychological pain (Carpenter, 2014; USHHS, 1999). Nurses working under these conditions also have relatively easy access to narcotics (Carpenter, 2014). Nurses can access narcotics in

multiple locations including medication dispensaries, narcotic cabinets, pharmacy, medical or hazardous waste, or a pain patch located on a patient's body. Patients who do not receive their pain medication, because a nurse diverted it, will suffer needlessly from pain. A nurse with drug-impaired judgment can pass on a bloodborne disease by using the same needle to inject the patient as she uses for self-injection. For example, 36 patients contracted hepatitis C from an infected healthcare employee in Denver, Colorado (Associated Press [AP] Daily News Staff Writer, 2010). Examples of drug diversion in healthcare settings are diverse. The Mayo Clinic reported a case of divergence when a procedural sedation nurse was caught injecting saline instead of the prescribed fentanyl into a patient (Berge et al., 2012). The nurse had sewn a secret pocket into her scrubs into which she dropped the potent fentanyl syringes in exchange for normal saline syringes.

Patients, employers, fellow employees, and addicts can all be damaged by drug diversion in health care (Carpenter, 2014). Diversion in health care is often a multi-victim crime because of the nature of the environment (Berg et al., 2012). Divergence leads to an excessive number of mistakes, including medication errors (National Council of State Board of Nursing [NCSBN], 2014). Impaired judgment and impulsive responses, due to substance abuse, leads to a diminished working relationship with coworkers as well as decreased level of care to all of the impaired nurse's patients, not just the one whose drugs were diverted (Carpenter, 2014).

Delay Discounting

Delay discounting is defined as the decrease in the subjective value of a reward due to a function of time (Odum, 2011; Perkins & Freeman, 2017). Delay discounting is often studied through behavioral measures obtained through observation (Mischel, 1989).

Delay discounting is a quantitative measure of impulsivity that can be calculated using a hyperbolic equation (Mazur, 1987). Research into delay discounting uses various models to analyze behavior. Two models commonly used in studying delay discounting are the hyperbolic model and the exponential model. Empirical data is synthesized theoretically and mathematically using these models. Delay discounting data analysis techniques described in this study include the evaluation of indifference points, an area under the curve, linear regression, and hyperbole (goodness of fit) (Odum, 2011).

In a study involving real choices between immediate smaller and delayed larger rewards, Mischel and Grusec (1967) found that delayed rewards were chosen more frequently when the probability of obtaining them was increased. Delay discounting designs have been produced using human and animal studies with real and hypothetical rewards. The hyperbolic and exponential models are mathematical formulas used for data analysis of delay discounting.

The current study employed the Kirby 27 Item MCQ that utilizes the hyperbolic model for data synthesis. The Kirby 27 Item MCQ was used to examine impulsivity scores among participants. The hyperbolic model is derived from the hyperbolic curve and will be discussed further.

Hyperbolic Curves

Delay discounting is a method used to quantify impulsivity using hyperbolic curves. The hyperbolic function illustrates a declaration of discounting rate as a function of time (Ainslie, 1975). The discounting rate, when plotted as a function of subjective value of the delayed reward's receipt, does not occur as a negative linear function of time. Hyperbolic curves explain the decline in value of rewards as the rewards are

delayed from the time of choice. Prediction of a reliable change of choice is possible with the use of hyperbolic curves. In these curves, the function of time determines a reliable change of choice of some alternative reward. For example, a hyperbolic curve may be obtained in a temporal discounting choice of two rewards separated in time (Bickel et al., 2007). Systematic variance of immediate rewards (e.g., $1,000, $950, $900, $800) are offered until there is a change in choice to the larger later fixed reward (e.g., $1,000 in a month). A preference switch occurs at $1,000 in a month from an immediate $800. Repeating this process using a variety of time frames (e.g., 1 week, 1 month, 6 months, 1 year, etc.) will allow for the plotting of indifference points and, thus, will produce a discounting curve. Phenomena associated with this change of choice include the following: boredom, compulsive traits, willpower, self-reward, behavioral rigidity, time out from positive reinforcement, projection, and the capacity of punishing stimuli to attract attention (Ainsle, 1975).

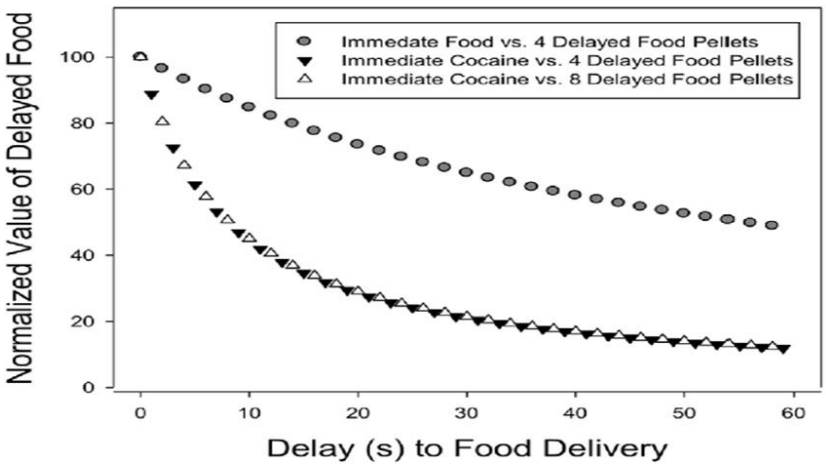

Fig. 1. Average normalized values of delayed food pellets as a function of the delay to food delivery for three monkeys that were tested in all three conditions. The symbols represent the predictions of the average discounting function for each condition. From Huskinson et al., 2015; printed with permission from Elsevier.

Figure 1. *Delay(s) to Food Delivery.*

Obtained permission from the American Psychological Association.

Points of Indifference

Hyperbolic curves are determined using indifference points. The delay discounting task seeks out the points of indifference between rewards (Mazur, 2006). One reward is relatively immediate while the other is delayed. The predicted change of preference for the immediate reward, rather than the delayed reward, is considered the point of indifference (see Figure 1). For example, an adjustment amount procedure was used in rats that included a choice of a systematically varied adjusted amount of immediate water (adjusted based on rat's previous choice) and a fixed delayed amount of water (Richards et al., 1997). The indifference point was determined by the time at which the rats chose the immediate amount and the later amount at the same frequency.

Hyperbolic Model

A hyperbolic discounting function is a mathematical model used to predicts preference reversals by humans in self-control choice situations as time goes by (Mazur, 2005; Odum, 2011). In 1987, Mazur used pigeons to determine the following quantitative model best-described indifference points as a function of delay: $V=A/(1+kD)$ (Odum, 2011). The letter V is the indifference point (dependent variable), the letter A is the amount of the reward (independent variable), and the letter D is the delay to the reward (independent variable). The letter *k* (free parameter) is a scaling factor that describes how much delay affects value. The determination of *k* requires the integration of behavior over multiple observations rather than to the set of observations (Odum, 2011). Differences in subjects or procedures affect the size of the *k* value (Mazur, 1987). In this model, predictions can be made regarding changes in *k* based on the indifference function. An increase in *k* will cause a decline in the y-intercept but no change in slope (larger *k* has a

steeper curve). Increasing *k* values denotes increased discounting for future rewards (Kirby et al., 1999). In this model, a participant must make a choice between two reinforcement rates (immediate or delayed). Each additional unit of delay results in a decrease in the subjective value of the delayed reward (Myerson et al., 2011).

Design Variations and Group Characteristics

Study designs may be affected by a variety of confounding variables that can influence the validity or reliability of a study. The domain effect refers to the type of reward offered in the study. Animal studies primarily use food as a reward while human studies often use money as a reward. Some hypothetical rewards include money (Kirby & Marokovic, 1996; Kirby et al., 1999; Odum & Rainaud, 2003), alcohol (Odum & Rainaud, 2003), cocaine (Coffey et al., 2003), cigarettes (Bickel et al., 1999), food (Odum, & Rainaud, 2003), and heroin (Madden et al., 1997).

The magnitude effect is described by the decline in the steepness of discounting with larger-magnitude delayed rewards rather than smaller-magnitude delayed rewards. There is a decrease in the rate of delay discounting with the increase in the amount of the reward (Baker et al., 2003). Green, Myerson, and McFadden (1997) found consistency in the magnitude effect across trials of hypothetical delayed differing monetary rewards (e.g., $100, $2,000, $25,000, and $100,000). The magnitude effect has been evident in studies with varying reinforcers (hypothetical and real) but was most strongly evident with delayed monetary outcomes (e.g., Baker et al., 2003; Kirby & Marakovic, 1996; Odum et al., 2006). Magnitude effects among humans have ranged from a two-fold difference to as much as a 10-fold difference (Kirby, 1997). In animal studies, the

discounting rate does not depend on the magnitude of the delayed reward (Oliveira et al., 2014).

The psychology of choice is affected by the way the outcome is perceived (gain or loss). Frame effect will influence the rate of delay discounting when future outcomes are viewed as a gain rather than a loss (Dehart & Odum, 2014). Frame effect was tested using the outcomes involving human lives and money (Tversky &Kahneman, 1981). For example, participants were given two outcome scenarios involving the outbreak of a deadly disease. In the gained scenario, the participants were presented with either the outcome of 200 out of 600 lives saved or a probabilistic outcome. In the loss scenario, the participants were presented with the outcome of 400 out of 600 lives lost or the same or similar probabilistic outcome as the gained scenario. The two outcomes were identical, but the choices of the participants depended on the way the outcome was framed. The participants in the gained scenario were more likely to choose a certain number rather than the probabilistic outcome. The participants in the loss scenario were more likely to choose the probabilistic outcome.

The description of the framing time may also affect the choice of outcome (Dehart & Odum, 2014). Specific days (e.g., 1, 7, 14, 30, 365) are generally discounted less than calendar units (e.g., days, weeks, months, years). Furthermore, outcomes providing specific dates (e.g., on October 31) are preferred over outcomes providing calendar units (Read et al., 2005). When the option of specific dates was offered, the results were less hyperbolic.

The age of the participants affects the rate of delayed discounting (Mischel et al.,1989). Younger participants have higher rates of delay discounting than older

participants (Green et al., 1999; Green & Myerson, 2004). The value of *k* decreases as age increases (humans discount rewards less with increasing age). The state of the participants may affect the rate of discounting. For example, Reynolds and Shiffbauer (2004) noted an increase in the delay discounting rate for sleep-deprived individuals. In addition, Giordano and colleagues (2002) noted that opiate deprivation increased the rate of delayed discounting.

Further, studies have looked at age and intelligence. Young adult studies suggest an inverse relationship between intelligence and delayed discounting rates (Bobova et al., 2009). In a study with a middle-aged adult, participants delay discounting was also found to have an inverse relationship with intelligence quotient (IQ) (De Wit et al., 2007).

Animal Designs

In delay discounting designs using animals, the rewards (reinforcers) may refer to food, water, or drugs that may be accessed by the animal. Mazur (1987) used pigeons in an experiment to test indifference points by using a titration schedule or adjustment procedure. Indifference points were discovered using grains of food distributed between 2 and 6-second intervals. The indifference points increased (adjustment duration delay of 6-second grain) as the delay to the 2-second grain increased across conditions (Odum, 2011). Mazur (1987) found that the pigeons delay discounting functions were hyperbolic and may be calculated using a hyperbolic equation.

Evenden and Ryan (1999) conducted a delay discounting study using rats. In this study, the rats were offered a planned selection of choices between a smaller more immediate reward and a larger delay one. Each experimental session led to an increase in the delay to the larger later option. The indifference points were determined using a

percent of choices for the larger later option (dependent variable). Richards, Mitchell, DeWit, and Seiden, (1997) conducted a study using rats and water that employed an amount adjustment procedure to determine the indifference point by using an immediate varied water reinforcer and a delayed fixed water reinforcer. The study's results supported Mazur's (1987) finding regarding the application of the hyperbolic discount function to quantitatively describe steepness in terms of a *k* value.

Huskinson, Woolverton, Green, Myerson, and Freeman (2015) conducted a study using Rhesus Monkeys that aimed to mimic the real-life experience of a drug addict. Studies in the past have used isomorphic reinforcers which are defined as reinforcers of the same type (e.g., immediate money versus delayed money). A drug addict may be faced with the choice of an immediate drug over a delayed non-drug reinforcer. The results of the study were well illustrated by the hyperbolic equation described by Mazur in 1987. An important new finding suggested that discounting rates were steeper in allomorphic situations using cocaine as an immediate reinforcer rather than an isomorphic situation using food as the immediate reinforcer (Huskinson et al., 2015). Another new finding revealed in this study indicated that in allomorphic studies the magnitude of the delayed non-drug reinforcer has no effect on discounting. Thus, immediate cocaine is a much better reinforcer than food and delayed non-drug outcomes were devalued to a greater degree than immediate non-drug alternatives.

Human Designs with Hypothetical Rewards

Human studies often use hypothetical monetary rewards to determine indifference points rather than real rewards that are found in animal studies. Human studies have also mirrored Mazur's (1987) finding regarding delay discounting as a means of prediction

using the hyperbolic equation. For example, participants were asked if they preferred a $1,000 today or a $1,000 reward in a month (Rachlin et al., 1991). In this study, the adjustment procedure determined that the indifference point was the average monetary amount at which the participants switched preference. The point of indifference was derived from the trials using an adjustment procedure. The trials began with a $1,000 immediate option and a $1,000 delayed option. The immediate monetary amount was decreased with each trial. The more remote the immediate option became, the more subjects switched preference for the larger delayed amount. Thus, the hyperbolic discount function was also found in human subjects using monetary rewards.

The experiential discounting task (EDT) was created as an attempt to provide superior face validity to the hypothetical rewards studies (Odum, 2011). This was done by adding an amount of uncertainty to reward value by using probability. Reynolds (2006) suggested that the addition of probability to the delayed amount is more similar to real-life situations than studies conducted without the use of probability. Participants weres asked to choose between a delayed and uncertain standard amount and an immediate adjusting amount. For example, you may receive $20 today or have may roll the dice for a chance to win $5000 in a month.

Kirby

Hypothetical Rewards. Kirby created the 27 Item MCQ to assess delay discounting rates using the hyperbolic model. Kirby and colleagues assessed delay discounting using hypothetical monetary rewards in which the participants' choices determined the amount of the immediate outcome they would receive (Kirby & Marokovic, 1996; Kirby et al., 1999). The hyperbolic curve model may be used to predict

discounting rates among hypothetical outcome measures of impulsivity. Self-report measures of impulsivity have been found to correlate with discounting rates. The weak correlation (0.2-0.3) mirrored other correlational analyses of self-report and behavioral measures of impulsivity.

Real Rewards. Real rewards are also utilized to delay discounting studies on human subjects. A delayed reward for academic performance in college is a students' GPA. The delayed discounting model of impulsivity was used to test for a correlation with a college GPA (Kirby et al., 2005). The results of this study revealed a reliable negative correlation between college GPA and delay discounting rates. In 2002, a correlational study was conducted in Bolivia on Tsimane' Ameriandians (Kirby et al., 2002). The study investigated delay discounting rates with covariates such as age, educational level, literacy, and recent income. The results found a negative correlation between discounting rates with rising recent income, education level, and literacy. A positive correlation was found between discounting rates and age.

Undergraduate Students

The undergraduate student population is constantly evolving and is influenced by multiple factors. In the past, most of the undergraduate college student population was made up of traditional college students (Horn et al., 1993). More recently, the college experience has partly changed due to the advancements of technology and the growing body of nontraditional students (Pontes et al., 2010). Literature suggests that nontraditional college students had a greater chance of attrition in the past but now have a greater opportunity for success due to the growing number of online classes (Bean &

Metzner, 1985; Pontes et al., 2010; Roviac, 2002). In order to fully understand each student's experience, they should be identified by certain attributes specific to each group.

Criteria used to distinguish nontraditional students from traditional students, included enrollment patterns, age, residence, financial and family status, and high school graduation status (Bean & Metzner, 1985; Horn et al., 1995; National Center for Educational Statistics [NCES], 2018). Bean and Metzner (1985) identified age, residence, and part-time enrollment as the major characteristics involved in distinguishing traditional from non-traditional students. These three characteristics are most likely indirectly linked to the student's family responsibilities, employment, and financial resources. Part-time students and students over the age of 25 usually have more family and financial responsibilities. A student living off-campus is also a good indicator that the student has more family and financial responsibilities. These characteristics have been used to define and describe traditional and non-traditional baccalaureate students.

Summary

The stress nurses experience from their environmental conditions may lead to risky impulsive behavior. Impulsive behavior at work may lead to a poorer quality of patient care. Impulsive nursing students at risk for providing a poorer quality of patient care may be provided with interventions so that they may better manage their impulsive behavior tendencies.

CHAPTER III - METHOD

Chapter III consists of an explanation of this study's methods that focused on the following areas: research design and approach, setting, sample, instrumentations, data analysis, and protection of human participants. The purpose of this study was to examine impulsive personality traits among baccalaureate nursing students. The literature review suggested that impulsive nursing students were at risk of providing a poorer quality of patient care. The following questions were used to guide the research:

1. Is there a difference in impulsive personality traits between traditional and nontraditional students?
2. What are the differences in impulsive personality traits among the three groups of undergraduate students (minimally nontraditional, moderately/ highly nontraditional, traditional)?

A quantitative approach was used in this cross-sectional, comparative design that employed a self-administered questionnaire for data collection. The philosophical assumptions were based on post-positivist claims of knowledge. The following post-positivist claims were utilized: determination (causes probably determine the effects or outcomes), reduction (reduce the ideas to a small set of elements to test), and empirical measurement (mathematical statistics) (Creswell, 2003). Postpositivist claims include the idea that knowledge is conjectural, antifoundational, and is shaped by data, evidence, and rational considerations. Additional claims suggest that research seeks to develop relevant true statements and being objective is essential to competent inquiry.

The purpose of cross-sectional study design was to describe a population or subset within a population concerning outcomes and a set of risk factors (Levin, 2006). Another

purpose of a cross-sectional study is to discover the prevalence of an outcome of interest, for a population within a population at a given point in time (Levin, 2006). This comparative study design examined the relationship between two groups of undergraduate nursing students for data analysis. Also, the study examined the strength of the linear relationship between delay discounting score and non-traditional undergraduate student characteristics. Lastly, descriptive statistics were utilized to analyze the remaining demographic data.

Setting and Sample

The study was conducted at a large public multi-campus university located in suburban areas in the southern part of the Mississippi. The convenient sample was generated from three classes on two campuses in the spring of 2020 semester of the baccalaureate nursing program. Classroom one consisted of 26 participants from the south campus. Classroom two consisted of 39 participants from the north campus and classroom three consisted of 44 participants from the north campus. Classroom one was approached after class at approximately 1045. Classroom two was approached during the break of morning class at approximately 0900, and classroom three was approached before class after lunch at approximately 1230. Classroom procedures were followed consistently and exactly in all three classrooms. However, each class was addressed at differing times of the day. On the north campus, one of the classes was addressed at the beginning of class while the other class was addressed during a class break. The students were addressed on the south campus at the end of class.

The convenient sample was divided into two groups for the independent t-test (non-traditional and traditional) and three groups for the ANOVA (traditional, minimally

nontraditional, moderately/highly nontraditional). Power analysis was employed to determine the sample size using an 80% standard power with a 0.05 level of significance, effect size of 0.3- 0.35 equals a sample size of 96-128. The obtained sample total equaled 105 responses, which left 25-53 responses per group.

Instruments and Materials

Kirby

The Kirby 27 Item MCQ was utilized for the research. The Kirby is a 27-item monetary choice self-administered questionnaire developed by Kirby and Marakovic (1996). The Kirby is written in English and is available for participants ages 13 and older. Each question's content intends for the participants to make a choice between a smaller more immediate monetary reward and a larger delayed monetary reward. The answer choices on the Kirby for each question offer three options here groups of delayed rewards dependent on size (small, medium, large). The Kirby is scored by calculating the subjects' discounting curve by using a hyperbolic equation [V=A/ (1+ *k* D)] to determine the rate of discounting (*k*). Steeper curves indicate a higher level of impulsivity. The variables in the equation are as follows: V is the subjective value of the delayed reward, A is the amount of delayed reward, and D is the delay to the reward's receipt. *K* reflects the rate of discounting (i.e., the rate at which the subjective value [V] of the delayed reward decreases as a function of its delay to receipt). Typical *k* values fall between 0.0-0.5. The smaller the *k* value the less impulsive and more likely the subject is to select a delayed outcome of larger value. The larger the *k* value the more impulsive and more likely the subject is to choose the smaller more immediate choice.

The Kirby 27 Item MCQ has been shown to have one-year temporal stability. A .77 test-retest reliability was found after five weeks, 71 was found after one-year, and .63 was found after 57 weeks (Kirby, 2009). The Kirby 27 Item MCQ was shown to be correlated with impulsivity ($p < .05$), suggesting external validity (Kirby et al., 1999). Discounting rates were associated with heroin and cocaine addiction ($p < 0.001$), suggesting construct validity (Kirby & Petry, 2004).

Baccalaureate Student Characteristics Tool

A student characteristic tool was also administered, which took approximately five minutes to complete. This tool included a checklist of eligibility criteria that traditional or nontraditional students may or may not possess. These students were identified using the NCES definition that listed characteristics derived from enrollment patterns, financial and family status, and high school graduation status. Data obtained from the baccalaureate student questionnaire was used to assign baccalaureate nursing students into groups.

Traditional Students. Traditional students possessed the following characteristics: earned a high school diploma, enrolled in college immediately following high school, enrolled full-time, financially dependent, and not employed or works part-time (Choy, 2002; NCES, 2018). Age is generally between 18-25 years.

Non-Traditional Students. Nontraditional students were classified using the following characteristics: delayed enrollment (does not enter post-secondary education in the same year that he or she finished high school), part-time enrollment for at least part of the academic year, financial independence from parents, full-time employment (at least 35 hours per week) while enrolled, has dependents (other than a spouse), single parents

(either not married or married but separated), and general education development (GED) recipient or certificate of completion (Choy, 2002; NCES, 2018). Age was generally 25 years or older. Examples of dependents other than a spouse may include siblings, elderly parents, or other family members for whom they are financially responsible. An unmarried student taking care of elderly parents may experience the same financial responsibility as a single parent.

Nontraditional students were further classified as minimally non-traditional, moderately non-traditional, or highly nontraditional. Minimally nontraditional students were students who possessed only one of the characteristics identified. Moderately nontraditional students possessed two or three of the characteristics addressed while highly nontraditional students possessed four or more of the characteristics identified. Note that students who were classified as nontraditional are more likely to be women, belong to a racial minority group, and have less-educated parents.

Confounding Variables. Additional characteristics in the questionnaire that were not listed as typifying the nontraditional/traditional groups. These characteristics include gender, ethnicity, education level of parents, parent's income level, participant's religious affiliation, parent's marital status, age, and student's marital status (Harrison & McKay, 2013; Sheppard et al., 2014; Sweitzer et al., 2012). These characteristics were obtain using a demographic questionnaire that was administered at the same time as the Kirby 27 item MCQ.

Data Analysis

Data were analyzed using the independent t-test and the ANOVA to distinguish between groups of baccalaureate nursing students. The following two research questions were addressed in the study.

1. Is there a difference in impulsive personality traits between traditional and nontraditional students?
2. What are the differences in impulsive personality traits among the three groups of undergraduate students (minimally nontraditional, moderately/ highly nontraditional, traditional)?

An independent t-test, a one-way ANOVA, and Spearman correlational analysis were used for data analysis. The independent t-test was used to examine the relationship between traditional and non-traditional nursing student groups by comparing their means. The one-way ANOVA was used to examine if a relationship exists between minimally non-traditional, moderately/highly non-traditional, and traditional nursing students by comparing their means. Lastly, Spearman's (*rho*) was used to determine the strength of the linear relationship between participants' *k* scores and full-time employment status. The 27-item monetary choice scorer produced a mean traditional student overall *k* value of 0.0155687, while the mean overall *k* value of non-traditional nursing student was 0.01098107 (see Figure 1).

The cross-sectional, comparative research design utilized descriptive and inferential statistics to answer the research questions (Zhang, 2016). The results of the Kirby (*k* score) are considered continuous while the data among non-tradition nursing groups are categorical. Traditional, non-traditional, highly non-traditional, moderately

non-traditional, and minimally non-traditional are independent groups thus are considered to be nominal variables. To choose the statistical method for data analysis, the first step was to examine the skewness of the data to determine the distribution of data. Univariate analysis was used to determine the central tendency and dispersion of groups of nursing students. Continuous variables may be distributed normally or skewed. Categorical data were expressed as a number and a percentage. The normally distributed results employed means testing that included the independent t-test (traditional and non-traditional nursing students) and the analysis of variance statistical procedure (ANOVA) to calculate results among minimally non-traditional, moderately/highly non-traditional, and traditional nursing students. Lastly, bivariate analysis was used to examine the strength of the linear relationship between *k* score and baccalaureate student characteristics using a Spearman (*rho*).

Measures Taken to Protect Participants Rights

Permission to conduct the study was obtained from The University of Southern Mississippi's institutional review board before data collection. Baccalaureate nursing student participants were obtained from and with the permission of a large multi-campus university in the southern part of the United States. These baccalaureate nursing students were addressed by the researcher in class. Before data collection, participants were asked to sign an informed consent. Prior to signing the informed consent, the students were instructed that the study would take approximately 20 minutes of their time to complete and that the basis of the study looked at impulsive personality traits among nursing students. Participants were informed that their personal information would remain anonymous per confidentiality procedures. Students were instructed that there would be

no physical, no academic, and only minimal psychological risk involved in filling out the questionnaires. Those students who wished to participate completed and submitted the questionnaires before leaving the classroom. After the tests were submitted, delay discounting rates were calculated. Differences in delay discounting between and within groups were analyzed. In addition, a demographic tool was utilized to describe the specified confounding variables of the sample. The mean scores were calculated for all four groups. Once the mean scores were obtained, the t-test and ANOVA were calculated using Statistical Package for the Social Sciences (SPSS, v.4). The Kirby 27 Item MCQ was calculated using the 27 Item Monetary Choices Questionnaire scorer (Kaplan et al., 2016).

Summary

Data analysis to distinguish between baccalaureate nursing groups was completed. A bivariate analysis was conducted to examine the strength of the linear relationship between *k* score and full-time employment status. Procedures and measures to protect participants' rights were followed.

CHAPTER IV – PRESENTATION AND ANALYSIS OF DATA

Results to data analysis were presented using a graph and chart (Figure 1, Table 1, and Table 2). The following two research questions were addressed in the study:

1. Is there a difference in impulsive personality traits between traditional and nontraditional students?
2. What are the differences in impulsive personality traits among the three groups of undergraduate students (minimally nontraditional, moderately/ highly nontraditional, traditional)?

Research Tools

Problems with the design of the confounding variables questionnaire arose from several items. First, 15.9% of participants did not answer the gender question. Two, problems arose from parental education level and parental income level due to the lack of specification of parents listed in the choices (mother or father). Some participants circled two answers while others only circled one. Problems arose from the question pertaining to participants' religious affiliation. Many protestants chose other and wrote in their denominations rather than circling protestant. Only 24 circled protestants, while approximately 35 circled other and wrote in Baptist or Methodist. Most of the protestants who wrote in their denominations were Baptist (n=32). Other protestants were Methodists (n=3). This discrepancy in data was analyzed using a Spearman's (*rho*) for the following groups: protestants (n=24), Baptist (n=32) and protestants combined with write-in Baptist and Methodist (n=60).

A non-traditional student characteristic questionnaire was used to collect the data used to assign the participants into baccalaureate nursing student groups. A total of 109

participants signed consents and either fully or partially completed the questionnaires. The sample total consisted of 57 (47.47%) traditional students and 52 (52.3%) non-traditional students. The average age was 23.24 years. The sample consisted of 87 (79.8%) Caucasians and 22 (20.18%) non-Caucasians. Sixty-eight (62.4%) participants who lived with both parents. Sixty-four (58.7%) participants' parents were married while 41 (37.6%) were not married. Twenty participants (18.3%) were married while 88 (80.7%) were not married. Only 10 (9.2%) participants were employed full-time while 99 (90.8%) were not employed full-time. Eighty participants (87.0%) were female students and 12 (13.0%) were male students. The Kirby scored excluded participants from calculations who did not complete the study. The average *k*-score of baccalaureate students was .0184552 that included 105 (96.33%) of participants (see Figure 2).

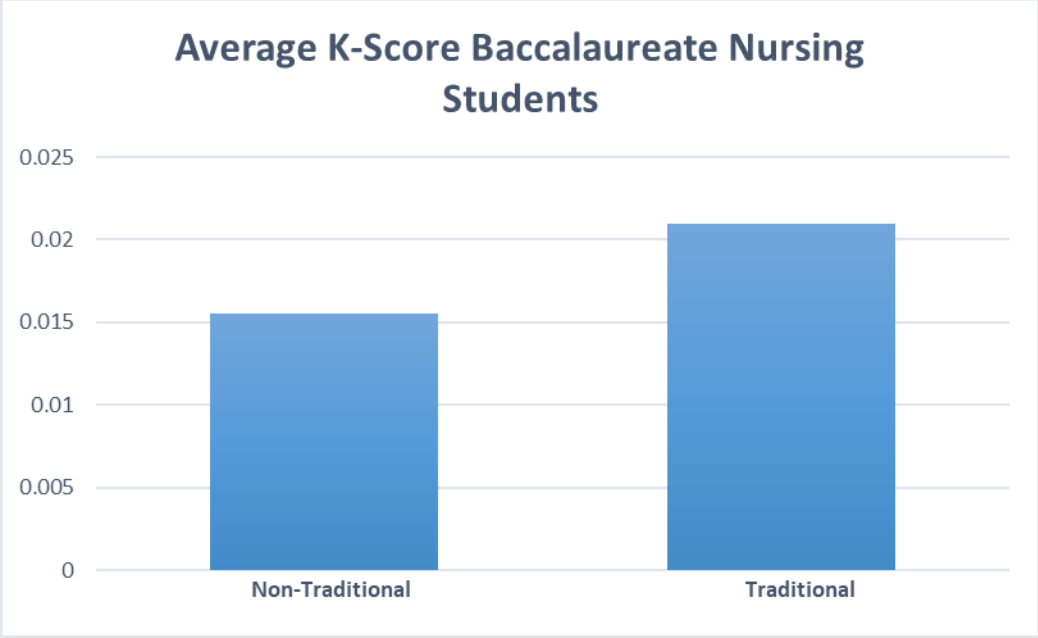

Figure 2. *Average k-Scores of Traditional and Non-Traditional Baccalaureate Students.*

Classroom procedures were followed consistently and exactly in all three classrooms. However, each class was addressed at differing times of the day. Biased data could result from this alteration in administration times.

Data Analysis

Independent t-Test

The difference in impulsive personality traits (using the Kirby MCQ) between traditional and non-traditional nursing students was examined using an independent sample t-test calculated using SPSS software (SPSS, v. 5). The mean score of participants who identified themselves as traditional students were compared to participants who identified themselves as non-traditional nursing students. The independent samples t-test found a significant difference between the means of the two baccalaureate nursing groups ($t(103) = .725$, $p < .05$). The mean of the traditional nursing students (M=0.0155687, sd = 0.022506687) was significantly different than the mean of non-traditional nursing students (M= 0.01098107, sd =0. 003215214).

ANOVA

The differences in impulsive personality traits among those three groups of nursing students (minimally non-traditional, moderately/highly non-traditional, and traditional) was calculated using a one-way ANOVA comparing the participants k scores three different groups of students. No significant difference was found ($F(2,102) = .562$, $p > .05$). The students from the three groups did not differ significantly. Minimally non-traditional students had a mean score of 0.01673077 (sd = 0.4907394). Moderate and highly non-traditional students had a mean score of 0.02466467 (sd= 0.04715583). Traditional students had a mean score of 0.01556857 (sd = 0.003215241).

Spearman's (rho) Correlational Analysis

A Spearman's (*rho*) correlational analysis was calculated using nursing student characteristics and impulsive personality traits (*k* score). A positive correlation was found (*rho* (103) = .223, $p < .05$) between participants' *k* scores and full-time employment status indicating a significant relationship between the two variables. The participant who works full time tends to have higher *k* scores. There was not enough evidence for normality assumptions for the variables.

Table 1

Descriptive Statistics of Study Variables (N=109)

Variable		N (%)	Mean (SD)
K Score		105(96.33%)	.01845524(.0380667764)
Student		52(47.47%)	
Traditional		57(52.3%)	
	Non-Traditional	80(87.0%)	
Gender		12 (13.0%)	
	Female		
	Male		
Age			23.24(3.981)
Race			
	Caucasian	87 (79.8%)	
	Non-Caucasian	22(20.18%)	
Parents Living Status			
	Living with both parents	68 (62.4%)	
Parents Marital Status		64(58.7%)	
Married		41(37.6%)	
		20(18.3%)	
Not		88(80.7%)	
Participants Marital Status			
Married			
	Not	10 (9.2%)	
		99 (90.8%)	
Participants Employed Full Time			
	Full time		
	Not		

Table 2

Bivariate Analyses Among Study Variables

Variable	Confounding Variables	Test	Test Statistics	*p*
K Score	Full-Time Employment	Spearman's *Rho*	.223	**<.05**

Note: Equal Variance assumption is not satisfied; Satterthwaite approximation was used.

Conclusions

Data analysis indicated a significant difference between traditional and non-traditional baccalaureate nursing students. Traditional baccalaureate nursing students tend to be more impulsive (higher *k* score) than non-traditional nursing students. A positive correlation was found between *k* score and full-time employment status, meaning that participants who work full time while in school tend to be more impulsive (higher *k* score) than those who do not work full-time. No significant differences were found among traditional, minimally non-traditional, and moderately/highly non-traditional baccalaureate nursing students.

CHAPTER V – DISCUSSION, CONCLUSION, AND RECOMMENDATIONS

Overview

This study aimed to answer two research questions that examined the difference in impulsive personality traits among traditional and non-traditional nursing students. The first research question looked at the difference between traditional and non-traditional nursing students. The second research question examined the difference from the following three groups of nursing students—traditional, minimally non-traditional, and highly/moderately non-traditional nursing students.

A significant difference was noted between traditional and non-traditional nursing students, meaning that the average *k* score was higher in non-traditional students. However, no significant difference was found between traditional nursing students, minimally non-traditional nursing students, and highly/moderately non-traditional. A bivariate analysis suggested a positive relationship between impulsive personality trait (*k* score) and full- time work status.

Interpretation of Findings

The results of the bivariate analysis suggest that the inability to delay gratification is evident in non-traditional nursing students who work full-time. The analysis of the data combined with the literature review suggests that students working full-time while in school may act impulsively due to factors such stress felt from fatigue, environmental conditions, and poor time management (DeVries et al., 1991; Reynolds & Schiffbauer, 2004; USHHS, 1999). The literature also suggests that individuals with impulsive personality traits may tend to deal with stressful situations more impulsively (USHHS, 1999; Villaume & Hasson, 2017).

Recommendations for Action

Communicating this study's results with participating in nursing programs can increase the understanding of their students and inform appropriate interventions for them. Hospitals may benefit from understanding individuals with impulsive personality traits so that they may identify areas and nurses at safety risks in patient care. Lastly, impulsivity scores may be used by nurse managers as part of the hiring and placement process.

Recommendations for Future Research

A large area for future growth exists in impulsive personality traits and nursing. Areas for growth in impulsivity research may include studies aimed at the following: a longitudinal study exploring the life span of nursing students' careers, nurse/student safety, level of nursing degree, nurse generational studies, nursing students' religious affiliation, nursing students with young children, and nurse policy. A longitudinal study exploring traditional and non-traditional students at differing points in their careers should be explored. A study following the nursing students in the current study to examine if they will be more or less impulsive after they graduate and obtain a job in the field. A future study seeking to explore non-traditional students and traditional students' clinical behavior is warranted. Impulsive non-traditional nursing students may behave differently in clinical situations than a traditional nursing student.

Research may aim at monitoring nurses' impulsivity scores in high-stress areas in the field such as the emergency room. Impulsive personality traits may be used to examine safe nurse/patient staffing ratios as well as adverse events. Nurses' impulsivity scores with a 4 to 1 staffing ration may be compared to nurses with a 5 to 1 ratio. Nurses

may be more impulsive in areas that have a greater tendency for adverse events. Nurses or nursing students from differing generations may be examined. Generation X's may be compared to baby boomers.

The literature review suggested that students who belong to certain religions are more at risk for attrition than others. Since studies indicate that less impulsive individuals are more successful in school and life, it would be suitable to investigate religious affiliation and impulsivity scores among nursing students. Catholic nursing students may be less impulsive than Baptist.

The level of nursing degree and impulsive personality traits will be a great area for future research. The AACN (2019) reported a study published by Linda Aiken and colleagues which found that a 10% increase in nurses with a bachelor's degree was associated with a 7% decline in patient mortality (Aiken et al., 2003). Associate degree nurses (ADN) impulsivity scores may be compared to baccalaureate degree nurses (BSN).

Future research aimed at the nursing student who are parents of young children is warranted. The current study found that nursing students working full-time tend to be more impulsive than other students. Parenting young children at home without any childcare and or economic support can be much like a full-time job. Parents enrolled full-time while caring for a young child or baby may be researched further to see if a difference exists between them and other baccalaureate students.

Lastly, impulsive non-traditional nursing students working full time may need to be researched further so that they may graduate and become successful, competent nurses. These students should be identified and managed appropriately by their

professors. Interventions such as education through online modules may be used to raise awareness for students in need. Future studies may be aimed at exploring different types of interventions and their effects on impulsive non-traditional students.

Conclusions

Nursing students' impulsivity scores, after they graduate and obtain their first nursing job, may change as they adjust to their environmental conditions. However, nursing students who were more impulsive at birth may continue to score more impulsively after graduation. An investigation of this type may suggest that certain students with an impulsive nature will always react more impulsively. Nevertheless, these findings suggest a need for an alternative path for students with high levels of stress so that they become nurses who provide safe nursing care as well as feel satisfied with their career and remain in the field.

Impulsive personality trait may be used for a variety of matters including screening tools and educational needs (Beilaska-DuVernay, 2008; Cherniss, 2009). The U.S. Air Force saves 3 million dollars annually using emotional intelligence for job selection and prediction for success. Emotional intelligence inventories are composed partly of measures of impulsivity, yet do not focus solely on it. This suggests that a screening tool for impulsive personality trait may be a great tool used to hire and place nurses.

Nurse managers may use impulsivity tools as a means to identify and provide interventions to those struggling nurses so that they remain safe and are fulfilled with their careers. Nurse managers may use impulsivity tools as a means to identify nurses at risk for attrition so that these nurses may be placed in a less stressful working area or be

provided cognitive educational classes to manage their impulsive behavior tendencies. Non-traditional students with impulsive traits may be provided with online modules to help raise awareness of their behavioral tendencies. Nurse faculty should also be educated and made aware of those non-traditional students with impulsive behavioral tendencies in the clinical setting so that patients and students remain safe.

Overall, the current study suggested that non-traditional nursing students (especially those who work full-time) are more likely to act impulsively. This finding is supportive of the literature review which proposed that workplace stress may trigger impulsive pathological decision making. The literature also suggested that impulsive personality trait, staffing levels of nurses, and nurses' level of education can contribute to unsafe patient care. For these reasons, impulsive behavioral tendencies may be used to identify stressful working conditions and impulsive nurses so that patients, as well as nurses remain safe. Lastly, proper placement of impulsive nurses in less stressful areas of healthcare may lead to increased job satisfaction and improved staffing due to less nurses leaving the field.

APPENDIX A – Demographic and Student Characteristic Questionnaire

Please do not write your name anywhere on the questionnaire in order to ensure your privacy. Please fill out the following fill in the blank or circle one. Then proceed to the following questionnaire.

Gender: Male or female

Ethnicity: _____

Age: _____

Education level of parents:
1. Less than high school
2. GED or high school
3. Some college but no degree
4. Associate Degree
5. Baccalaureate Degree
6. Graduate Degree

Parent's income level
1. Less than $20,000
2. $20,000-34,000$
3. $35,000-$49,000
4. $50,000-$74,000
5. $75,000-$99,000
6. $100,000-$149,000
7. $150,000-$199,000
8. $200,000 or more

Participants religious affiliation
1. Catholic
2. Protestant
3. Jewish
5. Non-denominational

	6. Atheist 7. Other please write in: _____
Parent's marital status	1. Married 2. Divorced 3. Widowed 4. Separated 5. Never Married
Participant's marital status	1. Married 2. Divorced 3. Widowed 4. Separated 5. Never Married
Participant was raised with	1. Both parents at home 2. Mother in home 3. Father in home 4. Both parent until time of separation/divorce then resided mostly with mother 5. Both parent until time of separation/divorce then resided mostly with father 6. Both parent until time of separation/divorce then resided equally with both parents in separate homes 7. Neither parent in home

Please circle all that apply.

1. Earned a high school diploma
2. Enrolled in college immediately following high school
3. Enrolled full-time
4. Financially dependent on parents or another source
5. Is not employed or
6. Works part-time
7. Age between 18-25 years.
8. Delayed enrollment (did not enter post-secondary school in the same year as finishing high school).
9. Enrolled part-time for at least part of the academic year
10. Financial independence (for the purposes of financial aid)
11. Employed full-time while enrolled (at least 35 hours per week)
12. Had dependents (other than the spouse) Examples of dependents include: siblings, elderly parents, or other family members for whom they are financially responsible.
13. Single parents (either not married or married but separated)
14. Age 26 years or older.
15. Earned a GED or certificate of completion

APPENDIX B –IRB Approval Letter

NOTICE OF INSTITUTIONAL REVIEW BOARD ACTION

The project below has been reviewed by The University of Southern Mississippi Institutional Review Board in accordance with Federal Drug Administration regulations (21 CFR 26, 111), Department of Health and Human Services regulations (45 CFR Part 46), and University Policy to ensure:

- The risks to subjects are minimized and reasonable in relation to the anticipated benefits.
- The selection of subjects is equitable.
- Informed consent is adequate and appropriately documented.
- Where appropriate, the research plan makes adequate provisions for monitoring the data collected to ensure the safety of the subjects.
- Where appropriate, there are adequate provisions to protect the privacy of subjects and to maintain the confidentiality of all data.
- Appropriate additional safeguards have been included to protect vulnerable subjects.
- Any unanticipated, serious, or continuing problems encountered involving risks to subjects must be reported immediately. Problems should be reported to ORI via the Incident template on Cayuse IRB.
- The period of approval is twelve months. An application for renewal must be submitted for projects exceeding twelve months.

PROTOCOL NUMBER: IRB-19-498
PROJECT TITLE: A PILOT STUDY-IMPULSIVE NURSING STUDENTS ARE AT RISK FOR PROVIDING UNSAFE PATIENT CARE AND MAY BENEFIT FROM STRUCTURED TRAINING
SCHOOL/PROGRAM: College of Nursing - GP, School of LANP
RESEARCHER(S): Jennifer Bertucci, Patsy Anderson

IRB COMMITTEE ACTION: Approved
CATEGORY: Expedited
7. Research on individual or group characteristics or behavior (including, but not limited to, research on perception, cognition, motivation, identity, language, communication, cultural beliefs or practices, and social behavior) or research employing survey, interview, oral history, focus group, program evaluation, human factors evaluation, or quality assurance methodologies.

PERIOD OF APPROVAL: November 21, 2019

Donald Sacco, Ph.D.
Institutional Review Board Chairperson

REFERENCES

Administration for Community Living Aging Integrated Database (ACL). (2016). National Ombudsman Reporting System (NORS). Retrieved from https://acl.gov/programs/long-term-care-ombudsman/ltc-ombudsman-national-and-state-data.

Aharonovich, E., Liu, X., Nunes, E., & Hasin, D. S. (2002). Suicide attempts in substance abusers: effects of major depression in relation to substance use disorders. *American Journal of Psychiatry*, *159*(9), 1600-1602.

Aiken, L., Clarke, S., Cheung, R., Sloane, D., & Silber, J., (2003). Educational levels of hospital nurses and surgical patient mortality. *JAMA, 290*(12), 1617-1623. doi:10.1001/jama.290.12.1617.

Aikin, L., Sloane, D., & Griffiths, P. (2017). For the RN4CAST Consortium, et al. nursing skill mix in European hospitals: a cross-sectional study of the association with mortality, patient ratings, and quality of care. *British Medical JournalMI Quality & Safety*, *26*(7), 559-568.

Ainslie, G.W. (1974). Impulse control in Pigeons. *Journal of the Experimental Analysis of Behavior, 21*(3), 485-489. doi: 10.1901/jeab.1974.21-485.

Ainslie, G. (1975). Specious reward: A behavioral theory of impulsiveness and impulse control. *Psychological Bulletin*, *82*(4), 463-496. Retrieved from https://pdfs.semanticscholar.org/8cf0/dba265275d8233b2d78c543269fedd6ff833.pdf.

Ainslie, G. (2010). Procrastination, the basic impulse. *The thief of time: Philosophical essays on procrastination*, 11-27. Retrieved from http://picoeconomics.org/Articles/ProcrasNYCEds10_08.pdf.

Ainslie, G. (2017). De Gustibus Disputare: Hyperbolic delay discounting integrates five approaches to impulsive choice. *Journal of Economic Methodology*, *24*(2), 166-189. Retrieved from https://www.tandfonline.com/doi/abs/10.1080/1350178X.2017.1309373.

American Association of Colleges of Nursing (AACN). (2015). *New AACN data confirm enrollment surge in schools of nursing*. Author Publications. Retrieved from https://www.aacnnursing.org/News-Information/Fact-Sheets/Nursing-Shortage

American Psychiatric Association (APA). (2000). *Diagnostic and statistical manual of mental disorders: DSM-IV-TR.* American Psychiatric Association.

American Psychiatric Association (APA). (2013). *Diagnostic and statistical manual of mental disorders (DSM-5®).* American Psychiatric Publications. Retrieved from https://books.google.com/books?hl=en&lr=&id.

Andrew, H., & Roberts, B. (2015). Occupational employment projections to 2024. *Monthly Labor Review*. Retrieved from https://doi.org/10.21916/mlr.2015.49

Applebaum, D., Fowler, S., Fiedler, N., Osinubi, O., & Robson, M. (2010). The impact of environmental factors on nursing stress, job satisfaction, and turnover intention. *The Journal of Nursing*, *40*(7-8), 323–328. doi:10.1097/NNA.0b013e3181e9393b

Associated Press Daily News Staff Writer. (2010, January 18). Heroin-addicted technician Kristen Diane Parker infected 3 dozen with hepatitis C. *New York*

Daily News. http://articles.nydailynews.com/ 2010-01-18/news/17945085_1_kristen-diane-parker-heroinaddiction-infected.

Association of Registered Nurses Newfoundland and Labrador (ARNNL). (2014). *Professionalism and the registered nurse*. Retrieved from https://www.arnnl.ca/sites/default/files/documents/ID_Professionalism_and_the_Registered_Nurse_0.pdf.

Astin, A. W. (1975). *Preventing students from dropping out*. Jossey-Bass. Retrieved from: https://programs.honolulu.hawaii.edu/intranet/sites/programs.honolulu.hawaii.eduintranet/files/upstf-predicting-freshman-dropout.pdf.

Ayduk, O. N., Mendoa-Denton, R., Mischel, W., Downey, G., Peake, P. K., & Rodriguez, M. L. (2000). Regulating the interpersonal self: Strategic self-regulation for coping with rejection sensitivity. *Journal of Personality and Social Psychology, 79*(5), 776–792. doi:10.1037/0022-3514.79.5.776. PMID 11079241.

Baker, F., Johnson, M. W., & Bickel, W. K. (2003). Delay discounting in current and never-before cigarette smokers: similarities and differences across commodity, sign, and magnitude. *Journal of Abnormal Psychology*, *112*(3), 382. Retrieved from doi: 10.1037/0021-843X.112.3.382.

Barndt, R. J., & Johnson, D. M. (1955). Time orientation in delinquents. *The Journal of Abnormal and Social Psychology*, *51*(2). 343-345. doi: https://doi.org/10.1037/h0048130.

Barratt, E. S., & Felthous, A. R. (2003). Impulsive versus premeditated aggression: Implications for men's rea decisions. *Behavioral Sciences and the Law*, *21*(5), 619-630.

Bakhshani, N. M. (2014). Impulsivity: A predisposition toward risky behaviors. *International Journal of High-Risk Behaviors & Addiction*, *3*(2), e20428. doi:10.5812/ijhrba.20428.

Baumeister, R. F., Bratslavsky, E., Muraven, M., & Tice, D. M. (1998). Ego Depletion: Is the active self a limited resource? *Journal Of Personality And Social Psychology*, *74*(5), 1252-1265. doi: 10.1037/0022-3514.74.5.1252.

Bean, J. P., & Metzner, B. S. (1985). A Conceptual Model of Nontraditional Undergraduate Student Attrition. *Review of Educational Research*, *55*(4), 485-540. https://doi-org.lynx.lib.usm.edu/10.3102%2F00346543055004485

Beilaska-DuVernay, C. (2008). *Hiring for Emotional Intelligence*. Retrieved from https://hbr.org/2008/11/hiring-for-emotional-intellige.

Berge K., Dillon K., Sikkink K., Taylor, T., & Lanier, W. (2012). Diversion of drugs within health care facilities, a multiple-victim crime: Patterns of diversion, scope, consequences, detection, and prevention. *Mayo Clinic Proceedings*, *87*(7), 674–82.

Berkowitz, L., & Harmon-Jones, E. (2004). Toward an understanding of the determinants of anger, *Emotion*, *4*, 107–130. Retrieved from https://www.researchgate.net/profile/Eddie_Harmon-Jones/publication/8485281_Toward_an_Understanding_of_the_Determinants_of_Anger/links/0fcfd51179ff9c8c9f000000.pdf.

Berlin, H., & Hollander, E. (2008). Understanding the difference between impulsivity and compulsivity. *Psychiatric Times*, *5*(8), 58. Retrieved from

https://www.psychiatrictimes.com/impulse-control-disorders/understanding-differences-between-impulsivity-and-compulsivity.

Bickel, A., Loewenstein, W., Jacobs, K., Marsch, G., & Badger, E. (2002). Mild opioid deprivation increases the degree that opioid-dependent outpatients discount delayed heroin and money. *Psychopharmacology, 163*(2), 174-182. http://dx.doi.org/10.1901/jeab.1999.71-27.

Bickel, W., Miller, M., Yi, R., Kowal, B., Lindquist, D., & Pitcock, J. (2007). Behavioral and neuroeconomics of drug addiction: competing neural systems and temporal discounting processes. *Drug and Alcohol Dependence, 90*(1), S85-S91.

Bickel, W., Odum, A., & Madden, G. (1999). Impulsivity and cigarette smoking: Delay discounting in current, never, and ex-smokers. *Psychopharmacology, 146*(4), 447-454.

Bobova, L., Finn, P. R., Rickert, M. E., & Lucas, J. (2009). Disinhibitory psychopathology and delay discounting in alcohol dependence: Personality and cognitive correlates. *Experimental and Clinical Psychopharmacology, 17*(1), 51-61. doi:10.1037/a0014503.

Brennan, T. A., Leape, L. L., Laird, N. M., Hebert, L., Localio, A. R., Lawthers, A. G., .& Hiatt, H. H. (1991). Incidence of adverse events and negligence in hospitalized patients: results of the Harvard Medical Practice Study I. *New England Journal of Medicine*, *324*(6), 370-376. Retrieved from https://www.nejm.org/doi/full/10.1056/nejm199102073240604.

Carpenter, H. (2014). The painful problem of drug diversion and what can you do. *American Nurses Today, 9*(12). Retrieved from https://www.myamericannurse.com/painful-problem-drug-diversion-can/

Cheng, A. S., Ting, K. H., Liu, K. P., & Ba, Y. (2016). Impulsivity and risky decision making among taxi drivers in Hong Kong: an event-related potential study. *Accident Analysis & Prevention*, *95*, 387-394.

Cherniss, C. (2009). A New U.S. Air Force Study Explores the Cost-Effectiveness of Applying the Bar-On EQ-i1. Prepared for the *Consortium for Research on Emotional Intelligence in Organizations.* Retrieved from http://www.eiconsortium.org/pdf/USAFPeliminaryPJStudy--Revised-b.pdf**.**

Cherniss, C. (1999). The business case for emotional intelligence. *Consortium for Research on Emotional Intelligence in Organizations*. Retrieved from www. eiconsortium. org.

Choy, S. (2002). Non-traditional undergraduates. *National Center for Education Statistics.* Retrieved from: https://nces.ed.gov/pubs2002/2002012.pdf.

Cloninger, C. R. (1987). A systematic method for clinical description and classification of personality variants: A proposal. *Archives of General Psychiatry, 44*(6), 573-588.

Cloninger, C.R., Svrakic, D.M., & Przbeck, T.R. (1993). A Psychobiological Model of Temperament and Character. *Archives of General Psychiatry, 50*(12), 975-990. doi: 10.1001/archpsyc.1993.01820240059008.

Cloninger, C.R. (2008) The psychobiological theory of temperament and character: comment on Farmer and Goldberg (2008). *Psychobiological Assessment, 20* (3), 292-299. doi: 10.1037/a0012933.

Cloninger, R. C. (2005). Book Forum: ethics, values, and religion. Character strengths and virtues: A handbook and classification. Retrieved from https://doi.org/10.1176/appi.ajp.162.4.820-a.

Coccaro, E. F., Fanning, J. R., & Lee, R. (2017). intermittent explosive disorder and substance use disorder: Analysis of the national comorbidity survey replication sample. *The Journal of Clinical Psychiatry*, *78*(6), 697–702. doi:10.4088/JCP.15m10306.

Coffey, S. F., Gudleski, G.D., Saladin, M. W., & Brady, K.T. (2003). Impulsivity and rapid discounting of delayed hypothetical rewards in cocaine-dependent individuals. *Experimental and Clinical Psychopharmacology,* 11(1), 18-25. doi:10.1037/1064-1297.11.1.18.

Cooper, M. L., Russell, M., Skinner, J. B., Frone, M. R., & Mudar, P. (1992). Stress and alcohol use: Moderating effects of gender, coping, and alcohol expectancies. *Journal of Abnormal Psychology, 101*(1), 139-152. http://dx.doi.org/10.1037/0021-843X.101.1.139.

Creswell, J. W. (2003). A framework for design. *Research design: Qualitative, quantitative, and mixed methods approaches* (pp. 3-26). Creswell. Retrieved from http://sandbox.informatics.iupui.edu/~kmacdorm/courses/ResearchDesign/Presentations/Creswell1Framework.pdf.

Creswell, J. W., & Creswell, J. D. (2017). *Research design: Qualitative, quantitative, and mixed methods approaches*. Sage Publications. Retrieved from https://pdfs.semanticscholar.org/73b7/18e508fa943dfb22a9cb5fb17f888239ad0e.pdf.

Daugherty J.R., & Brase, G.L. (2010) Taking time to be healthy: Predicting health behaviors with delay discounting and time perspective. *Personality and Individual Differences*, *48*, 202–207. Retrieved from: https://s3.amazonaws.com/academia.edu.documents/6696220/2010_.

Demir D, & Rodwell J. (2012). Psychosocial antecedents and consequences of workplace aggression for hospital nurses. *Journal of Nursing Scholarship*, *44*, 376–384. doi: 10.1111/j.1547-5069.2012.01472.x.

DeHart, W. B., & Odum, A. L. (2014). The effects of the framing of time on delay discounting. *Journal of the Experimental Analysis of Behavior*, *103*(1), 10-21. doi: 10.1002/jeab.125.

Delgado-Rodríguez, M., & Llorca, J. (2004). Bias. *Journal of Epidemiology and Community Health*, *58*(8), 635–641. doi:10.1136/jech.2003.008466.

De Ridder, D., & Gillebaart, M. (2017). Lessons learned from trait self-control in well-being: Making the case for routines and initiation as important components of trait self-control. *Health Psychology Review*, *11*(1), 89-99. Retrieved from https://www.tandfonline.com/doi/full/10.1080/17437199.2016.1266275.

De Ridder, D., De Boer, B., Lugtig, P., Bakker, A., & Van Hooft, E. (2011). Not doing bad things is not equivalent to doing the right thing: Distinguishing between inhibitory and initiatory self-control. *Personality and Individual*

Differences, 50(7), 1006-1011. Retrieved from https://doi org.lynx.lib.usm.edu/10.1016/j.paid.2011.01.015.

DeVries, J. E., Burnette, M. M., & Redmon, W. K. (1991). AIDS prevention: Improving nurses' compliance with glove wearing through performance feedback. *Journal of Applied Behavior Analysis*, *24*, 705-71 1.

DeVries, E. N., Ramrattan, M. A., Smorenburg, S. M., Gouma, D. J., & Boermeester, M. A. (2008). The incidence and nature of in-hospital adverse events: A systematic review. *British Medical Journal of Quality & Safety*, *17*(3), 216-223. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2569153/.

De Wit H. (2009). Impulsivity as a determinant and consequence of drug use: a review of underlying processes. *Addiction Biology*, *14*(1), 22–31. doi:10.1111/j.1369-1600.2008.00129.x.

De Wit, H., Flory, J., Acheson, A., Mccloskey, M., & Manuck, S. (2007). IQ and nonplanning impulsivity are independently associated with delay discounting in middle-aged adults. *Personality and Individual Differences, 42*(1), 111-121. Retrieved from https://doi.org/10.1016/j.paid.2006.06.026.

Dick, D. M., Wang, J. C., Plunkett, J., Aliev, F., Hinrichs, A., Bertelsen, S., ... & Nurnberger Jr., J. (2007). Family-based association analyses of alcohol dependence phenotypes across DRD2 and neighboring gene ANKK1. *Alcoholism: Clinical and Experimental Research, 31*(10), 1645-1653.

Duckworth, A. L., & Seligman, M. E. (2005). Self-discipline outdoes IQ in predicting academic performance of adolescents. *Psychological science*, *16*(12), 939-944. Retrieved from http://www.jstor.org/stable/40064361.

Drucker, P. (2018). *The effective executive*. Routledge. Retrieved from https://s3.amazonaws.com/academia.edu.

Eaton, S.B., & Bean, J.P. (1995). An approach/avoidance behavioral model of college student attrition. *Research in Higher Education*, *36*, 617. Retrieved from https://doi.org/10.1007/BF02208248.

Epstein, L., Richards, J., Saad, F., Paluch, R., Roemmich, J., Lerman, C., & Bickel, Warren K. (2003). Comparison between two measures of delay discounting in smokers. *Experimental and Clinical Psychopharmacology*, *11*(2), 131-138. doi: 10.1037/1064-1297.11.2.131.

Eerde, W. V. (2003). Procrastination at work and time management training. *The Journal of Psychology*, *137*(5), 421-434. Retrieved from https://www.researchgate.net/profile/Wendelien_Eerde/publication/8998753_.

Evenden, J. (1999). Varieties of impulsivity. *Psychopharmacology*, *146*, 348-361.doi: 10.1007/pl00005481.

Evenden, J., & Ryan, C. N. (1996). The pharmacology of impulsive behavior in rats: the effects of drugs on response choice with varying delays of reinforcement. *Psychopharmacology, 128*(2), 161-170.

Evenden, J., & Ryan, C. (1999). The pharmacology of impulsive behavior in rats VI: The effects of ethanol and selective serotonergic drugs on response choice with varying delays of reinforcement. *Psychopharmacology, 146*(4), 413-421.

Flora, S. R., Wilkerson, L. R., & Flora, D. B. (2003). Effects of cold pressor pain on human self-control for positive reinforcement. *The Psychological Record, 53*(2), 243-252. Retrieved from https://core.ac.uk/download/pdf/60540282.pdf.

Flora, S. R., Schieferecke, T. R., & Bremenkamp, H. G. (1992). Effects of aversive noise on human self-control for positive reinforcement. *The Psychological Record*, *42*(4), 505-517.

Freeman, K., & Perkins, F. N. (2017). Pharmacotherapies for decreasing maladaptive choice in drug addiction: Targeting the behavior and the drug. *Pharmacology, Biochemistry, and Behavior.* Retrieved from http://dx.doi.org/10.1016/j.pbb.2017.06.015.

Garcia-Forero, C., Gallardo-Pujol, D., Maydeu-Olivares, A., & Andres-Pueyo, A. (2008). Disentangling impulsiveness, aggressiveness, and impulsive aggression: An empirical approach using a self-report measure. *Science Direct, 168,* 40–49. Retrieved from: http://www.ub.edu/gdne/amaydeusp_archivos/disentangling.pdf.

Ghorbanshiroudi, S. H., Khalatbari, J., Madadi, M. E., Khelghatdoost, P., & Keikhayfarzaneh, M. M. (2011). The Effectiveness of Time Management Training on the Amount of Nurse's Occupational Stress. *Middle-East Journal of Scientific*, *9*(4), 462-466.

Giles, E. L., Robalino, S., McColl, E., Sniehotta, F. F., & Adams, J. (2014). The effectiveness of financial incentives for health behavior change: systematic review and meta-analysis. *PloS one*, *9*(3), e90347.

Gollner, L., Ballhausen, N., Kliegel, M., & Forstmeier, S. (2018). Delay of gratification, delay discounting and their associations with age, episodic future thinking, and future time perspective. *Frontiers in Psychology*, *25,* 1-15. Retrieved from https://doi.org/10.3389/fpsyg.2017.02304.

Gorman, D.M. (1994). Alcohol misuse and the predisposing environment. *British Medical Bulletin, 50*(1), 36-49. Retrieved from https://doi.org/10.1093/oxfordjournals.bmb.a072882.

Green, L., Myerson, J., & Mcfadden, E. (1997). Rate of temporal discounting decreases with amount of reward. *Memory & Cognition, 25*(5), 715-723.

Green, L., Myerson, J., & Ostaszewski P. (1999). Discounting of delayed rewards across the life span: Age differences in individual discounting functions. *Behavioral Processes, 46*, 89–96. Retrieved from http://psy2.ucsd.edu/~nchristenfeld/DoG_Readings_files/Class%208%20-%20Green%201994.pdf.

Green, L., & Myerson, J. (2004). A discounting framework for choice with delayed and probabilistic rewards. *Psychological Bulletin, 130*(5), 769-792. doi:10.1037/0033-2909.130.5.769.

Harris, D. K., & Benson, M. L. (1998). Nursing home theft: The hidden problem. Journal of *Aging Studies*, *12*(1), 57-67.

Harris, D. K., & Benson, M. (1999). Elder Abuse in Nursing Homes. *Journal of Elder Abuse and Neglect, 10*(3-4), 141-151. Retrieved from doi: 10.1300/J084v10n03_08.

Harrison, J. M. D., & McKay, R. T. (2013). Do religious and moral concepts influence the ability to delay gratification? A priming study. *Journal of Articles in Support of the Null Hypothesis*, *10*(1),25-40. Retrieved from https://researchoutput.csu.edu.au/ws/portalfiles/portal/8892389/Vol10-No1-article3.pdf.

Hoerger, M., Quirk, S. W., & Weed, N. C. (2011). Development and validation of the Delaying Gratification Inventory. *Psychological Assessment, 23*(3), 725-738. doi:10.1037/a0023286.

Hogh, A., Hoel, H., & Carneiro, I. (2011). Bullying and employee turnover among healthcare workers: a three-wave prospective study. *Journal of Nursing Management, 19*(6), 742-751. doi:10.1111/j.1365-2834.2011.01264.x.

Horn, L. J., Premo, M.D., & Malizio, A.G. (1995). *Profile of undergraduates in U.S. postsecondary education institutions: 1992-93. With an essay on undergraduates at risk. statistical analysis report*. U.S. Government Printing Office. Retrieved from https//files.eric.ed.gov/fulltext/ED392852.pdf

Huskinson, S. L., Woolverton, W. L., Green, L., Myerson, J., & Freeman, K. B. (2015). Delay discounting of food by rhesus monkeys: Cocaine and food choice in isomorphic and allomorphic situations. *Experimental and Clinical Psychopharmacology*, *23*(3), 184-193. doi:10.1037/pha0000015.

Impulsive. (n.d). In *Collins English online dictionary.* Retrieved from https://www.collinsdictionary.com/dictionary/english/impulsive.

Institute of Medicine (IOM). (2000). (US) Committee on Quality of Health Care in America; Kohn, L.T., Corrigan, J.M., Donaldson, M.S., editors. *To Err is Human: Building a Safer Health System*. National Academies Press. Available from: https://www.ncbi.nlm.nih.gov/books/NBK225187/.

Jackson, D., Clare, J., & Mannix, J. (2002). Who would want to be a nurse? Violence in the workplace—A factor in recruitment and retention. *Journal of Nursing Management, 10*(1), 13-20. doi: 10.1046/j.0966-0429.2001.00262.x.

Jeske, D., Briggs, P., & Coventry, L. (2016). Exploring the relationship between impulsivity and decision-making on mobile devices. *Personal and Ubiquitous Computing, 20*(4), 545-557. doi: 10.1007/s00779-016-0938-4.

Kaplan, B.A., Amlung, M., Reed, D.D., Jarmolowicz, D.P., McKerchar, T.L., & Lemley, S.M. (2016). Automating scoring of delay discounting for the 21 and 27 item monetary choice questionnaires. *The Behavior Analyst, 39*(2), 293-304. https://doi.org/10.1007/s40614-016-0070-9.

Kenney, M. (2016). *A historical analysis: Critical interpretation, and contemporary application of the virtue of temperance.* (Doctoral dissertation, Durham University). Retrieved from: http://etheses.dur.ac.uk/11736/.

Keough, K.A., Zimbardo, P.G., & Boyd, J.N. (1999). Who's smoking, drinking, and using drugs? Time perspective as a predictor of substance use. *Basic and Applied Social Psychology, 21*,149-164.

Kirby, K. (1997). Bidding on the future: Evidence against normative discounting of delayed rewards. *Journal of Experimental Psychology: General, 126*(1), 54-70. http://dx.doi.org/10.1037/0096-3445.126.1.4.

Kirby, K. N. (2009). One-year temporal stability of delay-discount rates. *Psychonomic Bulletin & Review, 16*(3), 457-462. doi:10.3758/PBR.16.3.457.

Kirby, K. N., & Finch, J. (2008). *The hierarchical structure of self-reported impulsivity in a college-age population*. (Unpublished Manuscript).

Kirby, K. N., & Maraković, N. N. (1995). Modeling myopic decisions: Evidence for hyperbolic delay-discounting within-subjects and amounts. *Organizational Behavior and Human Decision Processes, 64*(1), 22-30.

Kirby, K. N., & Maraković, N. N. (1996). Delay-discounting probabilistic rewards: Rates decrease as amounts increase. *Psychonomic Bulletin & Review*, *3*(1), 100-104. Retrieved from https://doi.org/10.3758/BF03210748.

Kirby, K. N., & Petry, N. M. (2004), Heroin and cocaine abusers have higher discount rates for delayed rewards than alcoholics or non-drug-using controls. *Addiction, 99*, 461-471. doi:10.1111/j.1360-0443.2003.00669.x

Kirby, K. N., Godoy, R., Reyes-Garcıa, V., Byron, E., Apaza, L., Leonard, W., ... & Wilkie, D. (2002). Correlates of delay-discount rates: Evidence from Tsimane' Amerindians of the Bolivian rain forest. *Journal of Economic Psychology*, *23*(3), 291-316.

Kirby, K. N., Petry, N. M., & Bickel, W. K. (1999). Heroin addicts have higher discount rates for delayed rewards than non-drug-using controls. *Journal of Experimental Psychology: General*, *128*(1), 78-87. doi:10.1037/0096-3445.

Kirby, K.N., Winston, G.C., & Santiesteban, M. (2005). Impatience and grades: Delay-discount rates correlate negatively with college GPA. *Learning & Individual Differences, 15*(3), 213-222.

Lay, C. H., & Schouwenburg, H. C. (1993). Trait procrastination, time management. *Journal of Social Behavior and personality*, *8*(4), 647-662. Retrieved from https://www.researchgate.net/profile/Clarry_Lay/publication/209836122_.

Lazarus, R. S., & Folkman, S. (1984). *Stress, appraisal, and coping*. Springer Publishing Company.

Levin, K. A. (2006). Study design III: Cross-sectional studies. *Evidence-based dentistry, 7*(1), 24-25. doi:10.1038/sj.ebd.6400375.

Levinson, D. R., & General, I. (2008). Adverse events in hospitals: Case study of incidence among Mare beneficiaries in two selected counties. *U.S. Department of Health and Human Services, Office of the Inspector General*. Retrieved from https://oig.hhs.gov/oei/reports/OEI-06-08-00220.pdf.

Losina, E., Smith, S. R., Usiskin, I. M., Klara, K. M., Michl, G. L., Deshpande, B. R., ... & Katz, J. N. (2017). Implementation of a workplace intervention using financial rewards to promote adherence to physical activity guidelines: A feasibility study. *British Medical Journal, Public Health, 17*(1), 921.

Macan, T. H., Shahani, C., Dipboye, R. L., & Phillips, A. P. (1990). College students' time management: Correlations with academic performance and stress. *Journal of Educational Psychology*, *82*(4), 760. Retrieved from https://www.researchgate.net/profile/Robert_Dipboye/publication/209836182_.

Madden, G.J., Petry, N.M., Badger, G.J., & Bickel, W.K. (1997). Impulsive and self-control choices in opioid-dependent patients and non-drug-using control participants: Drug and monetary rewards. *Experimental and Clinical Psychopharmacology, 5*(3), 256-262.

Maslow, A. (2012). A theory of human motivation. *Psychological Review, 50*(4), 370-396.

McLeod, S. A. (2016). Maslow's hierarchy of needs. *Simply Psychology*, pp. 1-16. Retrieved from www.simplypsychology.org/maslow.html.

Mantzios, M. (2014). Exploring the relationship between worry and impulsivity in military recruits: The role of mindfulness and self-compassion as potential mediators. *Stress and Health*, *30*(5), 397-404. Retrieved from https://www.tandfonline.com/doi/full/10.1080/1068316X.2016.1181175.

Mazur, J. E. (1987). An adjusting procedure for studying delayed reinforcement. Commons, M.L., Mazur, J.E., & Rachlin, H. (eds.) *Quantitative analysis of behavior: The effects of delay and of intervening events on reinforcement value*. Earlbaum.

Mazur J.E. (2006). Mathematical models and the experimental analysis of behavior. *Journal of the Experimental Analysis of Behavior. 85*(2), 275–291. Retrieved from: https://onlinelibrary.wiley.com/doi/epdf/10.1901/jeab.2006.65-05.

Mee, S. (2014) Is Distance Education the Answer to the Nursing Shortage? *Open Journal of Nursing*, *4*(3), 158-162. http://dx.doi.org/10.4236/ojn.2014.43020.

Metzner, B., & Bean, S. (1987). The estimation of a conceptual model of nontraditional undergraduate student attrition. *Research in Higher Education, 27*(1), 15-38. doi: 10.1007/BF00992303.

Mischel, W., & Ayduk, O. (2004). Willpower in a cognitive-affective processing system: The dynamics of delay of gratification. In R.F. Baumeister and K.D. Vohs (eds.). *Handbook of self-regulation. Research, theory, and application.* (pp. 99-129). The Guildford Press. Retrieved from: https://www.ocf.berkeley.edu/~rascl/assets/files/mischel_ayduk_2004_handbook.pdf.

Mischel, W., & Ebbesen, E. B. (1970). Attention in delay of gratification. *Journal of Personality and Social Psychology, 16* (2), 329-337. doi:10.1037/h0029815.

Mischel, W., & Grusec, J. (1967). Waiting for rewards and punishments: Effects of time and probability on choice. *Journal of Personality and Social Psychology*, *5*(1), 24-31.

Mischel, W., & Underwood, B. (1974). Instrumental Ideation in delay of gratification. *Child Development*, *45*(4), 1083-1088. doi: 10.1111/1467-8624.ep12117018.

Mischel, W., Shoda, Y., & Peak, P. (1988). The Nature of Adolescent Competencies Predicted by Preschool Delay of Gratification. *Journal of Personality and Social Psychology,* 54(4), 687-696. Retrieved from: https://bingschool.stanford.edu/sites/g/files/sbiybj10941/f/publications/108-jpsp_1988.pdf.

Mischel, W., Shoda, Y., & Rodriguez, M. (1989). delay of gratification in children. *Science*, *244*(4907), 933-938. Retrieved from http://www.jstor.org.lynx.lib.usm.edu/stable/1704494.

Moeller, G., Barratt, E., Dougherty, D., Schmitz, J., & Swann, A. (2001). Psychiatric aspects of impulsivity. *American Journal of Psychiatry*, *158*(11), 1783-1793.

Moeller, F., Dougherty, D., Barratt, E., Swann, A., Hanis, C., & Bjork, J. (2001). Impulsivity: Is it a genetic disorder? *Biological Psychiatry*, *49*(8), 68S.

Monroe, T. B., Kenaga, H., Dietrich, M. S., Carter, M. A., & Cowan, R. L. (2013). The prevalence of employed nurses identified or enrolled in substance use monitoring programs. *Nursing Research, 62*(1), 10-12. Retrieved from https://doi.org/10.1097/NNR.0b013e31826ba3ca.

Morone, N. E., & Weiner, D. K. (2013). Pain as the fifth vital sign: Exposing the vital need for pain education. *Clinical therapeutics, 35*(11), 1728–1732. doi:10.1016/j.clinthera.2013.10.001.

Myerson, J., Baumann, A.A., & Green, L. (2014). Discounting of delayed rewards: (A) theoretical interpretation of the Kirby questionnaire. *Behavioral Processes, 107*(5), 99-105. doi: 10.1016/j.beproc.2014.07.021.

Myerson, J., Green, L., & Warusawitharana, M. (2001). Area under the curve as a measure of discounting. *Journal of the Experimental Analysis of Behavior, 76*(2), 235-43. Doi: https://dx.doi.org/10.1901%2Fjeab.2001.76-235Mazur, J. E. (1987). An adjusting procedure for studying delayed reinforcement.

National Council of State Boards of Nursing (NCSBN). (2014). *What you need to know about substance use disorder in nursing*. Retrieved from https://www.ncsbn.org/SUD_Brochure_2014.pdf.

Neuman, J. H., & Baron, R. A. (1998). Workplace violence and workplace aggression: Evidence concerning specific forms, potential causes, and preferred targets. *Journal of Management, 24*(3), 391-419.

Nursing and Midwifery Council (NWC). (2015). The code: The professional standards of practice and behavior for nurses, midwives, and nursing associates. Retrieved from https://www.nmc.org.uk/standards/code/.

O'Donoghue, T., & Rabin, M. (2000). The economics of immediate gratification. *Journal of Behavioral Decision Making, 13*(2), 233-250. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3696722/.

Odum, A. (2011). Delay discounting: Trait variable. *Behavioural Processes, 87*(1), 1–9. Retrieved from: https://www.ncbi.nlm.nih.gov/pubmed/21385637.

Odum A.L., & Rainaud, C.P. (2003). Discounting of delayed hypothetical money, alcohol, and food. *Behavioural Processes, 64*(3), 305-313. doi: 10.1016/S0376-6357(03)00145-1.

Odum, A.L., Baumann, A.A., & Rimington, D.D. (2006). Discounting of delayed hypothetical money and food: Effects of amount. *Behavioural Processes, 73*(3), 278-284. doi: 10.1016/j.beproc.2006.06.008.

Oliveira, L., Green, L., & Myerson, J. (2014). Pigeons' delay discounting functions established using a concurrent-chains procedure. *Journal of the Experimental Analysis of Behavior, 102*(2), 151-161. doi: 10.1002/jeab.97

Palumbo, M. V., McIntosh, B., Rambur, B., & Naud, S. (2009). Retaining an aging nurse workforce: Perceptions of human resource practices. *Nursing Economics, 27*(4), 221-232. Retrieved from https://www.researchgate.net/profile/Mary_Val_Palumbo/publication/26811846_

Parrott, A. C. (1995). Stress modulation over the day in cigarette smokers. *Addiction, 90*(2), 233-244. Retrieved from https://www.ncbi.nlm.nih.gov/pubmed/7703817

Payne, B., & Cikovic, R. (1995). An empirical examination of the characteristics, causes, and consequences of elder abuse in nursing homes. *Journal of Elder Abuse and Neglect 7*(4), 61-74.

Payne, B. K., & Gainey, R. R. (2006). The criminal justice response to elder abuse in nursing homes: a routine activities perspective. *Western Criminology Review, 7*(3), 67-81.

Pedersen, B. K. (2006). The anti-inflammatory effect of exercise: Its role in diabetes and cardiovascular disease control. *Essays in Biochemistry, 42*, 105-117.

Perkins, F. N., & Freeman, K. B. (2017). Pharmacotherapies for decreasing maladaptive choice in drug addiction: Targeting the behavior and the drug. *Pharmacology, Biochemistry, and Behavior, 164*, 40–49. doi:10.1016/j.pbb.2017.06.015.

Pillemer, K., & Bachman-Prehn, R. (1991). Helping and hurting: Predictors of maltreatment of patients in nursing homes. *Research on Aging, 13*(1), 74-95.

Pillemer, K., & Moore, D. W. (1989). Abuse of patients in nursing homes: Findings from a survey of staff. *The Gerontologist*, *29*(3), 314-320.

Pillemer, K., & Moore, D. W. (1990). Highlights from a study of abuse of patients in nursing homes. *Journal of Elder Abuse & Neglect*, *2*(2), 5-30.

Polit, D. F., & Beck, C. T. (2012). Planning a nursing study. In Surrena & Jordan (9th Eds.), *Nursing Research: Generating and assessing evidence for nursing practice* (pp. 174-199). Lippincott Williams, & Williams.

Pontes, Manuel C. F., Hasit, Cindi, Pontes, Nancy M. H., Lewis, Phillip A., & Siefring, Karen T. (2010). Variables Related to Undergraduate Students Preference for Distance Education Classes. *Online Journal of Distance Learning Administration, 13*(2).

Rachlin, H., Raineri, A., & Cross, D. (1991). Subjective probability and delay. *Journal of the Experimental Analysis of Behavior*, *55*(2), 233-244. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1323057/pdf/jeabehav00017-0103.pdf/.

Read, D., Frederick, S., Orsel, B., & Rahman, J. (2005). Four score and seven years from now: The date/delay effect in temporal discounting. *Management Science, 51*(9), 1326-1335. doi: 10.1287/mnsc.1050.0412.

Reynolds, B., & Schiffbauer, R. M. (2004). Impulsive choice and workplace safety: A new area of inquiry for research in occupational settings. *The Behavior Analyst, 27*(2), 239-246. doi:10.1007/bf03393183.

Reynolds, B. (2006). A review of delay-discounting research with humans: Relations to drug use and gambling. *Behavioural Pharmacology, 17*(8), 651-667. doi: 10.1097/FBP.0b013e3280115f99

Rich, K.L. (2020). Introduction to bioethics and ethical decision making. In J.B. Butts & K.L. Rich, *Nursing ethics across the curriculum and into practice* (5th ed.) (pp. 27 - 58). Jones & Bartlett Learning.

Richards, J. B., Mitchell, S. H., de Wit, H., & Seiden, L. S. (1997). Determination of discount functions in rats with an adjusting-amount procedure. *Journal of the Experimental Analysis of Behavior, 67*(3), 353-366. Retrieved from http://doi.org/10.1901/jeab.1997.67-353.

Rosenstein, A. H. (2002). Nurse-physician relationships: Impact on nurse satisfaction and retention. *The American Journal of Nursing, 102*(6), 26-34. doi: 10.1097/00000446-200206000-00040.

Rosseter, R. (2015). Nursing faculty shortage fact sheet. *American Association of Colleges of Nursing [AACN]*. Retrieved from http://www.aacnnursing.org/portals/42/news/factsheets/faculty-shortage-factsheet-2017.pdf.

Rowe, M., & Sherlock H. (2005). Stress and verbal abuse in nursing: Do burned-out nurses eat their young? *Journal of Nursing Management, 1*(3), 242–248. doi: 10.1111/j.1365-2834.2004.00533.x.

Rudd, R.A., Seth, P., David, F., & Scholl, L. (2016). Increases in drug and opioid-involved overdose deaths—United States, 2010–2015. *Morbidity and Mortality Weekly Report*, *65*, 1445–1452. Retrieved from https://www.cdc.gov/mmwr/volumes/65/wr/mm655051e1.htm?utm_campaign=colorado.ourcommunitynow.com%20website&utm_sourc.

Said, N. B. (2014). Time management in nursing work. *International Journal of Caring Sciences, 7*(3), 746-749. Retrieved from https://staff.najah.edu/media/sites/default/files/Time_Management_in_Nursing_Work-Nizar_Said.pdf

Sauter, S., Murphy, L., Colligan, M., Swanson, N., Hurrell, J. Jr., Scharf, F. Jr. (1999). *Stress at work* (DHHS Publication No. 99-101). National Institute for Occupational Safety and Health. Retrieved from http://www.cdc.gov/niosh/jobstres.html).

Schiamberg, L.B., Oehmke, J., Zhang, Z., Barboza, Griffore, G.E., Von Heydrich, L., Post, L.A., Weatherill, R.P., & Mastin, T. (2012): Physical abuse of older adults in nursing homes: A random sample survey of adults with an elderly family member in a nursing home, *Journal of Elder Abuse & Neglect*, *24*(1), 65-83. Retrieved from http://dx.doi.org/10.1080/08946566.2011.608056.

Shafaghat, T., Rahimi Zarchi, M. K., & Kavosi, Z. (2018). Occupational stress and how to confront it: A case study of a hospital in Shiraz. *Hospital Practices and Research*, *3*(2), 64-68.

Schlam, T., Wilson, N., Shoda, Y., Mischel, W., & Ayduk, O. (2013). Preschoolers' delay of gratification predicts their body mass 30 years later. *The Journal of Pediatrics*, *162*(1), 90-93. doi: https://doi.org/10.1016/j.jpeds.2012.06.049

Stanford, M. S., Helfritz, L. E., Conklin, S. M., Villemarette-Pittman, N. R., Greve, K. W., Adams, D., & Houston, R. J. (2005). A Comparison of Anticonvulsants in the Treatment of Impulsive Aggression. *Experimental and Clinical Psychopharmacology, 13*(1), 72-77. Retrieved from http://dx.doi.org/10.1037/1064-1297.13.1.72

Stein, K. B., Sarbin, T. R., & Kulik, J. A. (1968). Future time perspective: Its relation to the socialization process and delinquency. *Journal of Consulting and Clinical Psychology, 32*(3), 257-264.

Shafe, S., Gilder, D. A., Montane-Jaime, L. K., Josephs, R., Moore, S., Crooks, H., … Ehler, C. L. (2009). Co-morbidity of alcohol dependence and select affective and anxiety disorders among individuals of East Indian and African ancestry in Trinidad and Tobago. *The West Indian Medical Journal, 58*(2), 164-172.

Sheppard, P., Garcia, J. R., & Sear, R. (2014). A not-so-grim tale: How childhood family structure influences reproductive and risk-taking outcomes in a historical US population. *PloS one, 9*(3), e89539. Retrieved from https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0089539

Shoda, Y., Mischel, W., & Peake, P. (1990). Predicting adolescent cognitive and self-regulatory competencies from preschool delay of gratification: Identifying diagnostic conditions. *Developmental Psychology, 26*(6), 978-986. doi:10.1037/0012-1649.26.6.978 1989.

Schlam, T. R., Wilson, N. L., Shoda, Y., Mischel, W., & Ayduk, O. (2013). Preschoolers' delay of gratification predicts their body mass 30 years later**.** *The Journal of Pediatrics. 162,* 90–93. doi:10.1016/j.jpeds.2012.06.049.

Socialization. (2019). In Merriam-Webster's online dictionary (unabridged ed). Retrieved from https://www.merriam-webster.com/dictionary/socialization.

Straus, M. A. (1962). Deferred gratification, social class, and the achievement syndrome. *American Sociological Review, 27*(3), 326-335. Retrieved from http://www.jstor.org/stable/2089794.

Ströhle, A. (2009). Physical activity, exercise, depression and anxiety disorders. *Journal of Neural Transmission*, *116*(6), 777-784,

Sweitzer, M. M., Halder, I., Flory, J. D., Craig, A. E., Gianaros, P. J., Ferrell, R. E., & Manuck, S. B. (2012). Polymorphic variation in the dopamine D4 receptor predicts delay discounting as a function of childhood socioeconomic status: Evidence for differential susceptibility. *Social Cognitive and Affective Neuroscience*, *8*(5), 499-508. Retrieved from https://academic.oup.com/scan/article/8/5/499/1673554.

Tangney, J.P., Baumeister, R.F., & Boone, A.L(2004). High self-control predicts good adjustment, less pathology, better grades, and interpersonal success. *Journal of Personality*, *72*(2), 271-324. doi:10.1111/j.0022-3506.2004.00263x.

Taylor, S., White, B., & Muncer, S. (1999). Nurses' cognitive structural models of work-based stress. *Journal of Advanced Nursing, 29*(4), 974-983. Retrieved from https://pdfs.semanticscholar.org/8493/894a132a6307bf8136fba8a9991a46471df8.pdf.

Tinto, V. (1975). Dropout from higher education: A theoretical synthesis of recent research. *Review of Educational Research, 45*(1), 89–125. https://doi.org/10.3102/00346543045001089.

Tice, D.M., & Baumeister, R. F. (1997). Longitudinal study of procrastination, performance, stress, and health: the costs and benefits of dawdling. *Psychological Science (0956-7976), 8*(6), 454-458.

Torpey, E. (2018). Employment outlook for bachelor's level occupation. *Career Outlook.* U.S. Bureau of Labor Statistics. Retrieved from https://www.bls.gov/careeroutlook/2018/article/bachelors-degree-outlook.htm#Healthcare%20and%20science.

Tubbs-Cooley, H., Cimiotti, J., & Silber, J., Sloane, D., & Aiken, L. (2013). An observational study of nurse staffing ratios and hospital readmission among children admitted for common conditions. *British Medical Journal Quality and Safety, 22***,** 735-742.

Tversky, A., & Kahneman, D. (1981). The framing of decisions and the psychology of choice. *Science, 211*(4481), 453–458. doi: 10.1126/science.7455683.

Twain, D. (1957). Factor analysis of a particular aspect of behavioral control: Impulsivity. *Journal of Clinical Psychology, 13*(2), 133-136. doi: 10.1002/1097-4679(195704) 13:2<133.

U.S. Bureau of Labor Statistics (2018. U.S. Department of Labor. Injuries, illness, and fatalities. Received from https://www.bls.gov/iif/home.htm.

U.S. Department of Education (USDE). National Center for Educational Statistics. (2018). *Who is nontraditional?* Retrieved from https://nces.ed.gov/pubs/web/97578e.asp.

U.S. Department of Education (USDE), National Center for Educational Statistics. (2002). *The Condition of Education 2002* (NCES 2002–2025). U.S. Government Printing Office. Retrieved from https://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2002025.

U.S. Department of Health and Human Services (USHHS), National Institute for Occupational Safety and Health. (2002). *The Changing Organization of Work and the Safety and Health of Working People.* Retrieved from https://www.cdc.gov/niosh/docs/2002-116/.

U.S. Department of Health and Human Services (USHHS), National Institute of Occupational Safety and Health. (2014). *Stress at Work*. Retrieved from https://www.cdc.gov/niosh/docs/99-101/pdfs/99-101.pdf?id=10.26616/NIOSHPUB99101.

U.S. Department of Health and Human Services (USHHS), National Institute for Occupational Safety and Health. (2018). *Data and statistics*. Retrieved from https://www.cdc.gov/niosh/injury/data.html.

Villaume, K., & Hasson, D. (2017). Employee health-relevant personality traits are associated with the psychosocial work environment and leadership. *International Journal of Occupational and Environmental Health*, *23*(1), 25-39.

Vivolo-Kantor, A. M., Seth, P., Gladden, R. M., Mattson, C. L., Baldwin, G. T., Kite-Powell, A., & Coletta, M. A. (2018). Vital signs: Trends in emergency department visits for suspected opioid overdoses - United States, July 2016-September 2017. *MMWR. Morbidity and Mortality Weekly Report*, *67*(9), 279–285. doi:10.15585/mmwr.mm6709e1.

Volpp, K. G., Asch, D. A., Galvin, R., & Loewenstein, G. (2011). Redesigning employee health incentives—lessons from behavioral economics. *New England Journal of Medicine*, *365*(5), 388-390. Retrieved from https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3696722/.

Vuchinich, R. E., & Simpson, C. A. (1998). Hyperbolic temporal discounting in social drinkers and problem drinkers. *Experimental and Clinical Psychopharmacology, 6*(3), 292-305. Retrieved from http://dx.doi.org/10.1037/1064-1297.6.3.292.

Wainwright, V., McDonnell, S., Lennox, C., Shaw, J., & Senior, J. (2016). Soldier, civilian, criminal: Identifying pathways to offending of ex-armed forces personnel in prison. *Psychology, Crime & Law*, *22*(8), 741-757. Retrieved from https://www.tandfonline.com/doi/full/10.1080/1068316X.2016.1181175.

Walls, R., & Smith, T. (1970). Development of preference for delayed reinforcement =99indisadvantaged children. *Journal of Educational Psychology, 61*, 118-123.

Watts, T.W., Duncan, G.J., & Quan, H. (2018). Revisiting the marshmallow test: A conceptual replication investigating links between early delay of gratification and later outcomes. *Psychological Science, 29(7)*,1159-1177. doi.org/10.1177/0956797618761661.

Wu, Y., Fujita, S., Seto, K., Ito, S., Matsumoto, K., Huang, C. C., & Hasegawa, T. (2013). The impact of nurse working hours on patient safety culture: A cross-national survey including Japan, the United States and Chinese Taiwan using the Hospital Survey on Patient Safety Culture. *Boston Medical Center Health Services Research*, *13*(1), 394. doi:10.1186/1472-6963-13-394.

Zhang, Z. (2016). Univariate description and bivariate statistical inference: The first step delving into data. *Annals of Translational Medicine*, *4*(5), 91. doi:10.21037/atm.2016.02.11.