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WELLNESS AND KARATE

A Dissertation

Submitted to the School of Education

Duquesne University

In partial fulfillment of the requirements for
the degree of Doctor of Philosophy

By

Cristina I. Rivera-Kumpf

August 2018

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Cristina I. Rivera-Kumpf

2018

**DUQUESNE UNIVERSITY
SCHOOL OF EDUCATION
Department of Counseling, Psychology and Special Education**

Dissertation

Submitted in Partial Fulfillment of the Requirements
For the Degree of Doctor of Philosophy (Ph.D.)

Executive Counselor Education and Supervision Program

Presented by:

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May 3, 2018

WELLNESS AND KARATE

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ABSTRACT

WELLNESS AND KARATE

By

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August 2018

Dissertation supervised by William J. Casile

The promotion of wellness is an integral part of the counseling field and is considered to be a central focus to the counseling process (Barden, Conley, & Young, 2015; Myers, 1992). The counseling profession adopted the concept of wellness because it harmonizes with many of the founding principles of the ACA and is seen as a process of questing toward optimal health and well-being in body, mind, and spirit (Barden, Conley, & Young, 2015; Myers, 1992; Myers, Sweeney, & Witmer, 2000). Additionally, *ACA Code of Ethics* (2014) state that counselors “engage in self-care activities to maintain and promote their own emotional, physical, and mental well-being to best meet their professional responsibilities” (Section C). As such, it becomes essential that counselors continue to examine efficacious methods and disciplines that support a wellness-oriented approach.

This study examines karate through *Hettler's Six Dimension of Wellness* model (National Wellness Institute, 2016), in an effort to provide findings that support existing literature about the positive impact of karate practice and how it can be used as a psychotherapeutic tool for counselors and other mental health professionals. The findings of this study suggest that karate does not improve wellness as defined by the Six Dimensions of Wellness model. Additional research initiatives and empirical studies on karate and personal wellness are needed to develop a comprehensive understanding of this phenomenon or additional research. This study discusses the implication for practice and provides specific insights on the findings and provides recommendations for future research.

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Thirdly, I would like to thank my family. My parents who instilled in me the value in hard work and the importance of reaching one's potential. Kevin, my husband, who acted as my bedrock during the final phases of this academic journey. Your words of encouragement and loving support were pivotal in the completion of my dissertation. Thank you for hanging in there with me until the end— I love you!

Finally, my daughter, Arianna, who is now 9-years-old but was a baby when I began the program. I dedicate this dissertation to you. My message to you: “Remain resoundingly intentional, aware, discerning, compassionate, and steadfast in all of what you do, who you are and how you are to others. When this is done in partnership with spirit and soul, you will blossom in your ability to be of service to all things with the type of love that transcends even the greatest obstacles—love you completely!”

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CHAPTER I

INTRODUCTION

Discovering ways to enhance the capacity to live healthier and longer has been an ongoing quest for many in the health related professions. This search to understand and facilitate wellness for patients, clients, and people in general has benefitted from advancements in technology, research, and healthcare, which has revealed the link between mental and physical wellness (Kaut & Dickinson, 2007). For example, according to the Centers for Disease Control and Prevention (2016b), those suffering from chronic ailments, such as asthma, obesity, diabetes, and heart disease are at a greater risk of developing depression and anxiety. Since chronic diseases account for most deaths in the United States and globally (CDC, 2016a), mental health professionals have endeavored to discover accessible and feasible ways that promote wellness for both clients and the professionals who treat them.

The efforts of behavioral health professionals through both the practice of providing mental health services and research have enabled social workers, psychologists, and counselors to begin to identify efficacious means of facilitating wellness. For instance, McGarrigle and Walsh (2011) conducted a multimethod study focused on acquiring information for how to help promote wellness for human service workers. After an eight-week investigation they discovered that contemplative practices, such as mindfulness, significantly decreased stress levels for social workers. Similarly, psychologists have also proposed methods for encouraging the use of wellness strategies. El-Ghoroury, Galper, Sawaqdeh, and Bufka (2012) analyzed the leading barriers to using wellness activities among psychology graduate students. Their investigation highlighted

strategies for instituting wellness practices that could aid in stress reduction for psychology graduate students. They also indicated that contemplative practices, such as engaging in a therapeutic process, would mitigate stress levels and encourage wellness.

Like social workers and psychologists, those within the counseling profession have also sought to discover methods for facilitating wellness. Counselors adopted the idea of wellness in the 1970s because the concept harmonized with several of the core principles of the American Counseling Association (Barden, Conley, & Young, 2015). The growing body of literature from advances in biomedical science, pharmacology, and neuroscience, healthcare, and related fields regarding factors related to the promotion of wellbeing has prompted the counseling profession to integrate this information and competency development into the preparation and practice of professional counselors (Barden et al., 2015; Kaut & Dickinson, 2007). As a result, the investigatory work continues to examine the most efficacious means to teach and integrate wellness knowledge and practice within the field of counseling (Barden et al., 2015).

Although counseling embraced the wellness philosophy more than four decades ago, the concept of wellness was first introduced in the early 1900s when John Harvey Kellogg introduced the notion that one's state of mind contributed to one's overall state of health (Miller, 2005). For over 100 years, healthcare providers, and other related professionals have sought to answer the question: "What is wellness?" (Dunn, 1959a; Miller, 2005). While answers to this question continue to vary, wellness is a concept and a movement that continues to evolve through the efforts and contributions from a variety of professions and perspectives. As such, there exists a broad array of definitions and conceptualizations of wellness. Thus, the current interpretation of wellness is the product

of a complex formation process that began in the 18th century with the intellectual and religious movements of that time (Miller, 2005).

Phineas Quimby was one of the forerunners in this movement. In battling with tuberculosis, Quimby experimented in non-traditional means of healing. Through this experience he concluded that disease was best treated, not by conventional medicine, but rather through an alteration of attitude (Miller, 2005). In the early 1900s while following in Quimby's footsteps, Dr. William James, a Harvard professor and physician, developed the *mind-cure movement* (Miller, 2005). During his tenure, James proposed an alternative approach to medicine, challenging the illness-based medical models that were being utilized at that time (Myers, Sweeney, & Witmer, 2000). He was instrumental in propagating the notion that an individual's source of physical health is obtained through one's mental and spiritual state of being (Duclow 2002; Miller, 2005). Quimby and James were pioneers in advocating for a paradigm shift from illness-based medicine to a holistic approach to health.

Another notable contributor to the development of the concept of wellness was Dr. Halbert Louis Dunn (Ardell, 1985; Miller, 2005). He was a retired public health service physician who, in the 1950s, first used the term wellness while writing articles about an idea he called *high level wellness* (Ardell, 1985; Miller, 2005). According to Dunn (1959a), *high-level wellness* is only obtained when an individual's physical, mental, and spiritual facets work in unison. It is in the harmonious interplay among these three areas that advanced wellness can be obtained (Ardell, 1985; Dunn, 1959b; Miller, 2005). Another component of Dunn's wellness concept involved the interrelatedness of energy fields (Dunn, 1959b, 1961; Miller, 2005). These energetic domains included

social, personality, and magnetic fields that reside within each person and make it possible for an individual to obtain high-level wellness (Dunn, 1959; 1961; Miller, 2005). Dunn's convictions and findings were philosophical, theoretical, and esoteric in nature. His theories concerning wellness provided a system of ideas that was foundational for the development of several holistic models of wellness.

Building on the work of Dunn, several others have surfed the wellness movement wave and developed various versions of wellness models. For instance, in 1972, John Travis proposed the Illness-Wellness Continuum. He believed that conventional approaches to medicine were insufficient. Accordingly, Travis (1977) asserted that wellness was not just an absence of illness or disease but rather a dynamic process that moves along a continuum (Miller, 2005; Travis, 1975). He also emphasized individual responsibility in one's acquisition of wellness. Similarly, Ardell (1985) advocated for self-responsibility stating, "ask not what your doctor can do for you; ask what you can do for yourself" (Ardell, 1979a, p. 102). He developed the Five Dimensions of High Level Wellness, which in addition to self-responsibility included nutritional awareness, stress management, physical fitness, and environmental sensitivity (Ardell, 1977). Ardell (1985) claimed that wellness is a process by which individuals remain mindful and intentional on their choices to minister their physical, psychological, and spiritual health. He was instrumental in presenting this concept of wellness to the public at large through the publication of his book titled, *High level wellness: An alternative to doctors, drugs, and disease* (Ardell, 1977; Miller, 2005). Through Ardell, Dunn, and Travis' pioneering efforts in the wellness movement, other models have been proposed as a means of further understanding how wellness can be obtained. Two examples of these include the Wheel

of Wellness (Myers et al., 2000) and EcoWellness (Reese & Myers, 2012). However, one of the most recognized and frequently cited models within the academic health community is Bill Hettler's *Six Dimensions of Wellness Model* (Bezner, 2015; Miller, 2005).

Hettler continues to be a driving force in the promotion of wellness and has been a pioneer within this movement since the early 1970s (Hettler, 1998; Hettler & Hardie, 2015; Miller, 2005). In 1975, he co-founded the National Wellness Institute that annually hosts the National Wellness Conference, which is the most highly acclaimed professional conference in health and wellness (National Wellness Institute, 2016). Hettler and Hardie (2015) claimed that as he learned more about medicine he recognized that much of what caused illness were behaviors that “had no chance of being solved by writing a prescription” (Hettler & Hardie, 2015, p. 3). Instead, he believed in a preventative approach by asserting that if you teach people to make conscious and deliberate choices regarding their health, diseases would cease to be an issue (Hettler & Hardie, 2015). Accordingly, Hettler and Hardie (2015) developed a multidimensional model, the *Six Dimensions of Wellness*, which emphasized the idea of whole-person wellness (Hettler & Hardie, 2015; National Wellness Institute, 2016).

The application of the *Six Dimensions of Wellness* model assumes that individuals will develop an expansive understanding of living healthy by becoming aware of the interconnectedness within the following dimensions: occupational, physical, social, intellectual, spiritual, and emotional (National Wellness Institute, 2016). Within each dimension, Hettler and Hardie (2015) identified tenets that act as philosophical guides, which facilitate the procurement of optimal living. For example, the social dimension of

the wellness model states that it is better for individuals to live in harmony with others and the environment than to live in conflict (National Wellness Institute, 2016). The occupational aspect of the model stresses the importance of choosing a career that is aligned with one's personal values, interest, and beliefs. To be spiritually aligned with Hettler's model individuals' behaviors must remain consistent with their values and beliefs, and they must feel true to themselves. The intellectual and emotional dimensions of the model encourage individuals to engage in pursuits that expand their minds and promote their awareness of feelings (National Wellness Institute, 2016). Physical health, the sixth dimension in Hettler's wellness model, highlights the importance of good exercise and making healthy nutritional choices (National Wellness Institute, 2016).

Hettler's model, as well as the aforementioned approaches to wellness by Dunn, Travis, and Ardell, emphasizes an integrative, multidimensional approach for obtaining holistic health. Specifically, they defined wellness as a conscious and deliberate process that unifies the physical, psychological, and spiritual dimensions of an individual. Their efforts have been the impetus for mental health professionals to begin examining how various disciplines, such as yoga (Sisk & Fonteyn, 2016), Pilates (Pilates, Robbins, & Heuit-Robbins, 2012), Tai Chi (Solloway et al., 2016), and other forms of martial arts, help to facilitate wellness through the activation and integration of behaviors consistent with tenets of various wellness models. For instance, yoga, a Hindu spiritual and ascetic discipline, has been found to reduce stress in school-aged girls and decrease aggression among adolescents (Saraf, 2016; L. S. White, 2012) through the integration of the Eight Limbs of Yoga, which focus on individual's behavior, posturing, breathing, sensory

inhibition, concentration, and meditation. It has existed for over 5,000 years and continues to be a practice in the United States and globally (Sisk & Fonteyn, 2016).

Pilates is another discipline that is practiced worldwide, especially in western countries. Although this practice is relatively new, recent research findings indicated that it has a positive impact on the health outcomes for breast cancer rehabilitation, physical fitness in seniors, and reduction in pain for those with scoliosis (Mazzarino, Kerr, Wajswelner, & Morris, 2015). Joseph Pilates, a German physical fitness specialist, devised this system, which is a set of principles and procedures designed to improve physical strength and flexibility and heighten mental awareness (Pilates et al., 2012). His teachings emphasized the importance of establishing and sustaining a sound mind and body, stating, “neither the mind nor the body is supreme—that one cannot be subordinated to the other” (Pilates et al., 2012, p. 56). Since Pilates is considered appropriate for all ages and has been used in the treatment of multiple conditions, such as rheumatic diseases, cerebral palsy, and heart disease (Francisco, Fagundes, & Gorges, 2015), it continues to be recognized as an efficacious means for facilitating a holistic approach to wellness.

Another discipline that has gained recognition within the wellness movement is Tai Chi. Tai Chi is an ancient practice where the movements were originally procured from watching animals and birds (Cheng & Smith, 1967; Lan et al., 2002; Taylor-Piliae, Haskell, Waters, & Froelicher, 2006). It involves a series of smooth and continuous motions that work to evoke a mind-body connection (Taylor-Piliae et al., 2006; Lee, Lee, & Woo, 2010; La Forge, 1997). This form of Chinese martial arts has been applied in diverse clinical investigations and has yielded promising results. Specifically, Solloway

et al. (2016) conducted a systematic review of several research studies and discovered that a significant number of the participants experienced a reduction in blood pressure and improvements on executive functioning in the cognitive health of adults. Tai Chi has especially become popular among older adults and has proven to be effective in improving range of motion and mood (Y. T. Wang et al., 2016; Wu, MacDonald, & Pescatello, 2016). This discipline continues to be an area of interest within the health and wellness community.

Because of the positive outcomes from the research regarding the relationship between Tai Chi and wellness, other martial arts are beginning to attract research attention. Although there are about 200 distinct disciplines of martial arts, there has been empirically based research done on Aikido and Judo, two of the more commonly known forms. Wagner's (2015) book, *Aikido: The Trinity of Conflict Transformation*, presents a comprehensive theoretical overview relating aikido principles to various aspects of psychology. He proclaimed that aikido's philosophical underpinnings are relevant to human relationships and in conflict resolution.

Judo is another discipline of martial arts that has received attention within the research community. For instance, Escobar-Molina, Rodriguez-Ruiz, Gutierrez-Garcia, and Franchini (2015) conducted a study to examine judo practitioners' weight loss methods and their relationship with eating disorders. The findings suggested that more attention and educational programs should be directed to young female judo athletes because they were at higher risk for developing maladaptive eating habits. Despite this and the other growing body of literature that legitimizes judo and aikido as practices that cultivate wellness, much less is known about another form of martial arts that has been

around for hundreds of years—karate. It is said that karate was first conceived approximately 1,400 years ago with Bodhidharma (Funakoshi, 2013). Bodhidharma developed a set of aphorisms that described how to obtain enlightenment through cultivating one’s physical and mental self. As a result he gave birth to the way of karate, which was eventually introduced to Okinawans in the late 1500s (Funakoshi, 2013).

Karate is a form of martial arts that focuses on the dynamic use of the entire body. It is considered to be a style of self-defense without the use of weapons and involves repeated sequences of strikes and defenses (Messaoud, 2016; Panczyk & Cynarski, 2006; Seiler & Seiler, 2006; Zago et al., 2015). The forerunners within the wellness movement, such as Hettler, Dunn, Travis, and Ardell, have all encouraged cultivating the synergetic connection of the mind and body. Karate practice is no exception to this philosophical underpinning. According to Bodhidharma, Funakoshi, Masutatsu Oyama, and other forefathers in karate, the discipline enables the unity of the physical, mental, and spiritual facets of ones self (Funakoshi, 2013). Although karate principles align with wellness movement doctrine, more empirical research has yet to be conducted to substantiate and legitimize its practice as an efficacious means of facilitating holistic health, especially one’s mental health.

Much of the literature that exists regarding karate and wellness has been based on first-hand experiences and observations that are not supported by empirical evidence. While other models of wellness may have been applicable for this study, Hettler’s Six Dimensions of Wellness Model (National Wellness Institute, 2016) was ultimately used because it was connected to the existing data set that was used to inform this research study. The investigatory work that has been conducted has revealed that karate has

physiological benefits such as enhancing individuals' balance, motor reactivity, and muscle strength (Zago et al., 2015). Another cited physiological advantage of karate is that it improves brain plasticity, which helps to facilitate new learning. This discovery was reported after Witte, Kropf, Darius, Emmermacher, and Bockelmann (2015) conducted a 5-month study where elderly men and women participated in karate training that resulted in enhanced cognitive functioning. These findings, in terms of wellness, suggest that a person's physical health can improve while engaged in the practice of karate.

Additional literature suggests that karate can affect an individual's affective disposition. In 1995, Weiser, Kutz, Kutz, and Weiser wrote about the psychotherapeutic aspects of martial arts. Their review of the literature revealed that this practice can increase self-esteem, aid in management of aggression, and assist in mood regulation. In a more recent investigation regarding karate and emotional wellness, the findings indicated karate leads to a feeling of self-worth (Jansen & Dahmen-Zimmer, 2012). This discovery was a result of a 16-week study where participants engaged in karate training. While these findings and observations support the notion that karate practice promotes wellness, the limited empirical research creates a gap between this martial arts discipline and holistic health. Additional investigatory work is needed to describe and determine the connections between wellness and karate.

Statement of the Problem

According to the Centers for Disease Control and Prevention (2016b) chronic disease, such as diabetes, obesity, heart disease, and asthma, are the principal cause of suffering, disability, and death. Not only do chronic ailments cause a physiological

disturbance but also those afflicted with a chronic condition are at greater risk for developing mental health issues such as anxiety and depression (CDC, 2016b). Without community resources that help support behaviors that lead to wellness, people will continue to remain at-risk for developing a debilitating physical and/or mental health issue. For this reason, the CDC recommends that communities become informed about strategies and interventions that promote an integrative approach to wellness. This will require that additional research be conducted to identify efficacious and accessible practices that facilitate wellness.

Mental health professionals can contribute to overcoming the dearth of empirical research that presently exists by investigating specific practices that encourage an integrative approach to wellness. There is a growing body of literature that identifies how integrative practices, such as yoga and Pilates, facilitate wellness. This is also true for certain forms of martial arts like Tia Chi, aikido, and judo. However, there exist a limited number of empirically based studies that support how the practice of karate, another type of martial arts discipline, promotes wellness.

The historical and philosophical foundations of karate, along with emerging anecdotal evidence concerning karate, suggest that individuals practicing this form of martial arts can attain mental and physical health (Jansen & Dahmen-Zimmer, 2012; Witte et al., 2015). However, a limited amount of empirically based investigations have been done to examine the efficacy and mechanism behind how karate promotes physical and mental health (Fuller, 1998). The findings of studies conducted in the 1990s revealed that as students progressed in their martial arts training they developed increased confidence, exhibited an improved self-concept, and displayed lower levels of anxiety

and depression (Finkenberg, 1990; Kurian, Caterino, & Kulhavy, 1994; Madden, 1990; Wilkinson, 1996). In spite of the reported benefits that these findings suggest about karate, there is limited number of current studies to support these findings. Therein lies the problem. It is not possible to ascertain the efficacious benefits of karate with limited and dated observations and research. New investigatory analysis needs to occur to determine the viability of karate as an option that promotes wellness.

Purpose of the Study

The purpose of this study is to investigate the impact of regular participation in karate on personal wellness. Specifically, individuals who participate in karate training were asked to report their perceptions of whether or not this martial arts practice affects their overall wellness as seen within Hettler's *Six Dimensions of Wellness Model* (National Wellness Institute, 2016): occupational, physical, social, intellectual, spiritual, and emotional. Acquisition of this information was used to determine whether or not there is a relationship between the individual's participation in karate and reported changes in any of the dimensions of wellness, as defined within Hettler's model. The secondary purpose of this investigation was to determine if there exists a significant difference in the perceptions of how karate influences wellness between those who identify as having a mental health condition and those who do not. This enables the investigator to conduct a comparative analysis to determine if any differences in perceptions of wellness exist between karate practitioners who report a mental health condition and those who do not. Essentially, this study attempts to examine whether or not participants attribute changes to their occupational, physical, social, intellectual, spiritual, and emotional wellness to their participation in karate.

Significance of the Study

It has been estimated that by 2020 depression will be the second leading cause of disability in the United States, and that by 2025, chronic conditions, such as heart disease, asthma, obesity, and diabetes, will affect an estimated 164 million Americans, nearly half of the population (The Relief Work, 2016). Additionally, the Centers for Disease Control reported that in 2012 approximately half of adults had one or more chronic health condition. The CDC has also discovered that those with a chronic disease are more likely to suffer from depression and anxiety (Fan et al., 2009). These findings suggest that there exists a synergetic relationship between physical and mental health, indicating that mental health conditions can exacerbate and in some cases be the catalyst for a chronic illness (Bartlem et al., 2016). These findings align with Hettler, Travis, Dunn, and Ardell's philosophical contentions that wellness can be obtained by addressing the relationship between mind and body and how they work in unison (Bartlem et al., 2016; Chen et al., 2016).

Since karate is a multidimensional discipline that incorporates practices and traditions, which address both the mind and body, it would be remiss not to examine this branch of martial arts as a viable option for the promotion of wellness. This study will contribute to literature in this area where there currently is a limited amount of anecdotal literature and a dearth of empirical research concerning wellness and the psychotherapeutic benefits of karate. By examining karate through Hettler's wellness model (National Wellness Institute, 2016), this research endeavored to provide findings that support existing literature about the positive impact of martial arts practice and how it can be used as a psychotherapeutic tool for counselors and other mental health

professionals. According to Terry (2015), more empirical evidence is needed for healthcare providers and the public to become aware of alternative methods for achieving mind and body health.

Definitions

Duration—the total estimated number of months or years a karate student has been training in karate.

Frequency—the amount of days per week a karate student participates in karate training classes

Karate—an Asian system of self-defense that focuses on the dynamic use of the entire body without the use of weapons. It involves repeated sequences of strikes and defenses, using the hands and feet to deliver and block blows. Spiritual development is paramount throughout this discipline.

Mental Health Conditions—disorders that impact an individual’s thinking, mood, affect, and behavior, which influences their ability to function in everyday activities (National Alliance on Mental Illness [NAMI], 2015; Mayo Clinic, 2017).

Rank—a series of belt levels that benchmarks a karate student’s degree of proficiency in his or her ability to perform and teach karate (Kim, 1974; K. B. Kumpf, personal communication, October 11, 2017).

Summary

The purpose of this study is to expand our understating of wellness by examining the ancient discipline and practice of karate and its impact on wellness. It is anticipated that the results of this study will contribute information to healthcare providers and the public regarding karate as an alternative approach that can aid in promoting health and

wellness. Karate has been around for hundreds of years, and despite limited research, this discipline has withstood the test of time and continues to be a popular approach for achieving and maintaining wellness for thousands of individuals around the world. For this reason, it is important to conduct a systematic examination on karate's impact on individual's wellness. This study aims to examine whether or not karate practitioners have experienced changes to their wellness, as defined by Hettler's wellness model (National Wellness Institute, 2016), as a result of participating in this form of martial arts.

CHAPTER II

LITERATURE REVIEW

For the purpose of this study a review of the extent literature pertaining to the constructs of the concept of wellness, wellness models, karate, and wellness and mental health are necessary in order to further substantiate the four research questions outlined in Chapter 3. The relevant literature identified within this review was collected via Academic Search Elite, a University web-based search engine that pulls from multiple research databases such as Ebscohost, Psychinfo, and Medline among others.

A key word search that includes the preceding four constructs was used to identify the relevant literature within those four areas of interest. The literature within these four areas were reviewed, and although a significant amount of research has been done around all four of the constructs identified within this study, there is no existing literature that combines wellness and karate.

Theoretical Overview of The Concept of Wellness

Although the first written record of the word wellness was used in a diary entry in 1654 by Archibald Johnston, who wrote about his daughter's battle with illness, the current interpretation of wellness is the product of a complex formation process that began in the 18th century (Kirkland, 2014; Miller, 2005). Many of the ideas behind what the concept of wellness now means extends far back into the history of American ideas about health, morality, and spirituality. Phineas Quimby was one of the first to launch the notions that the primary source of physical health is an individual's mental and spiritual state of being. He believed that divinity expresses itself in people and manifests itself in some of the following: love, truth, peace, and health (Miller, 2005). He

developed an interest in non-traditional forms of healing and came to believe that “the body suffers exactly as the mind is affected” (Quimby, 1864, para. 2). He devoted his time to healing the sick and opened a practice in 1859, where he treated over 12,000 patients.

During Phineas Quimby’s tenure as a healer, he treated Mary Baker Eddy, the founder of Christian Science. In 1875, Eddy began practicing spiritual healing and began the process of developing the doctrine that eventually formed the foundation of Christian Science (Dean, 2016). The underlying ideology with the formation of Christian Science was that sin caused illness and cure for illnesses occurred with having faith in Christ (Dean, 2016). She published her ideas in a book titled, *Science and Health with Key to the Scriptures* and founded her own church, the Church of Christ (Miller, 2005).

Quimby and Baker’s ideas about the spiritual nature of disease and its influence on the mind and body became a commonplace concept in Americans’ understanding of health. This spiritual health-mindedness approach to wellness encouraged health reformers Horace Fletcher and John Harvey Kellogg to build on this concept (Miller, 2005; Whorton, 1981). They too believed that a healthy body produced a healthy mind and spirit. From this school of thought, Horace Fletcher developed Fletcherism. Fletcherism is a system of ingesting food that encouraged prolonged mastication of food. He believed that many diseases could be avoided if individuals chewed food until all traces of flavor were gone (Miller, 2005; Stiles, 1919). John Harvey Kellogg accepted Fletcher’s ideas about the mind and body and its connection to health. He felt a religious obligation to lead a healthy lifestyle, emphasizing that one’s state of mind contributes to his or her physical wellbeing (Miller, 2005; Wilson, 2014).

Similarly, Gichin Funakoshi, who is considered to be the “Father of Modern Karate” in his seminal work *The Essence of Karate* (Funakoshi, 2013), identified that a substantive connection between one’s body, mind, and spirit can be formed through the consistent practice of martial principles and movements.

Although Quimby, Eddy, and Kellogg contributed to the development of the concept of wellness, the use of the term wellness was accomplished through the work of Dr. Halbert Louis Dunn (Miller, 2005). He utilized his background as a statistician to document health trends and concluded that chronic diseases would eventually become the chief health concern. He felt that this was a matter of great urgency that required immediate attention. It was through this sense of impending concern that Dunn established the Constitution of the World Health Organization (WHO; Dunn, 1959a; Miller, 2005). The WHO publicized the idea that “health is a state of complete physical, mental, and social well-being and not merely the absence of disease and infirmity” (Dunn, 1959a, p. 786). Accordingly, Dunn stressed that high level wellness involves three precepts. The first encourages individuals to obtain higher functioning by progressing *forward* and *upward* in their endeavors for wellness. Impermanence describes the second precept, inviting individuals to recognize that life is *open-ended* and *ever-expanding* (Dunn, 1959b). The final precept states that the wellness process should integrate one’s mind, body, and spirit (Dunn, 1959a, 1959b). On a related note, Funakoshi (2013) asserted that the consistent practice of karate is developmental and supports the idea of continued growth from a body, mind, and spirit perspective.

Like Dunn, John Travis also believed that wellness is comprised of multiple dimensions that exist within a continuum. Travis established the Wellness Resource

Center and was a significant contributor to the growth of the wellness movement in the 1970s (Miller, 2005; Travis & Ryan, 2004). It was in 1972 that Travis first envisioned the Illness/Wellness Continuum, which was published in 1975. The continuum spectrum is depicted with a line and arrowheads on both ends. People moving from the center point of the spectrum, which is the neutral point where there is no discernible illness or wellness, to the left of the spectrum experience a worsened state of health. Whereas, a person who is moving from the center to the right of the spectrum will show increased levels of wellness (Travis & Ryan, 2004).

Travis recognized that wellness is not a static state and is a process by which a person oscillates along the spectrum while at the same time using the following: using the mind constructively, effectively expressing emotions, being creatively involved with others, and caring for your physical, psychological, and spiritual self and environments (Travis & Ryan, 2004). This paradigm of wellness became an immediate success, because it was an easy way to illustrate and understand the concept of wellness (Travis & Ryan, 2004). Travis and Ryan offered a comprehensive wellness model that aligns with Funakoshi's (2013) assertion that one's development through the practice of karate is multifaceted and relationally based.

Unlike Travis and Dunn, Donald Ardell (1977) assumed a rationalist, secular point of view regarding the concept of wellness. Although Ardell's secularist perspective has led some to believe he assumed a controversial approach to wellness (Hettler, 1998), many credit Ardell for making wellness "a household term" (Miller, 2005, p. 93). Ardell's casual, conversational style of approaching the concept of wellness was instrumental in enabling him to present his ideas to the public. He believed wellness is a

movement and not a fad that “is directed at shifting away from the status quo medical system and toward the realization of advanced health status” (Ardell, 1985, p. 37). According to Ardell (1977), individuals expect “too much of modern medicine and expect too little of themselves” (p. 4). Instead, he believed that high-level wellness is an alternative to doctors, drugs, and disease. Accordingly, the acquisition of wellness occurs when an individual understands his or her own uniqueness, recognizes that wellness is a positive and individualized approach (Ardell, 1977). Ardell supported the notion that wellness is individualized. This idea informs research questions 1, 2, and 4 within this study which are designed to identify a karate practitioner’s understanding of the relationship between individualized karate practice and personal wellness in terms of training time and frequency of practice.

Another notable figure within the wellness community, which like Ardell has significantly contributed to the wellness movement, is Bill Hettler. Hettler developed one of the most recognized and frequently cited models within the academic health community titled, *Six Dimensions of Wellness Model* (Bezner, 2015; Miller, 2005). Bill Hettler continues to be a driving force in the promotion of wellness and has been a pioneer within this movement for over 30 years (Hettler, 1998; Hettler & Hardie, 2015; Miller, 2005). Alternatively, Hettler offered a wellness model that promotes the development of holistic awareness from a lifestyle perspective that will evolve over the course of time. In 1975, he co-founded the National Wellness Institute that annually hosts the National Wellness Conference, the most highly acclaimed professional conference in health and wellness (National Wellness Institute, 2016). Hettler and Hardie (2015) claimed that as he learned more about medicine he recognized that much of what

caused illness were behaviors that “had no chance of being solved by writing a prescription” (Hettler & Hardie, 2015, p. 3). Instead, he believed in a preventative approach by asserting that if you teach people to make conscious and deliberate choices regarding their health, diseases would cease to be an issue (Hettler & Hardie, 2015). Accordingly, Hettler and Hardie (2015) developed a multidimensional model, the *Six Dimensions of Wellness*, which emphasized the idea of whole-person wellness (Hettler & Hardie, 2015; National Wellness Institute, 2016).

The application of the *Six Dimensions of Wellness* model assumes that individuals will develop an expansive understanding of living healthy by becoming aware of the interconnectedness within the following dimensions: occupational, physical, social, intellectual, spiritual, and emotional (National Wellness Institute, 2016). Within each dimension, Hettler and Hardie (2015) identified tenets that act as philosophical guides, which facilitate the procurement of optimal living. It was during his work as an undergraduate student, minoring in religion and philosophy, that Hettler discovered a multidimensional approach to obtaining health. Through his study of famous philosophers, schooling experiences, and in reviewing the work of other wellness colleagues such as Travis and Ardell, Hettler was inspired to create a model of wellness designed to guide people in making life choices about how to live healthier (National Wellness Institute, 2016). To date, Hettler’s *Six Dimensions of Wellness* model (National Wellness Institute, 2016) continues to be a framework used within the academic health community in the United States (Miller, 2005).

Bill Hettler and his aforementioned wellness colleagues’ work enabled the concept of wellness to be a natural part of conversation and an integral aspect of our

health care systems (Terry, 2015). As such, federal regulations have been established to help support the wellness movement. For instance, the passing of the Patient Protection and Affordable Care Act in 2010 enabled policies to be developed that have allowed employers to incentivize workplace wellness programs (Kirkland, 2014; Pomeranz, 2015). It has also continued to encourage school systems to incorporate wellness education within the curriculum (Kirkland, 2014). However, despite these contributions to the wellness movement, ongoing research is needed to ensure that the wellness movement continues to remain consistent with the changes that continue to be made to the healthcare and wellness legislation within the United States (Kirkland, 2014; Terry, 2015; Pomeranz, 2015). This will not only identify the gaps within the current literature; it will help health care providers and policy makers to understand the ever-changing nature of wellness as it evolves over the course of time. Similarly, it will also inform people about what resources exist within the communities that can help facilitate, support, and cultivate a holistic approach to healthy living.

Wellness Models

Hettler, Dunn, Travis, and Ardell emphasized an integrative, multidimensional approach for obtaining wellness. They defined wellness as a conscious and deliberate process that unifies multiple aspects of a person's experience. Each of them has developed models of wellness, and their work has also been the inspirations for others to create models of wellness. The following section provides an overview of the most cited models of wellness.

High-Level Wellness: Dr. Donald B. Ardell

Donald Ardell developed the High-Level Wellness model as an alternative orientation to an illness based medical approach (Ardell, 1977; Terry, 2015). He believed that the wellness process is an individualized experience that accounts for each person's background, needs, preferences, and values. Wellness is seen as a fun lifestyle endeavor that is not only done to improve one's health but to also make life more enjoyable (Ardell, 1977). Ardell claimed that the wellness process entails an integrated approach to obtaining a sense of well-being. Thus, the acquisition of wellness occurs within five dimensions and within the following themes: understanding of one's own uniqueness, recognizing that wellness is a positive approach, and having a readiness to make the necessary changes to obtain high-level wellness. The five dimensions in Ardell's (1977) wellness model are as follows: self-responsibility, nutritional awareness, physical fitness, stress management, and environmental sensitivity (Terry, 2015).

Ardell believed that without an active sense of accountability for one's own well-being, individuals will not have the necessary motivation to cultivate a healthy lifestyle. Duessel and Washabaugh (n.d.) suggested accountability in karate training is essential as there is no "offseason" when working to develop the body mind and spirit of oneself. Age and life responsibilities are never used as an excuse to not be accountable. To have a well-established sense of self-responsibility meant that individuals are free to live "without crippling dependencies and life-threatening addictions to doctors, drugs, and disease-causing habits and neglects" (Ardell, 1977, p. 105). Ardell outlined nine fundamental principles that serve as the foundation for how to be self-responsible. The first is taking charge of one's own life, which means to make your own choices and

emotionally and intellectually accept the reality of your decisions. By doing so, individuals view themselves as the cause of their health, which increases their chance of obtaining wellness (Ardell, 1977).

The second principle encourages individuals to know their uniqueness. This is to recognize that although anatomically humans are the same, genetically we are all very different. No two individuals are similar in their genetics, personality, body structure, and life experiences. Thus, addressing nutritional awareness, physical fitness, stress management, and environmental sensitivities will differ from person to person. Understanding one's own uniqueness also means knowing what motivates individuals to be happy and feel purposeful. Similarly, karate training promotes wellness for the individual by encouraging the development of physical and affective flexibility while being confronted with a combative scenario. This same flexibility allows the individual to enhance his or her ability to adapt to the unpredictable nature of life in a purposefully grounded way (Duessel & Washabaugh, n.d.). Happiness and purpose define the third and fourth principles of self-responsibility. Obtaining high-level wellness influences a person's state of happiness and a good purpose in life is fundamental to positive health (Ardell, 1977).

Principles five through eight describe the cultivation of a healthy psychological self. Ardell (1979) discussed the importance of self-acceptance and the realization that each person is worthy of love and respect. Within the same realm, Funakoshi suggested that "karate came about to prevent the decline of the spirit and atrophying of physical strength" (Funakoshi, 2013, p. 19). As a result of developing one's spiritual and physical self, a karate practitioner may also come to develop a more refined level of acceptance of

oneself as well as others. Not having this felt experience can create a sense of inadequacy, which can lead to people unconsciously choosing to be ill. Ardell (1977) stated that this is done as a means to escape from an unpleasant reality. Instead, high-level wellness requires clear intentionality and taking responsibility on one's decision-making process. This conscious decision-making pursuit of wellness increases the chances for experiencing greater happiness. Lastly, in principle nine Ardell (1977) stated that individuals should refrain from making decisions when experiencing high emotional charge and postpone decision-making until they are in a more relaxed state.

Having nutritional awareness is Ardell's (1977) second dimension of high-level wellness. Obtaining nutritional awareness involves introducing "natural, live food" (Ardell, 1979a, p. 126) to one's dietary regimen, such as fresh fruit and raw vegetables, garlic, yogurt, soybeans, and apple cider vinegar. This requires individuals to include foods that are pesticide free, facilitate digestion, and increase resistance to infections. Other important facets to nutritional awareness involves, avoiding additives, refined carbohydrates, processed foods, and eliminating coffee, tea, alcohol and addictive substances. Essentially, ensuring nutritional awareness requires individuals to exercise intentionality and understanding of their food choices and emphasize a daily routine that encourages eating a variety of healthy foods.

Another aspect of wellness that Ardell (1977) emphasized is stress management. Stress management involves exercising active awareness and understanding of how individuals expend their physical energy. Without the ability to adapt energy, the body becomes depleted, not able to "defend itself" and becomes more susceptible to mental and physical conditions that suppress the body's ability to function well (p. 148. Para. 1).

Ardell recommended that individuals develop stress management techniques and approaches that encourage self-regulation of choices, feelings, and actions to promote greater equanimity, restoration, and calmness. Activities such as exercising for fun at an enjoyable pace, massages, and mediation are a few that Ardell identified as useful for stress management.

Physical fitness is not only a stress management technique; it is also the fourth dimension in Ardell's (1977) high-level wellness model. Physical fitness is about finding a conditioning activity that can be done on a regular basis. "Becoming and staying fit can and should be gradual and enjoyable" (p. 162, para. 2). Essentially, according to Ardell's model of wellness, physical fitness is meant to be fun, not hurried or competitive and involve some form of movement that activates musculoskeletal and circulo-respiratory endurance. Ardell also discussed the importance of communing with the environment through exercise. Going for a nature walk, running or jogging on wooded trails, spending time by a lake side or beach, in the water swimming or wading are a few examples of activities that encourage outdoor movement. Ardell also emphasized the importance of being environmentally sensitive, which he defined as his fifth dimension of wellness. This dimension stressed the importance of individuals raising their awareness concerning their usage of energy and environmental resources. As such, being environmentally sensitive requires taking action with such things as recycling, being more energy efficient in the usage of power and gas, and minimizing and eliminating products that introduce pollutants into the air, such as smoking. Being environmental conscious is crucial in creating an environment free of toxins and therefore necessary for wellness.

Although Ardell is considered one of the forefathers of wellness and is the author of 12 wellness books, is a contributor to an electronic newsletter titled *Ardell Wellness Report*, and has received achievement awards for his work, to date, no empirically based research exists to examine his model of wellness. Although, Ardell's model and work has been cited in historical overviews of wellness (Ardell, 1979a, 1985; Miller, 2005), no research has been conducted to assess its utility of his model in the medical and mental health fields of study.

Illness-Wellness Continuum and The Wellness Wheel: Dr. John W. Travis

One of the primary influences for Ardell's wellness model was John W. Travis (Ardell, 1979a; Miller, 2005). Travis was a physician who opened the first wellness center in the United States in 1975 called the Wellness Resource Center (Ardell, 1979a; Miller, 2005; WellPeople, 2011). He endorsed his program's efficacy by indicating that obtaining treatment through his center is akin to earning a master's degree in oneself. Accordingly, "there are as many degrees of wellness as there are degrees of illness" (Ardell, 1979a, p. 12. para. 1). Travis believed that wellness is a privilege and that the only prerequisite for it was one's choice to move toward a healthier lifestyle (Travis & Ryan, 2004). In a manner similar to Ardell, Travis also developed a wellness model and treatment paradigm that focused on self-responsibility in terms of taking the necessary steps to become well. It also emphasizes the importance of engaging the person's body, mind, emotions, and spirit in a manner similar to Funakoshi's (2013) assertion that karate helps to develop all aspects of oneself. Specifically, "high-level wellness involves giving good care to your physical self, using your mind constructively, expressing your emotions effectively, being creatively involved with those around you, and being

concerned about your physical, psychological, and spiritual environments” (Travis & Ryan, 2004, p. xix, para. 1). This is the central theoretical underpinning to Travis’ Illness Wellness Continuum.

John Travis altered Dunn’s “Health Grid” diagram and developed the Illness-Wellness Continuum (Ardell, 1979a; Miller, 2005; Travis & Ryan, 2004). The continuum was first envisioned in 1972. It illustrates the relationship of the treatment paradigm to the wellness paradigm. Specifically, the Illness Wellness Continuum model indicates that wellness is not a static state and that individuals are either moving toward a state of whole wellness or are moving toward a worsening state of health. The mid-point in the continuum is a point where there is no discernible illness or wellness. As individuals become more aware and educated on their wellness process, they learn about what interventions facilitate whole wellness and incorporate such practices as using herbs, participating in psychotherapy, receiving acupuncture, meditating, and using medication to address any health concerns that are not able to be managed in other ways. Unlike traditional medicine, Travis’ endeavors focused less on the absence of illness and more on the facilitation and promotion of body, mind, emotional, and spiritual wellness (Ardell, 1977; Travis & Ryan, 2004).

The Illness Wellness Continuum model was published in 1975 and became an immediate success. However, Travis eventually recognized that this one-dimensional model was not able to fully identify and delineate the concept of wellness (Travis & Ryan, 2004). Hence, he and Ryan developed an energy-oriented theory called the Wellness Energy System. Travis believed that we take in energy from our environment through eating, breathing, and sensorial stimulation. Once this energy is inputted then

individuals organize it, transform it, and release it into the environment. Since, each individual has a uniquely configured physical, emotional, mental, and spiritual self, the way energy is absorbed, organized, transformed, and released will be contingent on a person's management of themselves in these areas. Essentially, a person's management of their physical, emotional, mental, and spiritual self will dictate the efficiency of energy flow, which will determine the degree of wellness or disease that individuals experience (Travis & Ryan, 2004).

Through the advent of the Wellness Energy System, Travis and Ryan (2004) created the Wellness Wheel and the Wellness Index as a means to illustrate and measure an individual's energy system. The Wellness Wheel is depicted as a circle with each spoke representing one of the 12 ways that individuals express energy: self-responsibility and love, breathing, sensing, eating, moving, feeling, thinking, playing/working, communicating, sex, finding meaning, and transcending. It is through the management and balance of these that determine the degree of a person's whole wellness. Travis and Ryan (2004) developed the Wellness Index, which is a measurement that identifies how individuals are expressing themselves within the 12 forms of energy. It utilizes a Likert-scale design for each of the 12 sections. Each section corresponds to the different forms of energy and the number of questions varies from section, ranging from 22 questions to 64. Within some of the sections there are subsections geared toward either women, men, or parents. Travis and Ryan (2004) suggested that the Index can take an hour or two to complete and recommended that it be completed at six-month intervals to assess for change in wellness.

Despite Travis' (Travis & Ryan, 2004) contributions to the concept of wellness, such as being the first to create a wellness assessment and opening the first wellness center in the United States, to date, no empirically based research exists to examine his model of wellness. Although, Travis' work has been cited in historical overviews of wellness (Ardell, 1979a, 1985; Miller, 2005), no research has been conducted to assess its utility within the medical and mental health fields of study.

Six Dimensions of Wellness: Dr. Bill Hettler

Dr. William Hettler is a physician who is the co-founder of the National Wellness Institute and is the first to organize the National Wellness Conference (NWC). The NWC is a yearly event where professionals from a myriad of settings participate in research-based endeavors and learn about a wide array of practices regarding wellness. Hettler is also well known for being the first to apply the concept of wellness to a university setting. He introduced a wellness program at the University of Wisconsin that was student led and focused on incorporating wellness programming on campus for students and staff. Hettler (1986) believed that a wellness curriculum is an essential component to any university's educational setting. The university wellness program aimed to create opportunity for exchange between student life and academic spaces outside the classroom in both formal and informal settings on campus. Various iterations of Hettler's university driven wellness program have since been adopted by hundreds of colleges and universities (Ardell, 1985).

Aside from establishing the first university wellness program and like Ardell and Travis, Hettler too developed an interdependent model of wellness which he called The Six Dimensions of Wellness (Ardell, 1985, 2011; Miller, 2005; National Wellness

Institute, 2018). He believed that “what people do for themselves in the way of lifestyle choices has a much greater impact on their chances of survival than anything physicians are likely to accomplish” (Hettler, 1998, p. 1, para. 4). As such, Hettler asserted that wellness is a conscious, self-directed process that is multidimensional, involving mental health, physical well-being, spiritual and environmental awareness (National Wellness Institute, 2018). The application of the Six Dimensions of Wellness encourages individuals to become aware of the interconnectedness of each dimension. The six dimensions are not mutually exclusive and are all needed to achieve holistic wellness. In essence, Hettler’s model was selected for this study because it served as the foundation for the development of the *Holistic Wellness Survey* (Delmonico & Kumpf, 2013), which is the measure used within this study’s research design. Additionally, a preexisting data set was used and the data gathered was collected via the participants’ responses to the questions within the wellness survey. Due to the viability of the preexisting data set as well as the additional limitations of time and resources, this researcher chose to ground this study within the theoretical framework of Hettler’s work as opposed to considering other theoretical constructs.

Occupational, physical, social, intellectual, spiritual, and emotional wellness are the six dimensions within Hettler’s model. Occupational wellness emphasizes the importance of obtaining a sense of job satisfaction through the utilization of one’s unique skills and talents in work. Attitudes about work and the meaning making that occurs while working are essential to reinforcing job satisfaction and in defining career ambitions that align with individual’s wellness process. Occupational wellness follows the following tenets: it is important to choose a career path that aligns with one’s personal

values, interests, and beliefs, and it is more advantageous to develop functional, transferable skills through structured involvement (National Wellness Institute, 2018).

The dimension of physical wellness identifies the importance in developing awareness concerning physical movement—incorporating activity that builds physical strength, flexibility, and endurance. Hettler also stressed the importance of establishing healthy eating habits and learning what nutritional and dietary changes are essential to promoting wellness. To this, he discouraged the ingestion of anything that would impede this process, such as the use of tobacco, drugs, and excessive alcohol consumption. He also advocated for taking personal responsibility in tending to minor illnesses and seeking professional medical attention when appropriate. Becoming more aware of one's physical needs and making the necessary changes increases an individual's understanding of how sound nutrition and physical activity increase the bodies performance.

Essentially, the following tenets are fundamental to obtaining physical wellness: It is important to consume foods and beverages that enhance good health and it is important to be physically conditioned than not (National Wellness Institute, 2018).

Social wellness is a third dimension in Hettler's wellness model. This wellness dimension identifies the importance of the interplay and interdependence between others and the environment. Hettler stressed the importance of establishing and initiating healthier communication with others. As such, individuals will increase the possibility of enhancing their personal and professional relationships and establish awareness around one's role in society. Cultivating social wellness also requires that individuals actively seek to develop practices that preserve and encourage balance in the ecosystem. In essence, social wellness aims to accomplish the following: to improve one's sense of

responsibility to others and to take the necessary actions that encourage more harmonious interactions with others and the environment (National Wellness Institute, 2018).

A fourth dimension of wellness outlined in Hettler's model is intellectual health. To actively pursue intellectual wellness means that individuals engage in processes and activities that develop intellectual curiosity. Reading and keeping abreast of current issues and trends are two ways of promoting intellectual wellness. Pursuing creative endeavors can also encourage intellectual growth and stimulation. This dimension of wellness also stresses the importance of communing and collaborating with others as another means of becoming informed and of sharing one's knowledge and skills with others. Basically, the intellectual dimension of wellness adheres to the following tenets: It is important to become involved with others and endeavors that are intellectually stimulating and it is important to identify potential concerns and then choose an appropriate course of action to effectively address these issues (National Wellness Institute, 2018).

The last two dimensions of wellness in Hettler's model are spiritual and emotional. There is some overlap with these two dimensions in that both require individuals to become adept in their understating of their emotional self. So, for spiritual wellness one seeks to establish a sense of meaning and purposefulness in their life. To accomplish this individuals must become aware of and understand their emotional range and the polarities of feelings that are part of the human experience, such as feeling doubt, fear, and disappointment while at the same time experiencing pleasure, happiness, and joy. Establishing a proficient understating of one's emotional internal terrain will facilitate the ability for individuals to live more harmonious with self and others, which

includes the environment. It is also an important component to identifying one's value system and what actions and endeavors are needed to align a person to his or her personal beliefs and values. Spiritual wellness adheres to the following tenets: It is important to create contemplative opportunities that enable people to identify the meaning of life for themselves and to be tolerant of the differing beliefs of others, and it is important to exercise intentionality in daily endeavors in a way that encourages consistency with one's values and beliefs. This is further endorsed through the guiding tenets of emotional wellness, which state the following: It is important for individuals to exercise awareness and acceptance of their feelings and it is essential for individuals to work toward developing practices that encourage optimism (National Wellness Institute, 2018).

Emotional wellness requires that individuals not only identify the degree to which they feel but it also emphasizes the importance of developing the capacity to manage one's feelings effectively. Therefore, individuals are encouraged to recognize one's feelings and related behaviors and seek out practices that encourage healthy management of emotions or seek support from others and professionals. Doing this will enable individuals to recognize their own limitations and strengths and to develop the appropriate coping mechanism to manage adversity, hardship, and stress effectively (National Wellness Institute, 2018).

Unlike Ardell and Travis, Hettler's Six Dimensions of Wellness model has been used in empirically based research. For instance, T. Adams, Bezner, and Steinhardt (1997) developed the Perceived Wellness Survey (PWS), utilizing the six dimensions identified in Hettler's model. The PWS is a salutogenically-oriented measure of perceived physical, spiritual, psychological, social, emotional, and intellectual wellness.

The purpose of their research endeavor was to construct a valid and reliable instrument that measures individual wellness perceptions. The study's outcome suggested that the PWS is a reasonably valid and reliable measure for examining perceptions of wellness within the aforementioned dimensions. Although additional work is needed to examine this instrument's viability for measuring wellness, additional research will be able to identify how this instrument can be used in examining, assessing, and identifying wellness outcomes.

The field of nursing has also examined wellness through the use of Hettler's Six Dimensions of Wellness. In 2012, Strout and Howard conducted a review of literature to examine the effect of wellness on cognition in older adults. The review contained research from 2003 to 2011 that entailed studies using correlational and cross-sectional design, longitudinal designs, and the use of randomized controlled trials. Strout and Howard's review of the literature revealed that cognitive protective benefits increase when aging adults are practicing wellness in more than one of Hettler's six dimensions. In 2016, Strout et al. conducted a systematic review of randomized controlled trial to examine the effectiveness of behavioral interventions within each dimension of Hettler's model. Of the 18 studies included in the review, the physical dimension of wellness was most studied and the spiritual dimension of wellness was the least observed area of wellness. Strout et al.'s (2016) meta-analysis revealed that intellectual and physical dimension of wellness were the most studied, and results varied. Although some empirically based research has been conducted to examine the efficacy of wellness through Hettler's Six Dimensions of Wellness model, additional research is needed to

further examine, assess, and define how this model can be useful in facilitating holistic wellness in not only older adults but for individuals across the lifespan.

Wheel of Wellness, The Indivisible Self, and EcoWellness

Ardell, Travis, and Hettler are not only considered the forefathers of the wellness movement, but their work has been pivotal in the development of other wellness models. In fact, facets of the two models cited in this section include a few of the same dimensions mentioned in the aforementioned models of wellness. The Wheel of Wellness and The Indivisible Self are newer models, relative to how long the wellness movement has been in existence. The Wheel of Wellness is a theoretical model that uses Adlerian principles. It focuses on quality of life over the life span and how specific facets of wellness interact with contextual and global forces to influence holistic health (Myers & Sweeney, 2008; Reese & Myers, 2012; Sweeney & Witmer, 1991). Spirituality is the center piece of the wheel and the most crucial constituent to wellness within this model. Radiating from the center of the wheel are 12 spokes, each representing a component of wellness: sense of worth, sense of control, realistic beliefs, emotional awareness and coping, problem solving and creativity, sense of humor, nutrition, exercise, self-care, stress management, gender identity, and cultural identity. These facets of wellness regulate and direct a response to the Adlerian life tasks of work and leisure, friendship, and love. The model is also ecological in that it accounts for the influences of media, government, community, religion, education, and global events.

Myers et al. (2000) examined the applicability of the Wheel of Wellness to the field of counseling. As such, clients are encouraged to use the model as a way of examining, assessing, and reviewing how past and present life choices have impacted and

are influencing each dimension within the model. The objective is to use the Wheel of Wellness in service of helping clients develop an individualized personal wellness plan that will increase their chances of obtaining holistic wellness. In 2015, Kwon investigated the effects of the Wheel of Wellness in counseling for Korean elders. A randomized, control trial was conducted that involved 93 elderly individuals. Individuals were assigned to one of two groups: A Wheel of Wellness counseling intervention group that consisted of structured, individual counseling based on the wheel's model, and a no treatment control group. The outcome of the study yielded significant results, indicating there was a significant improvement on all the wellness-lifestyle subscales in the wheel model, except realistic beliefs.

After additional analysis and review of the Wheel of Wellness, Myers and Sweeney (2008) developed the Indivisible Self (Is-Wel) model, which is the first evidenced-based counseling model (Reese et al., 2015). Unlike the Wheel of Wellness, Is-Wel is not a hypothetical model, but empirical. Empirical studies have been conducted and the model and its utility has been substantiated (Reese, Myers, Lewis, & Willse, 2015). However, this model lacks any mention of the natural environment. In response to this, EcoWellness was developed. EcoWellness is developed within the context of Is-Wel but provides professional counselors with an empirically-based framework for evaluating clients' connection with nature (Reese, 2016). In 2013, Reese developed a measure called REI, to assess the constructs in EcoWellness. Reese (2013) randomly recruited a total of 1,136 potential participants, of which 853 completed the REI. The outcome indicated reliability for all scales. Although additional empirically based

research is needed to further validate EcoWellness, it holds promise with becoming one of the few evidenced based models that can be used in the counseling profession.

Disciplines That Practice an Integrative Approach to Wellness

Counseling scholars and other professionals define wellness and identify methods and strategies that they believe illustrate how wellness can be acquired. From the perspective of multiple authors, it can be concluded that wellness is a conscious and deliberate process that unifies the physical, psychological, and spiritual dimensions of an individual (Miller, 2005; Myers et al., 2000; Myers, 1992; Barden et al., 2015). Wellness is a day-to-day, minute-by-minute way of living that is both an outcome and a process (Myers & Sweeney, 2005). The aforementioned models of wellness all stress that engaging in certain behaviors and practices are integral to promoting wellness. For instance, all the models of wellness stress the importance of exercise. For instance, one of the components in the Wheel of Wellness is exercising for 20 to 30 minutes multiple times per week. Hettler's and Travis' models also identify the importance of movement as one component of the wellness process. Since the acquisition of wellness is believed to be a process that involves the integration of methods that advocate for psychological, physical, and spiritual growth, counseling scholars and other professionals have been examining how specific disciplines facilitate wellness. Like karate, the following forms of movement cultivate a person's sense of balance, control, and focus in a holistic sense from a body, mind, and spirit perspective. As such, a detailed explanation of these forms is required as a large amount of research has been conducted in a manner that explicates their connection to wellness as opposed to the paucity of research that's been conducted on karate and wellness.

Yoga and Pilates

Disciplines such as yoga (Sisk & Fonteyn, 2016) and Pilates (Pilates et al., 2012) have been documented to facilitate wellness through the activation and integration of behaviors consistent with tenants of various wellness models. Yoga is a Hindu spiritual and ascetic practice that first originated about 5,000 years ago and is seen as a process that heightens awareness of self and is comprised of various domains of physical and mindful experiences (Sisk & Fonteyn, 2016; Strauss & Northcut, 2014; Cook-Cottone, 2015). Germane to the practice of yoga are a few core principles that have persisted through time and across traditions. The first is that yoga is an iterative process of examining perceptions and cognitions, identifying dysfunctional patterns, and practicing meditative practices as a means to gaining perceptual and cognitive clarity (D. G. White, 2012). Similarly, through the practice of karate a practitioner must work to refine one's regulatory abilities in order to successfully manage oneself during a combative situation that evokes a stressful response (Oulanova, 2009). Secondly, yoga is meant to increase and expand consciousness through a positive, growth-oriented framework for emotional regulation, thinking, and behavioral choices (Cook-Cottone, 2015; McCall, 2007; D. G. White, 2012). Lastly, practicing yoga facilitates the emergence of omniscience. Essentially, yogis develop heightened, extrasensory insights and perceptions into reality (Cook-Cottone, 2015; D. G. White, 2012).

Yoga is structured to provide support in increasing awareness, consciousness, and for embodied self-regulation (D. G. White, 2012). In addition to the core principles that are germane to all forms of yoga, it also identifies daily practices that are meant to further facilitate increasing awareness. These daily practices are called The Eight Limbs of

Yoga (Bryant, 2015; Cook-Cottone, 2015; Sisk & Fonteyn, 2016). The Eight Limbs of Yoga are more meant to teaching coping mechanism, centering techniques, and cultivating self-awareness. The first five limbs are meant to prepare and strengthen the mind and body for meditation, which include ethical behaviors, personal behaviors, posture, breathing regulation, and sensory inhibition. The final three limbs develop and cultivate a heightened understanding of self through concentration, meditation, and self-realization (Bryant, 2015; Cook-Cottone, 2015). Similarly, through karate training, a practitioner will engage in formalized kata practice which is designed to cultivate a sense of self-mastery in a cognitive, physical, emotional, and spiritual sense. By adhering to the structure and form of the prearranged movements in a disciplined way, a practitioner can begin to realign his or her consciousness and one's way of being in the world (Funakoshi, 2013; Urban, 1967).

The Eight Limbs of Yoga have been empirically researched and shown to have potent health benefits (Bergland, 2014). For instance, Mishra, Scherer, Snyder, Geigle, and Gotay (2015) conducted a review and meta-analysis of 56 studies of adults undergoing treatment for all types of cancer. A review of the results for 3,694 participants who were exposed to yoga showed that subjects experienced a decrease in fatigue and increase in quality of life and social functioning. Buffart et al. (2012) also conducted a systematic review and meta-analysis of the effects of yoga on physical and psychosocial outcomes in cancer patients and survivors. The outcome of this meta-analysis revealed that women with breast cancer exhibited a decrease in distress, anxiety, depression, and fatigue and an increase in emotional functioning, quality of life, and social functioning. Yoga has also been found to reduce stress in school-aged girls (L. S.

White, 2012), lower anxiety for children completing cancer treatment (Hooke, Gilchrist, Foster, Langevin, & Lee, 2016), and decrease aggression among adolescents (Saraf, 2016). Additionally, yoga has been shown to increase awareness of emotions, thoughts, and sensorial experiences for counselor educators (Pittoello, 2016).

Like yoga, Pilates is another discipline that is exercised worldwide, especially in western countries. Joseph Pilates, a German physical fitness specialist, devised this system, which is a set of principles and procedures designed to improve physical strength and flexibility and heighten mental awareness (Pilates et al., 2012). His teachings emphasized the importance of establishing and sustaining a sound mind and body, stating, “neither the mind nor the body is supreme—that one cannot be subordinated to the other” (Pilates et al., 2012, p. 56). As such, Pilates developed a form of exercise that combined mental focus techniques, specific breathing of yoga, and the physicality of gymnastics and other sports (M. Adams, Caldwell, Atkins, & Quin, 2012; Pilates et al., 2012). This form of exercise is based on the following movement principles: centering, concentration, control, precision, flow, and breath (M. Adam et al., 2012; Mazzarino et al., 2015). The principle of *centering* refers to the ability to focus attention on one sensation, such as attending to the ability to release tension or exertion of breath.

Concentration refers to the interconnectedness of mind and body and how awareness of this enables the mind to will the body into movement. The principles of *control* and *precision* focus on one’s ability to prevent injury through physical and mental control with mindful, execution of precise physical movement. Transitioning with ease from one experience or movement to another defines the principle of *flow*. The final Pilates principle, which is foundational to the Pilates practice, is *breath*. This refers to the ability

to carefully focus on how one's breathing is central to increasing lung capacity, muscular endurance and development, and physical functioning (M. Adams et al., 2012).

Similarly, the concept's purposeful breathing, precision, form, and flow are inherent to the development of refined martial movements, which are encapsulated within formal kata practice (Duessel & Washabaugh, n.d.).

The principles of Pilates are inherent in all exercises within the discipline and are considered necessary to the practice. Although this practice is relatively new, Pilates is considered appropriate for all ages and has been used in the treatment of multiple conditions, such as rheumatic diseases, cerebral palsy, and heart disease (Francisco, Fagundes, & Gorges, 2015). Mazzarino et al. (2015) examined the benefits of this practice in women's health and found it to improve health during pregnancy, for women with breast cancer, and for women struggling with obesity and back pain. Other research findings indicated that it has a positive impact on physical fitness in seniors (Bullo et al., 2015), promotes greater balance in women age 65 or over with lower back pain (Cruz-Diaz et al., 2015), and enhancing the quality of life for postpartum women (Ko, Yang, Fang, Lee, & Lin, 2013). Empirically based research on Pilates methods continues to support the idea that it facilitates the attainment of holistic wellness through the coordination of body, mind, and spirit.

Martial Arts

Other disciplines that have gained recognition within the wellness movement are various forms of martial arts. Martial arts began over 3,000 years ago and gradually spread to China, India, Japan, and Korea. The term *martial arts* is used in Western culture to describe a wide range of Asian combative systems and sports (Morgan, 1992).

Today, it is practiced worldwide and includes hundreds of styles ranging from Aikido, which utilizes noncombative, defensive techniques, to Jujitsu, which focuses on techniques that involve much physical contact and fighting in close proximity (Barone, 2017; Richman & Rehberg, 1986). During the past 50 years, martial arts has become increasingly popular and is a common form of leisure and physical exercise (Oulanova, 2009). However, despite the longstanding influence and popularity that karate has had within the Western culture, there still remains a limited amount of empirically based research examining martial arts as a discipline that facilitates wellness. Fuller (1988) claimed that one of the primary reasons there has been limited research on martial arts is because of the negative portrayals in Kungfu and ninja films. Although, this may have held true over 20 years ago, a paradigm shift has occurred to recognize martial arts, like yoga and Pilates, as a discipline that facilitates and cultivates wellness of the mind, body, and spirit.

Investigatory research surrounding the efficacy of martial arts on individual wellness began as early as the 1970s. As such, Kroll and Crenshaw (1970) examined the personalities of football players, gymnasts, wrestlers, and karate practitioners and discovered that the karate students were more self-sufficient. Also, descriptive studies by Rothpearl (1979, 1980) showed that advanced karate practitioners showed lower levels of hostility than their intermediate counterparts. In 1990, Seitz, Olson, Locke, and Quam identified the parallels between martial arts and mental health stating that “both disciplines focus on energy, intrapsychic energy, interpersonal energy, [and] the energy of being and existing” (p. 459, para. 1). Later in 1995, Weiser et al. discussed the psychotherapeutic aspects of the martial arts. They indicated that martial arts training

had shown to increase self-esteem and self-confidence, and improve management of emotions. In short, past research and discussions regarding martial arts indicates that proper practice of the martial arts heightens feelings of harmony, promotes self-regulation of choices and emotions, and thus facilitates a sense of holistic wellbeing (Wilkinson, 1996).

Today, scholars and professional counselors continue to acknowledge that there are positive health benefits for those who practice the martial arts (Fuller, 1988; Oulanova, 2009; Rajan, 2015). Martial arts are known to be safe, affordable, and an enjoyable method for health promotion. It has been known to improve mental health (Seitz et al., 1990), self-esteem in young women (Finkenberg, 1990), and physical balance in the elderly (Gillespie et al., 2012). Although there are hundreds of various forms of martial arts, Tai Chi has been and continues to be a form of martial arts that receives much attention from scholars.

Tai Chi and other forms of martial arts. Tai Chi is deeply rooted in Chinese philosophy and is considered a Taoist spiritual practice (Baxter & Francis, 2013; Lan, Lai, & Chen, 2002). It is a form of martial arts that was originally created in China nearly 400 years ago mainly for combative purposes. Since its conception, Tai Chi has developed into five major styles: Chen, Yang, Sun, Wu, Hao (Wu et al., 2016); however, over 108 forms exist. Chen style is the oldest form of Tia Chi, whereas Yang is the more popular form of this discipline (Lan et al., 2002). Tia Chi is an ancient practice where the movements were originally procured from watching animals and birds (Lan et al., 2002; Taylor-Piliae et al., 2006). It involves a series of smooth and continuous motions that work to evoke a mind-body connection (Lee et al., 2010; Taylor-Piliae et al., 2006).

Central to Tai Chi teachings is the obtainment of longevity through meditation and lifestyle modifications (Lan et al., 2002). It is one of the most popular forms of exercise in the United States and it is a physical and cognitive embodiment of the philosophical concept of Yin and Yang (W. C. Wang et al., 2009). Hence, in western culture it is most commonly taught as a series of slow, gentle, low-impact motions that implement the breath, cognition, and physical movement to heighten awareness and obtain holistic wellness (Solloway et al., 2016).

Tai Chi has been applied in diverse clinical investigations and has yielded promising results. In 1996, S. L. Wolf et al. conducted an investigation to examine whether or not a 15-week Tai Chi training would have any bearing on improving balance in the elderly. The findings showed significant improvement in reducing risk of falling by almost 50%. Later in 2013, Galantino, Callens, Cardena, Piela, and Mao launched an investigation to examine the effects of Tai Chi on postmenopausal women who were breast cancer survivors. This study's outcome reported significant results in that participants noticed a reduction of stress and improvement in duration of sleep. More recently, Solloway et al. (2016) conducted a systematic review of several research studies and discovered that a significant number of the participants experienced a reduction in blood pressure and improvements on executive functioning in the cognitive health of adults. Tai Chi has especially become popular among older adults and has proven to be effective in improving range of motion and mood (Y. T. Wang et al., 2016; Wu et al., 2016). It is clear that this discipline has been applied to diverse empirically based investigations and continues to be an area of interest within the health and wellness community.

Because of the positive outcomes from the research regarding the relationship between Tai Chi and wellness, other martial arts have also received attention within the field of research. Although there are about 200 distinct disciplines of martial arts, there has been empirically based research done on Aikido, Judo, and Taekwondo. For instance, Wagner (2015) presents a comprehensive theoretical overview relating aikido principles to various aspects of psychology. He proclaimed that aikido's philosophical underpinnings are relevant to human relationships and in conflict resolution. Whereas, investigatory results on Judo revealed that female practitioners developed a heightened awareness concerning their weight loss method (Escobar-Molina et al., 2015). These findings suggested that more attention and educational programs should be directed to young female judo athletes because they were at higher risk for developing maladaptive eating habits. Lastly, the findings of studies conducted on Taekwondo suggest that school aged children from ages five to 11 demonstrate improved behavior, increased academic performance, and improved balance (Lakes & Hoyt, 2004; Nauta et al., 2013).

Despite the existing, and yet growing body of literature that substantiates judo, aikido, and taekwondo as practices that cultivate wellness, much less is known about another form of martial arts that has been around for hundreds of years—karate.

Karate. It is said that karate was first conceived approximately 1,400 years ago with Bodhidharma (Funakoshi, 2013). Bodhidharma developed a set of aphorisms that described how to obtain enlightenment through cultivating ones physical and mental self. As a result, he gave birth to the way of karate, which was eventually introduced to Okinawans in the late 1500s (Funakoshi, 2013). Karate was introduced to Modern Okinawa between the years of 1596 to 1615. It was during this time that weapons were

confiscated throughout the land and Okinawans learned karate as a means for protection. Since its conception, karate has evolved into several different styles. The more universally recognized forms of karate are comprised of two types, Japanese and Okinawan. The more commonly known Japanese forms of karate are the following: Kyokushin, Shukokai, and Goju. The following are a list of the more commonly known Okinawan forms of karate: Uechi, Shorin, Isshin-Ryu, and Kobudo. Wado, Shotokan, and Shito Ryu are forms of karate that are a hybrid of both Japanese and Okinawan principles (K. B. Kumpf, personal communication, October 11, 2017).

Despite the type of karate, all the forms focus on the dynamic use of the entire body. It is considered to be a style of self-defense without the use of weapons, for the exception of Kobudo, which is the only style of karate that primarily deals with the art of weapon handling. All forms of karate also involve repeated sequences of strikes and defenses (Messaoud, 2016; Zago et al., 2015). However, the most integral aspect of karate training includes the practice of kata. There are more than 20 kata, which are prearranged sequence of stances and techniques designed to replicate a fight against imaginary opponents. It is a series of fighting movements that combine breathing, striking, and defensive techniques (Urban, 1967). The primary premise behind formalized kata practice is the mastery of oneself; “karate begins and ends with kata” (Funakoshi, 2013, p. 101, para. 2). Katas are spiritually based exercises that are “distilled, concentrated wisdom, understanding, and experience of hundreds of great Karate masters, translated into a language of rhythmical movement, breathing, and peak awareness” (Urban, 1967, p. 55, para. 2). Perfecting katas not only enable mastery of

form, but it also heightens physical and spiritual awareness and control of all parts of the body.

Additionally, a formalized ranking system/curriculum are two features that distinguishes karate from other wellness practices. Although it's beyond the scope of this review to discuss every ranking system within karate because there are too many distinguishable differences, some general guidelines can be established to chronicle practitioners' development. In all forms of karate, a practitioner will be moved through a developmental process where he or she will be required to learn *kihon*, or basic blocks, punches, and kicks which are to be performed in a specific way. Stance and posture training are usually incorporated into the training, which eventually culminates with a student learning his or her first kata. Each system of karate has its own kata system, some of which are shared between styles and some of which are not. Additional training may also include formalized kobudo or weapons training; however, whether or not this element of karate is introduced varies from system to system (Barone, 2017).

Another important component of karate is kumite. Proficiency and understanding in kata execution is the first essential step before kumite is introduced to a karate students practice. Kumite is full contact fighting that ranges in light to forceful contact, with highly controlled and purposeful kicks, strikes, blocks and movement (Lorden, 2000; Urban, 1967). It can vary in degrees of difficulty and intensity and requires the presence of three elements, control of body, breath, and mind. Body control refers to stance, which is positing oneself in a supportive manner to maximize the amount of power that can be delivered in a strike, kick, or block (Duessel & Washabaugh, n.d.; Lorden, 2000). Controlling one's breath is the second element and describes the slow and deep inhalation

and exhalation of air that is coupled with movement. Mind control is the last element in effective kumite. This describes the practitioner's ability to develop a heightened awareness around emotions and to learn to control these feelings (Duessel & Washabaugh, n.d.; Lorden, 2000).

Kumite and kata are regarded as essential components in one's karate training. Becoming proficient in kata and kumite is a necessary part for proceeding through the belt system. Karate utilizes a ranking system that evaluates the proficiency of the practitioner based on a predetermined set of requirements. These sets of requirements correspond to the different belt ranks. There is a great degree of variability in the belt system within the different forms of karate. However, the overall purpose of the karate belt ranking system is an incentive-based process that marks and recognizes the progress and development of the practitioner over the course of time (K. B. Kumpf, personal communication, October 11, 2017).

Another, universally recognized aspect to all karate systems are 12 guiding principles of karate. Gichin Funakoshi, who is the founder of Shotokan Karate and who was also known as the father of modern karate, developed these 12 principles (Funakoshi, 2013). The principles govern the karate practice and provide guidelines for the purpose of facilitating and cultivating the spiritual and mental development of the karate student. Funakoshi (2013) believed that true karate practice trains both the mind and body and that the 12 principles are guiding tenets that act as a resource for spiritual development. Listed below is a list of the 12 principles and their respective meaning:

1. “Do Not Forget That Karate-Do Begins and Ends with *REI*” (Funakoshi, 2013, p. 19). This principle enforces the importance for respect, reverence, and sincerity for others and a recognition of one’s own worth.
2. “There Is No First Strike In Karate” (Funakoshi, 2013, p. 23). This principle discourages the reckless use of weapons, both in person and object, and encourages the ideas of patience, discernment, and forbearance.
3. “Karate Stands On The Side of Justice” (Funakoshi, 2013, p. 29). This principle encourages practitioners to recognize that their hands and feet are like weapons and should not be used unjustly or improperly.
4. “First Know Yourself, Then Know Others” (Funakoshi, 2013, p. 33). This principle highlights the importance of developing self-awareness concerning one’s strengths and weaknesses, which will enable karate practitioners to better assess their adversaries strength and weaknesses.
5. “Mentality Over Technique” (Funakoshi, 2013, p. 19). This principle indicates that exercising awareness, discernment and discretion concerning our decisions, choices, and feelings toward others and ourselves.
6. “The Mind Must Be Set Free” (Funakoshi, 2013, p. 43). This principle encourages the practice of being mindfully fluid with thoughts in a balanced way, without becoming attached or restrained by things.
7. “Calamity Springs From Carelessness” (Funakoshi, 2013, p. 49). This principle stresses the importance for karate practitioners to examine their actions and exercise caution with their methods.

8. “Karate Goes Beyond the Dojo” (Funakoshi, 2013, p. 53). This principle indicates that karate practitioners are encouraged to continue their mind, body, and spiritual development outside the dojo and align their conduct with what is taught within the dojo.
9. “Karate Is A Lifelong Pursuit” (Funakoshi, 2013, p. 57). This principle states that there is no defined end point that demarcates the completion of karate training and that it should be a lifelong practice.
10. “Apply The Way Of Karate To All Things. Therein Lies Its Beauty” (Funakoshi, 2013, p. 63). This principle highlights the importance of remaining steadfast in hardship and maintain a sense of purpose, focus, and respect while managing internal and external challenges.
11. “Karate Is Like Boiling Water: Without Heat, It Returns To Its Tepid State” (Funakoshi, 2013, p. 67). This principle indicates that concentration, diligence, focus, and continued purist in karate practice is what fortifies the mind and body.
12. “Do Not Think Of Winning. Think, Rather, Of Not Losing” (Funakoshi, 2013, p. 71). This principle states that karate practitioners should be gentle but inwardly be strong in their purists, thoughts, and behaviors.

Karate has a longstanding history of remaining grounded in principles and practices that aim to help practitioners establish and cultivate a mind, body and spiritual wellness. However, literature that exists regarding karate and wellness has been based on first-hand experiences and observations that are not supported by empirical evidence. The investigatory work that has been conducted has revealed that the regular long-term

practice of karate has favorable effects on mood and physical wellness (Ludivine, Degat, Papouin, Val, & Lopez, 2010). Ludivine et al.'s investigatory work explored the effects of an adapted karate training program on the quality of life for 50-year-old men. After a one-year experiment that required participants to practice adapted karate training for 90 minutes, three times per week, they discovered that they showed improvement in mood and perceptions of physical health. Another study that identified the benefits of karate through long-term and consistent practice identified that karate practice improves brain plasticity, which helps to facilitate new learning. This discovery was reported after Witte et al. (2015) conducted a 5-month study where elderly men and women participated in karate training that resulted in enhanced cognitive functioning. A secondary study had participants practice karate for an additional 5 months to discover they showed greater improvement. These findings, in terms of wellness, suggest that an increase in a person's physical health is contingent on the amount of time a person devotes to practicing karate.

Additional literature suggests that karate can impact an individual's affective disposition. In 1995, Weiser et al. wrote about the psychotherapeutic aspects of martial arts. Their review of the literature revealed that this practice can increase self-esteem, aid in management of aggression, and assist in mood regulation. In a more recent investigation regarding karate and emotional wellness, the findings indicated karate leads to a feeling of self-worth (Jansen & Dahmen-Zimmer, 2012). This discovery was a result of a 16-week study where participants engaged in karate training. Rajan (2015) conducted a review of the literature on martial arts practice and discovered that karate improved self-esteem and memory in children with epilepsy (Conant, Morgan, Muzykewicz, Clark, & Thiele, 2008), improves anger management in adolescent boys

(Ziaee, Lotfian, Amini, Mansournia, & Memari, 2012), reduces symptomology in children with autism (Bahrami, Movahedi, Marandi, & Abedi, 2013), and improves agility and flexibility in preschool children (Boguszewski & Socha, 2012). Additionally, a more recent study by Jansen, Dahmen-Zimmer, Kudielka, and Schulz (2017) identified the connection between karate and mental health wellness. Specifically, 55 adult participants were surveyed in two groups across 15 training sessions. In summary, participants showed improvement in the areas of cognitive processing speed, mental health, and anxiety. These findings and observations support the notion that karate practice promotes mental health wellness.

Additional research concerning karate and wellness supports that there is a correlation between belt rank and increased levels of self-confidence and physical and emotional health. Wilkinson (1996) conducted a review of literature and discovered that as martial arts students progress in rank they develop an increased sense of self-esteem, improved self-confidence, as well as an enhanced sense of personal and social identity (Finkenbergh, 1990). Although variability exists between the ranks within the different systems of karate, the preceding research supports the notion that as a karate practitioner's rank increases so does his or her overall sense of wellness.

In summary, Bodhidharma, Funakoshi, Masutatsu Oyama, and other forefathers in karate emphasize how this discipline enables the unity of the physical, mental, and spiritual facets of one's self (Funakoshi, 2013). Similarly, the forerunners within the wellness movement, such as Hettler, Dunn, Travis, and Ardell, have also encouraged cultivating the synergetic connection of the mind and body. In essence, karate principles align with the wellness movement doctrine. However, there appears to be no empirical

studies to support the relationship between karate and wellness. Thus, additional research is needed to support the practice of karate as an efficacious method that improves a person's sense of holistic health.

Wellness and Mental Health

The concept of wellness within the mental health field has been the topic of discussion and interest for decades. Dr. Halbert Louis Dunn, the first to use the term wellness and to state that the wellness process should integrate one's mind, body, and spirit (Dunn, 1959a, 1959b; Miller, 2005), was influenced by American psychologist, Gordon Willard Allport. Allport was the first psychologist to focus on personality. His work was impactful in that he saw individuals as a psychophysical system comprised of many parts, stating that mental health providers "must consider the system as a whole, and show how part systems are related to one another" (Allport, 1955, p. 6). Allport believed that the characteristics and qualities of an individual were in transition rather than being in a state of stasis. Abraham Maslow, another American psychologist, also endorsed this perspective, proposing that there is a universal human tendency to move toward being self-actualized (Maslow, 1954). Self-actualizing is a process of transition which involves moving toward one's fullest potential and using this for the higher good. Moving toward one's fullest potential requires individuals to address their psychological, social, and emotional needs. Thus, it is the interactions of the mind, body, spirit, and environment that facilitate holistic wellness (Myers & Sweeney, 2005). Similarly, Oulanova (2009) and Fuller (1988) purported that karate training may elicit therapeutic properties that yield benefits such as increased self-esteem, enhanced concentration,

improved regulatory abilities, and refined interpersonal communication; these characteristics are reflective of the more actualized self that Maslow referenced.

Allport and Maslow were two of the many mental health professionals whose initial efforts created conditions for other mental health professionals, such as counselors, to begin constructing their own definition of wellness. Between 1988 and 1989, American Counseling Association (ACA) assumed a proactive position in relation to the issue of wellness and began embarking on a process that would better define what this meant for professional counselors (Myers, 1992). Consequently, in the years to follow ACA revised their mission statement to emphasize the importance of enhancing the quality of life for both client and professional (ACA, 2014). Conversely, Weiser et al. (1995) reported that karate teaches values and skills such as assertiveness and humility, more commonly developed within a psychotherapeutic context. The development of these skills may also lead to an improved quality of life for clients. More specifically, this assertion ultimately aligns with the ACA's vision of an improved quality of life for both clients and professionals. As such, the counseling profession rejected the medical, illness-oriented model as the basis of the counseling process (Barden et al., 2015; Myers, 1992). Instead, the counseling profession adopted the concept of wellness because it harmonizes with many of the founding principles of the ACA.

Within the counseling profession, wellness is defined as a process of questing toward optimal health and well-being that involves the body, mind, and spirit (Barden et al., 2015; Myers, 1992; Myers et al., 2000). Wellness is multifaceted concept that is both an outcome and a practice in that it is an iterative process of evaluating, purging, implementing, and revaluating what factors facilitate and promote optimum wellness. In

fact, the importance of holistic wellness is an ethical obligation for counseling professionals. The *ACA Code of Ethics* (ACA, 2014) stated that counselors “engage in self-care activities to maintain and promote their own emotional, physical, and mental well-being to best meet their professional responsibilities” (Section C). Hence, counseling professionals “must monitor themselves for signs of impairment from their own physical, mental, or emotional problem” (ACA, 2014, Section C.2.g.).

ACA’s embankment to delineate and integrate the concept of wellness into the practice of counseling has encouraged other professional counseling organization to stress the importance of wellness. The Association for Counselor Education and Supervision (ACES) also emphasized the importance of holistic well-being. According to ACES’ (2011) *Best Practices in Clinical Supervision*, counselor supervisors must consistently assess their supervisees for signs of impairment and make the necessary recommendations should this present as an issue. Essentially, the American Counseling Association (2005) encouraged and required that professional counselors, within all branches of the field, consistently exercise vigilance while assessing the wellness of oneself as well as for clients. Oulanova (2009) asserted that martial arts training promotes a refined mind-body connection as well as situational awareness within an interpersonal/intrapersonal context. As a result of karate training, counselors and clients may be better equipped to recognize the need to enlist additional supports as a means to promote wellness.

Professional counselors have a professional obligation to institute the necessary resources to facilitate wellness for both client and counselor. As such, counselors are encouraged to remain informed about the current trends in wellness. The advancements

in biomedical science, pharmacology, and neuroscience have significantly changed the wellness process for individuals, such as the psychological difficulties that can be left from invasive and intensive medical treatments (Barden et al., 2015; Plomin & Crabbe, 2000; Schaaf et al., 2012). For example, more Americans than ever before are surviving cardiac arrest, and postsurgical depression has been found in about 25% of coronary bypass patients (Krannich et al., 2007). Since, the counseling profession assumes a wellness-oriented approach, they are encouraged to recognize how biological and neurological factors influence human behavior and be able to implement the appropriate supports for client and self (Kaplan & Gladding, 2011; C. Wolf, Thompson, & Smith-Adcock, 2012). The existing literature on karate demonstrates that karate practitioners experience neurological, physical, and affective improvements as a result of their training over the course of time (Jansen et al., 2017). As such, it becomes essential that counselors continue to examine effectiveness of karate and how it supports the development wellness.

Summary

This chapter reviews the relevant literature germane to the concept of wellness. The chapter includes a historical overview of wellness and the more commonly known wellness models. Additionally, the chapter describes the evolution of the wellness concept within the counseling profession. Furthermore, this chapter provides a description of the various disciplines that endorse a holistic approach to wellness. Lastly, a review of the pertaining literature, which describes how various disciplines and karate support a holistic approach to wellness, was also explored.

CHAPTER III

METHODOLOGY

The primary purpose of this study was to investigate the impact of regular participation in karate on personal wellness for karate practitioners. Specifically, individuals who participate in karate training were asked to report their perceptions of whether or not this martial arts practice affects their overall wellness as defined by Hettler's *Six Dimensions of Wellness Model*. The secondary purpose of this investigation was to determine if there exists a significant difference in the perceptions of how karate influences wellness between those who identify as having a mental health condition and those who do not.

Hettler's (1976) *Six Dimensions of Wellness* model was used to conceptually define wellness. The model asserts that individuals will become aware of the interconnectedness between the following dimensions: occupational, physical, social, intellectual, spiritual, and emotional. Understanding the interplay between the dimensions enables individuals to develop an understanding of healthy living (Hettler, 1976). This model was utilized in the development of the *Holistic Wellness Survey* (Delmonico & Kumpf, 2013), the instrument used to gather information about practitioners' overall health and wellness.

This chapter describes the quantitative research methods used to complete this study. The chapter describes the research design, research questions and hypotheses, sample, and procedures for data collection and data analysis.

Research Design and Procedures

This quantitative study investigated the relationship between participation in karate and personal wellness for karate practitioners. This investigation was completed by analyzing extant data collected from a study on karate participation. The extant data was comprised of descriptive, behavioral, and attitudinal information regarding the karate-wellness relationship. Adults of any rank or skill level who were actively training in some form of American, Japanese, Korean, or Okinawan karate for at least six months were invited to complete the *Holistic Wellness Survey* (Delmonico & Kumpf, 2013). The independent variables examined were the number of months training in karate, the frequency of training that occurs per week, rank held in karate, and whether or not there was a preexisting mental health issue. The dependent variables were occupational, physical, social, intellectual, spiritual, and emotional wellness. A correlation and comparative design was used to analyze the data to determine if the groups were significantly different in their attitudes regarding wellness within each dimension.

Procedure

This study utilized a preexisting unpublished data set obtained through the investigatory efforts by Delmonico and Kumpf (2013). Written permission to review and analyze the data resulting from their study was obtained. The following procedure describes the process by which the aforementioned investigators recruited participants, provided informed consent, and obtained data.

First, Delmonico and Kumpf (2013) used purposeful sampling and identified that research participants needed to be adults of any rank or skill level that were actively training in some form of American, Japanese, Korean, or Okinawan Karate for at least six

months. Therefore, participants were recruited from karate schools nationally, within the Pittsburgh area, as well as at national competitions across the country. The co-investigator (Kumpf) is a Karate instructor in the Pittsburgh area and used his network to inform schools about the study. Recruitment fliers were distributed and placed in various locations in Pittsburgh and at local/state/regional/national competition. An e-mail listserv dedicated to karate was also utilized in the recruitment process. The exact information on the flier was sent to the email recipients to invite participation in the web-based survey.

During the recruitment process, potential participants were given a postcard that provided a brief description of the study and website information. Those who chose to complete the web-based survey were directed to visit the website where additional information regarding the investigation was provided, along with informed consent. Volunteers that chose to participate were asked to review an electronic version of the informed consent document before being given the opportunity to complete the holistic wellness survey. The informed consent included the following sections: purpose of the study, risk and benefits, compensation, confidentiality, right to withdraw, summary of results, and voluntary consent. Participants were also informed about the anonymous nature of the survey and the steps taken to ensure anonymity.

Volunteers completed the *Holistic Wellness Survey* online through Survey Monkey, which required no more than 15 to 20 minutes to complete. Survey Monkey uses an encrypted SSL/TLS connection in order to ensure the data in transit are safe, secure, and available only to intended recipients. Data collected was stored at a secure hosting facility with both physical and software-based security systems to protect the data from being accessed by those other than the authorized user. Although there is an option

to record the Internet Protocol (IP) address from participants, this feature was disabled, allowing participants to respond anonymously to the survey.

Research Questions and Hypotheses

The preexisting data set utilized in this study was acquired through the investigatory work conducted by Delmonico and Kumpf (2013). Kumpf and Delmonico's quantitative investigation examined how regular participation in karate training affects an individual's perceptions of his or her wellness and whether karate training assists with the management or reduction of addictive symptomatology. This study examined karate practitioner's holistic wellness for all participants. It also aimed to determine whether or not there exists any significant difference in perception between those who identify as having a mental health condition and those who do not report having a mental health issue. The following research questions and hypotheses framed this study:

1. R1: How do participants describe the relationship between the duration of time in their participation in karate and their personal wellness?
 - a. H1: Karate practitioners who have been practicing karate longer will have higher ratings for perceived occupational wellness than those who have been involved with karate less time.
 - b. H2: Karate practitioners who have been practicing karate longer will have higher ratings for perceived physical wellness than those who have been involved with karate less time.

- c. H3: Karate practitioners who have been practicing karate longer will have higher ratings for perceived social wellness than those who have been involved with karate less time.
 - d. H4: Karate practitioners who have been practicing karate longer will have higher ratings for perceived intellectual wellness than those who have been involved with karate less time.
 - e. H5: Karate practitioners who have been practicing karate longer will have higher ratings for perceived spiritual wellness than those who have been involved with karate less time.
 - f. H6: Karate practitioners who have been practicing karate longer will have higher ratings for perceived emotional wellness than those who have been involved with karate less time.
2. R2: How do participants describe the relationship between their frequency of participation in karate, for both formal karate training classes and outside of a formal karate class, and their personal wellness?
- a. H1: Karate practitioners who practice more frequently, for both formal karate training classes and outside of a formal karate class, will have higher ratings for perceived occupational wellness than those who have been involved with karate less time.
 - b. H2: Karate practitioners who practice more frequently, for both formal karate training classes and outside of a formal karate class, will have higher ratings for perceived physical wellness than those who have been involved with karate less time.

- c. H3: Karate practitioners who practice more frequently, for both formal karate training classes and outside of a formal karate class, will have higher ratings for perceived social wellness than those who have been involved with karate less time.
 - d. H4: Karate practitioners who practice more frequently, for both formal karate training classes and outside of a formal karate class, will have higher ratings for perceived intellectual wellness than those who have been involved with karate less time.
 - e. H5: Karate practitioners who practice more frequently, for both formal karate training classes and outside of a formal karate class, will have higher ratings for perceived spiritual wellness than those who have been involved with karate less time.
 - f. H6: Karate practitioners who practice more frequently, for both formal karate training classes and outside of a formal karate class, will have higher ratings for perceived emotional wellness than those who have been involved with karate less time.
3. R3: Are there differences in the perception of how participation in karate influences wellness between those who identify as having a mental health condition and those who do not?
- a. H1: Karate practitioners who identify as having a mental health concern will report higher ratings for perceived occupational wellness than those who do not identify as having a mental health condition.

- b. H2: Karate practitioners who identify as having a mental health concern will report higher ratings for perceived physical wellness than those who do not identify as having a mental health condition.
 - c. H3: Karate practitioners who identify as having a mental health concern will report higher ratings for perceived social wellness than those who do not identify as having a mental health condition.
 - d. H4: Karate practitioners who identify as having a mental health concern will report higher ratings for perceived intellectual wellness than those who do not identify as having a mental health condition.
 - e. H5: Karate practitioners who identify as having a mental health concern will report higher ratings for perceived spiritual wellness than those who do not identify as having a mental health condition.
 - f. H6: Karate practitioners who identify as having a mental health concern will report higher ratings for perceived emotional wellness than those who do not identify as having a mental health condition.
4. R4: Are there differences in the perception of wellness between the different karate ranks?
- a. H1: Karate practitioners who hold a black belt will report higher ratings for perceived occupational wellness than those with lower ranking belts.
 - b. H1: Karate practitioners who hold a black belt will report higher ratings for perceived physical wellness than those with lower ranking belts.
 - c. H1: Karate practitioners who hold a black belt will report higher ratings for perceived social wellness than those with lower ranking belts.

- d. H1: Karate practitioners who hold a black belt will report higher ratings for perceived intellectual wellness than those with lower ranking belts.
- e. H1: Karate practitioners who hold a black belt will report higher ratings for perceived spiritual wellness than those with lower ranking belts.
- f. H1: Karate practitioners who hold a black belt will report higher ratings for perceived emotional wellness than those with lower ranking belts.

Sample

This study used an existing data set that was collected through the quantitative investigation conducted by Delmonico and Kumpf (2013). The aforementioned investigators employed the connections Kumpf had made over his 32 years of experience in Okinawan karate to gather respondents that met the eligibility criteria for this study. The investigators utilized purposeful sampling (Rea & Parker, 2005) to secure participants from karate dojos and at local, state, and national competitions located throughout the United States. The sample was comprised of voluntary participants who received and responded to a recruitment postcard or email that provided information regarding the study. Participants were female and male, age 18 years and older who actively trained at least once a week in some form of American, Japanese, Korean, or Okinawan karate. In addition, participants needed to have been training in karate for at least six consecutive months and held any proposed rank representative of one of the aforementioned types of karate that is specific to that systems ranking process.

Delmonico and Kumpf (2013) conducted a power analysis using G*Power 3.1.9.2 and determined that a sample size of 102 participants would be necessary to enable there to be an increased probability of correctly determining whether or not a true relationship

exists between variables. This was based on an effect size of 0.5, an alpha of 0.05, and power of 0.08.

Measure: Holistic Wellness Survey

The *Holistic Wellness Survey* is a web-based survey design by Delmonico and Kumpf (2013) to obtain descriptive, behavioral, and attitudinal information regarding the relationship between the practice of karate and wellness. During the development of the survey, the aforementioned investigators gathered preliminary information about karate and wellness to determine the relevance of obtaining descriptive, behavioral, and preferential information for the wellness survey. Additionally, they conducted a semi-structured focus group to identify and outline key substantive issues necessary for establishing the sequencing and organization of questions within the questionnaire. After this, Delmonico and Kumpf (2013) developed a comprehensive survey that consists of the following sections: demographics, scaling segment (Question 23 in Appendix A), and subsections that utilized Hettler's (1976) *Six Dimensions of Wellness* model.

The initial portion of the survey required participants to provide information in three areas. In the first section, the participants were asked to provide descriptive information regarding gender, race/ethnicity, highest level of education, religious/spiritual affiliation, average household income, employment status, and type of employment. In the second section, participants were asked to complete questions pertaining to their karate experience, which included all of the following: estimated number of months training, longest total estimated number of uninterrupted months in training, frequency of participation in formal karate training classes, frequency of karate training outside of a formal class, rank, and membership in karate associations. In the

third section of the instrument, the participants were asked to indicate whether they have currently or in the past struggled with a mental health condition. These conditions included anxiety, depression, eating disorder, attention deficit/hyperactivity disorder, chronic pain, trauma survivor, impulse control issues, sleep disorder, unresolved grief or bereavement, autism spectrum disorder/Asperger's, substance abuse and other addictions such as gambling, shopping, or sex. This last section also enabled participants to select "none of these apply to me" or "other." Participants who selected "other" were prompted to specify the mental health disorder or issue.

After participants completed the initial portion of the survey they were then required to complete a scaling section (Question 23 in Appendix A). Delmonico and Kumpf (2013) developed this section in order to discern the degree to which each dimension of wellness influenced participants and to provide variability with survey responses. Specifically, the percentages were weighed against the responses that participants provided regarding their perceptions of wellness within each of the six dimensions. This was developed to ensure that there was a greater degree of variance in responses. Delmonico and Kumpf also developed this section to account for the Hawthorne effect. It was assumed that participants might report higher ratings in response to their awareness regarding some of the following reasons: being observed, wanting to help the researcher, and biased perceptions concerning karate and its health benefits. In anticipation of this statistical phenomenon, respondents were required to estimate the percentage of contribution karate made to each dimension of wellness, which would ensure variability in responses across the six dimensions of wellness.

The scaling section required participants to divide 100% across the various areas of wellness based on the percentage they believed karate had impacted that particular area of wellness in their life. As a result, participants had the ability to not only identify the areas of wellness that had been influenced by karate but also the areas of wellness that had not. The section required that participants use whole numbers in their responses and included a zero for areas of wellness that they believed were not impacted by karate. For instance, if a survey respondent decided that karate influenced their physical, spiritual, emotional, and social wellness but had no impact on intellectual and occupational wellness, they may reflect their opinion by dividing 100% over the first four dimensions and indicating 0% for the remaining two dimensions.

The final section of the *Holistic Wellness Survey* was designed to elicit information from participants regarding their perceptions of their personal wellness in each of the six dimensions of wellness identified in Hettler's (1976) model. These dimensions include (a) occupational, (b) social, (c) intellectual, (d) spiritual, (e) emotional, and (f) physical. Before being prompted to answer questions, each section provided the reader with a brief definition of that particular area of wellness and a list of guiding tenets that Hettler (1976) specified in the *Six Dimensions of Wellness* model. Delmonico and Kumpf (2013) developed a Likert seven-point response rating scale that measured the attitude of the respondents for each question. Responses were on a continuum from one extreme to another with an equal number of positive and negative responses possible and one neutral category.

Data Analysis

The data were downloaded and imported into the latest version of the Statistical Package for the Social Sciences (SPSS 2015). Descriptive statistics were conducted on all variables to determine frequency distribution for each question in the survey. Specifically, measures of central tendency and measures of dispersion were used to augment the description of the data. The measures of central tendency were included: mode, median, and arithmetic mean, whereas, measures of dispersion analysis identified the range and standard deviation of the data. Furthermore, subscales were created for each of the six dimensions of wellness by computing the difference between the first and second questions within each of the wellness sections in the Wellness Survey (Delmonico & Kumpf, 2013). The subscales described participants' perceived improvement for each of the dimensions for wellness. The following subscales were computed for each of the six dimensions of wellness: occupational time improvement, physical time improvement, social time improvement, intellectual time improvement, spiritual time improvement, and emotional time improvement.

A Spearman correlation analysis was conducted on research questions one (R1) and two (R2). In research question 1, the correlation analysis aimed to determine statistical significance between duration (the length of time practicing in karate) and the six time improvement wellness subscales. Duration was derived from the information gathered in questions seven on Delmonico and Kumpf's (2013) wellness survey. Question two focused on identifying statistical significance between frequency of karate practice, both for formal karate training classes and training outside of a formal class, and the six time improvement wellness subscales. Frequency is defined in the following two

ways: how often participants attended karate classes within the karate dojo, which is derived from question nine in the Wellness Survey (Delmonico & Kumpf, 2013), and how often participants practice outside of the dojo, which is retrieved from the responses on question 10 of the survey.

A series of *t*-tests were conducted on research questions three (R3) and four (R4). Research question 3 focused on identifying a statistically significant difference in the six time improvement wellness subscales between those who identify as having a mental health condition and those who did not; whereas the fourth research question examined whether or not there exists a significant difference in the six time improvement wellness subscales between those with a black belt and those with a lower belt rank. Ancillary analysis was conducted on the backend of the data analysis process to identify intercorrelational significances in R1 and R2.

Assumptions

To address R1 and R2, a Pearson correlation matrix was used to examine the relationships. The series of Pearson correlations was conducted to assess the following: the association between duration of time practicing karate and personal wellness and the association among the six subscales. Prior to analysis, the assumptions of linearity and normality were tested. Linearity was assessed through examination of scatterplots. Normality was assessed through Kolmogorov-Smirnov tests. The correlation coefficients were evaluated through Cohen's standard, where coefficients between .10 and .29 represent a small association; coefficients between .30 and .49 represent a medium association; and coefficients above .50 represent a large association (Cohen, 1988). Analysis suggested there were univariate outliers in the following variables: Spiritual

Time Difference and Social Time Difference. A univariate outlier is defined as any data point further than 3.29 standard deviations from the mean. Since, Pearson correlation assumes that there are no outliers, the results of the Pearson correlation test could be biased. For the purpose of comparing results, a Spearman correlation was conducted on R1 and R2.

Prior to the analysis of R3 and R4, the assumptions of normality and homogeneity of variance were assessed. A Shapiro-Wilk test was conducted to determine whether the responses for occupational, physical, social, intellectual, spiritual, and emotional dimensions of wellness could have been produced by a normal distribution (Razali & Wah, 2011). The results of the Shapiro-Wilk test were significant for all six dimensions of wellness. This suggests that each dimension of wellness is unlikely to have been produced by a normal distribution in both R3 and R4; thus normality cannot be assumed. However, the mean of any random variable will be approximately normally distributed as sample size increases according to the Central Limit Theorem (CLT). Therefore, with a sufficiently large sample size ($n > 50$), deviations from normality will have little effect on the results (Stevens, 2009). An alternative way to test the assumption of normality was utilized by plotting the quantiles of the model residuals against the quantiles of a Chi-square distribution, also called a Q-Q scatterplot (DeCarlo, 1997). For the assumption of normality to be met, the quantiles of the residuals must not strongly deviate from the theoretical quantiles. Strong deviations could indicate that the parameter estimates are unreliable. Levene's test for equality of variance was used to assess whether the homogeneity of variance assumption was met (Levene, 1960). The homogeneity of variance assumption requires the variance of the dependent variable be approximately

equal in each group. The result of Levene's test was not significant for any of the six dimensions of wellness, indicating that the assumption of homogeneity of variance was met for both R3 and R4.

Since, the assumptions of normality and homogeneity of variance cannot be assumed for R3 and R4, a Mann-Whitney two-sample rank-sum test was conducted on R3 and R4. The Mann-Whitney two-sample rank-sum test is a non-parametric alternative to the independent samples *t*-test and does not share the independent samples *t*-test's distributional assumptions (Conover & Iman, 1981). Therefore, the Mann-Whitney two-sample rank-sum test was conducted on R3 to examine whether there were significant differences in occupational, physical, social, intellectual, spiritual, and emotional dimensions of wellness between those who identified as having a mental health condition and those who did not. Similarly, a Mann-Whitney two-sample rank-sum test was conducted for R4 to examine whether there were significant differences in participant's perceptions of wellness between the different belt ranks.

Delimitations

There are several limitations to this study. These limitations are factors that may negatively affect or weaken the results of this investigation (Heppner, Wampold, & Kivlighan, 2008) by compromising the validity and limiting their generalizability. The following limitations could threaten the internal and external validity of this study.

Selection can be a threat to internal validity when method of gathering research data limits the type of individual that can participate in the study (Heppner et al., 2008). In this study, an existing database was used and data were collected using a web-based survey completed by a sample of convenience (Delmonico & Kumpf, 2013). In this

survey study, participants were recruited online and in person at karate tournaments and workshops. A significant disadvantage to this technique is that it limits participation to those who have access to e-mail and a computer, and those who are comfortable with web-based technology (Rea & Parker, 2005). An additional threat to web-based surveys is the lack of interviewer involvement. Therefore, unclear questions or statements cannot be explained and respondents may not follow instructions (Rea & Parker, 2005).

History refers to how events or circumstances that occur during the time of survey administration can have an effect on the respondents. Events occurring during the time of administration may influence the participants' affective disposition and may influence how they respond (Heppner et al., 2008). For example, participants may have engaged in activities other than karate or experienced life-events that may have had a greater impact on their level of wellness than karate participation and these in turn influenced how they responded to the survey.

Low Statistical Power refers to the probability of correctly determining that there exists a true relationship between variables. This can occur when there are not enough participants, resulting in a conclusion that no relationship exists when in fact a true relationship does exist (Heppner et al., 2008).

Disruption effect happens when an unforeseen event occurs during administration of the survey (Heppner et al., 2008). For example, those completing the survey may experience familial disruption, such as needing to attend to a child, or computer glitches, which may interfere with accurate and complete data collection.

Summary

This study investigated the impact of regular participation in karate on personal wellness for karate practitioners. Furthermore, this investigation examined the differences in the perceptions of how karate influences wellness between those who identify as having a mental health condition and those who do not. The study analyzed preexisting, unpublished data from a web-based survey that obtained demographic information, behavioral data concerning the frequency and length of time that participants have been involved with karate, and attitudinal data regarding how karate has impacted participants' wellness within the following areas: occupational, physical, social, intellectual, spiritual, and emotional. A Spearman correlation analysis was conducted to examine research questions #1 and #2. A series of independent sample *t*-tests were performed on questions #3 and #4. Lastly, ancillary statistical analysis was conducted to identify several intercorrelational significances.

CHAPTER IV

RESULTS

This chapter presents the results, as well as a summary of the statistical analysis conducted in this study. The primary purpose of this study was to investigate the impact of regular participation in karate on personal wellness for karate practitioners who were actively training at least once a week for at least six consecutive months in some form of American, Japanese, Korean, or Okinawan karate. The findings are presented in narrative and tabular form.

First, archival data were uploaded into SPSS version 24.0 for Windows. Descriptive statistics were employed on all variables to determine frequency distribution for each question in the survey. Specifically, measures of central tendency and measures of dispersion were used to augment the description of the data. The measures of central tendency included mode, median, and arithmetic mean, while measures of dispersion analysis identified the range and standard deviation of the data. Descriptive statistics were reported for age, gender, race, and belt rank. Next, statistical assumptions were examined in order to determine if statistical analyses were viable with this data set. Finally, results of the analyses for each research question were explored.

Descriptive Analysis and Sample

This study used an existing data set collected through the quantitative investigation conducted by Delmonico and Kumpf (2013). The data were collected from a national sample of 67 karate practitioners. The participants were recruited from karate dojos and from local, state, and national competitions throughout the United States. The aforementioned investigators utilized purposeful sampling (Rea & Parker, 2005) to

secure females and males, age 18 years and older who were actively training at least once a week in some form of American, Japanese, Korean, or Okinawan karate. To qualify for the study, participants had to have been training in karate for at least six consecutive months and hold any belt rank representative of one of the aforementioned types of karate that is specific to that systems ranking process.

The sample was comprised of 67 participants of which 1 participant did not indicate belt rank, 47 indicated black belts, and 19 participants indicated other lower ranking belt (11 brown belts, 2 purple belts, 1 green belt, 3 orange belts, and 2 blue belts; Table 1). There were 43 males and 23 females who responded to the survey (Table 1). Participants ranged in age from 18 to 67 years old with an average of 43.55 ($SD = 13.54$). The most frequently observed race/ethnicity was White/Caucasian, comprising of 61% of the sample size. The remaining participants identified their race/ethnicity as follows: African American ($n = 2, 3\%$), Asian/Pacific Islander ($n = 1, 1.5\%$), Native American ($n = 1, 1.5\%$), and other ($n = 1, 1.5\%$).

Since the purpose of this study was to investigate the relationship between karate participation and wellness for those who practice this discipline, the length of time (measured in months) in karate and the frequency of training per week were examined. The descriptive analysis revealed that the total number of months participants reported training in karate ranged from 14.00 to 565.00, with an average of 194.33 months ($SD = 159.39$). The most frequently observed category for how often participants engage in formal karate training classes was three or more times per week ($n = 29, 43\%$; Table 1). Similarly, the most frequently observed category for how often do participants practice

outside of formal karate training classes was also three or more times per week ($n = 29$, 43%; Table 1).

Table 1

Descriptive Analysis of Sample

Belt Rank	Frequency	Percent
Black Belt	47	70.2
Other Belt Ranks	22	28.8
Brown Belt	11	16.7
Purple Belt	2	3.0
Green Belt	1	1.5
Orange Belt	3	4.5
Blue Belt	2	3.0
Total	66	100.0
Gender		
Male	43	65.2
Female	23	34.8
Total	66	100
Frequency of Practice in Formal Training		
Once per week	7	10.4
Twice Per Week	27	40.3
Three or more times per week	29	43.3
Missing	4	6.0
Total	67	100
Frequency of Practice Outside of Formal Training		
Once per week	11	16.4
Twice Per Week	20	29.9
Three or more times per week	29	43.3
Missing	7	10.4
Total	67	100

Research Questions and Hypotheses

This study posed four research questions for examination. The first research question asked if there are statistically significant associations between the duration of time a karate practitioner has been practicing and personal wellness. The second question sought to determine whether there is a statistically significant association between frequency of participation in karate and personal wellness. Spearman correlation

matrices were used to analyze the results. Research question 3 sought to determine if there are statistically significant differences in the perceptions of how participation in karate influences personal wellness between those who identify as having a mental health condition and those who do not. Question four sought to determine whether there is a statistically significant difference in the perceptions of how participation in karate influences personal wellness between the different belt ranks. To address research questions three and four, a series of independent sample *t*-tests were used to examine the relationship between variables.

Research Question 1: Spearman Correlation Analysis

Hypothesis 1 through 6: Duration in Karate Practice and The Six Dimensions of Wellness. The first research question was designed to determine whether there exists a relationship between the length of time a practitioner has been training in karate and his or her personal wellness. A Spearman correlation analysis was conducted because analysis suggested there were univariate outliers in the following variables: Spiritual Time Improvement and Social Time Improvement. A univariate outlier is defined as any data point further than 3.29 standard deviations from the mean. Hence, the Spearman correlation analysis was used because it is a nonparametric statistical analysis that accounts for interval data that may have a skewed distribution. A Spearman correlation analysis was conducted between duration and the time improvement subscales: physical time difference, emotional time difference, spiritual time difference, occupational time difference, social time difference, and intellectual time difference.

It was hypothesized that karate practitioners who have been practicing longer will have significantly higher improvement ratings for perceived physical wellness. The

Spearman correlation analysis indicated a significant negative correlation between duration and the physical time improvement subscale ($r_s = -0.36, p = .004$). The correlation coefficient between duration and the physical time improvement subscale was -0.36 indicating a moderate effect size. This indicates that as duration increases, physical wellness tends to decrease. Although significance was discovered in physical wellness, further examination of the data revealed no significant relationship between duration and the other five wellness time improvement subscales (Table 2).

Ancillary analysis revealed intercorrelational significance between the following time difference subscales: physical time difference and occupational, emotional time difference and spiritual time difference, emotional time difference and social time difference, emotional time difference and intellectual time difference, spiritual time difference and intellectual time difference, occupational time difference and intellectual time, and social time difference and intellectual time difference.

Table 2

Spearman Correlation Matrix Among Duration, Physical Time Improvement, Emotional Time Improvement, Spiritual Time Improvement, Occupational Time Improvement, Social Time Improvement, and Intellectual Time Improvement

Variables	1	2	3	4	5	6	7
1. Duration	-						
2. Physical Time Improvement	-0.36**	-					
3. Emotional Time Improvement	-0.10	0.31*	-				
4. Spiritual Time Improvement	0.05	0.23	0.59***	-			
5. Occupational Time Improvement	0.10	0.31*	0.03	0.27*	-		
6. Social Time Improvement	-0.04	0.05	0.34**	0.31*	0.07	-	
7. Intellectual Time Improvement	0.08	0.14	0.36**	0.32*	0.44***	0.43***	-

Note. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Research Question 2: Spearman Correlation Analysis

Hypothesis 1 through 6: Frequency in Formal Karate Training Classes and The Six Dimensions of Wellness. The second research question was designed to determine frequency of karate training in two areas: in formal karate training classes and training outside of formal training classes. For the purposes of this study, frequency is defined as how often participants attended karate classes within the karate dojo and how often participants practiced outside of the dojo. A Spearman correlation analysis was conducted between frequency of formal karate training classes and the time improvement subscales: physical time difference, emotional time difference, spiritual time difference,

occupational time difference, social time difference, and intellectual time difference.

Results indicated that there was a significant negative correlation between the frequency of participation in formal karate training classes and spiritual time improvement subscale ($r_s = -0.31, p = .019$). The correlation coefficient between these two variables was -0.31, indicating a moderate effect size. This suggests that as a practitioner's participation in formal training classes increases, spiritual time improvement subscale tends to decrease.

A similar finding was discovered between formal karate training classes and intellectual time improvement subscale. There was a significant negative correlation between frequency of participation in formal karate training classes and intellectual time improvement subscale ($r_s = -0.29, p = .029$). The correlation coefficient between these variables was -0.29 indicating a small effect size. This suggests that as a practitioner's participation in formal training classes increases, intellectual time improvement subscale tends to decrease. There were no significant correlations discovered between frequency of participation in formal karate training classes and the other time improvement subscale subscales.

However, ancillary analysis revealed intercorrelational significance between the following time improvement subscales: physical time improvement and emotional time improvement, physical time improvement and occupational time improvement, emotional time improvement and spiritual time improvement, emotional time improvement and social, emotional time improvement and intellectual, spiritual time improvement and occupational time improvement, spiritual time improvement and social time improvement, spiritual time improvement and intellectual time improvement,

occupational time improvement and intellectual time improvement, and social time improvement and intellectual time improvement.

Table 3

Spearman Correlation Matrix Among Frequency of Participation in Formal Karate Training Classes, Physical Time Improvement, Emotional Time Improvement, Spiritual Time Improvement, Occupational Time Improvement, Social Time Improvement, and Intellectual Time Improvement

Variables	1	2	3	4	5	6	7
1. Frequency (Formal Training)	-						
2. Physical Time Improvement	0.01	-					
3. Emotional Time Improvement	-0.21	0.34**	-				
4. Spiritual Time Improvement	-0.31*	0.22	0.61***	-			
5. Occupational Time Improvement	-0.15	0.33*	0.04	0.29*	-		
6. Social Time Improvement	-0.29*	0.19	0.35**	0.35**	0.47***	0.41***	-
7. Intellectual Time Improvement							

Note. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Hypothesis 1 through 6: Frequency Outside of Formal Karate Training Classes and The Six Dimensions of Wellness. A second Spearman analysis was conducted between frequency of karate training outside of formal classes and the time improvement subscales: physical time improvement, emotional time improvement, spiritual time improvement, occupational time improvement, social time improvement, and intellectual time improvement. The results indicated that there was not a significant correlation between karate training outside of formal classes and any of the time improvement subscales. Therefore, the null hypothesis is accepted. However, ancillary analysis revealed intercorrelational significance between the following time improvement subscales: physical time improvement and emotional time improvement, physical time

improvement and occupational time improvement, emotional time improvement and spiritual time improvement, emotional time improvement and social time improvement, emotional time improvement and intellectual time improvement, spiritual time improvement and social time improvement, spiritual time improvement and intellectual time improvement, occupational time improvement and intellectual time improvement, and social time improvement and intellectual time improvement.

Table 4

Spearman Correlation Matrix Among Frequency of Participation Outside of Formal Karate Training Classes, Physical Time Improvement, Emotional Time Improvement, Spiritual Time Improvement, Occupational Time Improvement, Social Time Improvement, and Intellectual Time Improvement

Variables	1	2	3	4	5	6	7
1. Frequency (Outside)	-						
2. Physical Time Improvement	0.08	-					
3. Emotional Time Improvement	-0.05	0.33*	-				
4. Spiritual Time Improvement	-0.23	0.22	0.61***	-			
5. Occupational Time Improvement	0.20	0.31*	0.02	0.22	-		
6. Social Time Improvement	-0.01*	0.06	0.37**	0.30*	0.04	-	
7. Intellectual Time Improvement							-

Note. * $p \leq .05$; ** $p \leq .01$; *** $p \leq .001$

Research Question 3: Independent Sample *t*-Tests

The third research question was designed to determine whether there exists a significant difference in the participants' perceptions of wellness between those who identify as having a mental health condition and those who do not. A series of

independent sample *t*-tests were conducted between those with and without mental conditions for each dimension of wellness: physical, emotional, spiritual, occupational, social, and intellectual. Additionally, due to the use of six independent sample *t*-tests, a Bonferroni correction was applied to determine statistically significant results ($\alpha = .05 / 6 = .008$).

It was hypothesized that karate practitioners who identify as having a mental health concern would report significantly higher improvement ratings for perceived physical, emotional, spiritual, occupational, social, and intellectual wellness. The results of this analysis are presented in Table 5 and described below.

Hypothesis 1 through 6: Mental Health and The Six Dimensions of Wellness.

The result of the independent samples *t*-test were not significant for any of the time improvement wellness dimensions between practitioners who identified as having a mental health conditions and those who did not: physical, $t(62) = -0.90, p = .373$; spiritual, $t(60) = -0.86, p = .395$; occupational, $t(61) = -0.09, p = .925$; social, $t(61) = 0.31, p = .756$; intellectual, $t(61) = 0.25, p = .803$; and emotional, $t(60) = -0.69, p = .490$.

Since the assumptions of normality and homogeneity of variance cannot be assumed, a Mann-Whitney two-sample rank-sum test was conducted to examine whether there were significant differences in the time improvement subscales between those who identified as having a mental health condition and those who did not. The results of the Mann-Whitney *U* test were not significant for each of the wellness dimensions: physical, $U = 440.5, z = -0.99, p = .321$; spiritual, $U = 429.5, z = -0.79, p = .432$; occupational, $U = 485.5, z = -0.11, p = .910$; social, $U = 538.5, z = -0.67, p = .504$; intellectual, $U = 516, z = -0.33, p = .740$; and emotional, $U = 417, z = -0.93, p = .354$. The mean rank for group No

and the mean rank for group Yes for each time improvement wellness dimension is shown in Table 5. This suggests that the distribution for each time improvement wellness dimension for *Group No*, those who indicated that they did not have a mental health condition, is not significantly different from the distribution for each time improvement wellness dimension from those who did identify having a mental health condition, *Group Yes*. Therefore, the null hypothesis is accepted; karate practitioners who identify as having a mental health condition did not report significantly higher improvement ratings for perceived physical, spiritual, occupational, social, intellectual, and emotional wellness than those who did not identify as having a mental health condition.

Table 5

Mann-Whitney Rank Sum Test for Time Difference Wellness Dimensions (No) and Time Difference Wellness Dimensions (Yes)

Variables	Mean Rank		<i>U</i>	<i>z</i>	<i>p</i>
	No	Yes			
1. Physical Time Improvement	30.18	34.54	440.50	-0.99	.321
2. Spiritual Time Improvement	29.81	32.98	429.50	-0.79	.432
3. Occupational Time Improvement	31.74	32.22	485.50	-0.11	.910
4. Social Time Improvement	33.45	30.68	538.50	-0.67	.504
5. Intellectual Time Improvement	32.70	31.36	516.00	-0.33	.740
6. Emotional Time Improvement	29.38	33.36	417.00	-0.93	.354

Research Question 4: Independent Sample *t*-Tests

The fourth research question was designed to determine if there exists a significant difference in participants' perceptions of wellness between the higher belt

ranks, black belt rankings, and the remaining lower belt ranks. A series of independent sample *t*-tests were conducted between the different higher and lower belt ranks for each dimension of wellness: physical, emotional, spiritual, occupational, social, and intellectual. Additionally, due to the use of six independent sample *t*-tests, a Bonferroni correction was applied to determine statistically significant results ($\alpha = .05 / 6 = .008$).

It was hypothesized that karate practitioners who hold a black belt will report higher improvement ratings for perceived physical, emotional, spiritual, occupational, social, and intellectual wellness than lower ranking belts. The results of this analysis are presented in Table 6 and described below.

Table 6

Independent Samples t-Test for the Difference Between Time Difference Wellness Dimensions (Black Belt) and Time Difference Wellness Dimensions (Other)

Variables	Black Belt		Lower Belt Rank		<i>t</i>	<i>p</i>	<i>d</i>
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
1. Physical Time Improvement	0.62	1.03	1.00	0.82	-1.50	.139	0.41
2. Spiritual Time Improvement	0.56	0.81	0.38	0.59	0.90	.370	0.25
3. Occupational Time Improvement	0.50	0.71	0.48	0.75	0.12	.902	0.03
4. Social Time Improvement	0.56	0.63	0.59	0.80	-0.16	.871	0.04
5. Intellectual Time Improvement	0.54	0.71	0.36	0.73	0.91	.364	0.24
6. Emotional Time Improvement	0.81	0.94	0.74	0.81	0.29	.772	0.08

Hypothesis 1 through 6: Belt Rank and Dimensions of Wellness. The result of the independent samples t-test were not significant for any of the time improvement wellness dimensions: physical ($t(62) = -1.50, p = .139$); spiritual ($t(60) = 0.90, p = .370$);

occupational ($t(61) = 0.12, p = .902$); social ($t(61) = -0.16, p = .871$); intellectual ($t(61) = 0.91, p = .364$); and emotional ($t(59) = 0.29, p = .772$). This suggests that the mean of each time improvement wellness dimension was not significantly different between black belt practitioner and those who hold a lower ranking belt. Since the assumptions of normality and homogeneity of variance cannot be assumed, a Mann-Whitney two-sample rank-sum test was conducted. The results of the Mann-Whitney U test were not significant for each of the time improvement dimensions: physical ($U = 373, z = -1.34, p = .182$); spiritual ($U = 453.5, z = -0.39, p = .698$); occupational ($U = 438.5, z = -0.04, p = .968$); social ($U = 469, z = -0.29, p = .772$); intellectual ($U = 507, z = -0.93, p = .354$); and emotional ($U = 424.5, z = -0.42, p = .672$). The mean rank for black belt versus lower ranking belt for each dimension is shown in Table 7. This suggests that the distribution of each of the time improvement wellness dimensions for black belt practitioners is not significantly different from the distribution of the time improvement wellness dimensions for lower ranking belts. Therefore, the null hypothesis is accepted; black belt karate practitioners did not report significantly higher improvement ratings for perceived physical, spiritual, occupational, social, intellectual, and emotional wellness than those with a lower ranking belt.

Table 7

Mann-Whitney Belt Rank Sum Test for Each Dimension of Wellness

Variables	Mean Rank		<i>U</i>	<i>z</i>	<i>p</i>
	Black Belt <i>M</i>	Lower Rank Belt <i>M</i>			
1. Physical Time Improvement	30.38	36.55	373.00	-1.34	.182
2. Spiritual Time Improvement	32.06	30.40	453.50	-0.39	.698
3. Occupational Time Improvement	31.94 32.44	32.12 31.18	438.50 469.00	-0.04 -0.29	.968 .772
4. Social Time Improvement	33.37	29.45	507.00	-0.93	.354
5. Intellectual Time Improvement	31.61	29.66	424.50	-0.42	.672
6. Emotional Time Improvement					

Summary

An analysis of the findings in R1 and R2 suggested no significant improvement in personal wellness, as defined by Hettler's *Six Dimensions of Wellness* model, as a result of participation in karate, which was defined as both duration and frequency in karate training. However, results in R1 did suggest a significant negative correlation between duration and physical wellness, while R2 findings indicated a significant negative correlation between frequency of training in formal karate classes and the following dimensions of wellness: spiritual and intellectual. Although this finding rejects the null hypothesis, it does suggest that physical wellness decreases with practitioners who have been practicing karate longer and spiritual and intellectual wellness decrease the more frequently karate practitioners participate in formal karate classes. The findings of the independent sample *t*-tests conducted for both research questions three and four

suggested that, for question 3, there were no significant differences in perceived wellness as a result of participation in karate between those who identified as having a mental health condition and those who did not report having a mental health condition. This same finding was discovered for research question 4, indicating that there was no significant difference within each of the dimensions of wellness between black belts and lower ranking practitioners. However, ancillary analysis revealed several intercorrelational significances between the wellness subscales for both length of time practicing in karate and frequency of practice, which is further explored in Chapter 5.

CHAPTER V

DISCUSSION

Adults who live with a serious mental health condition die on average 25 years earlier than those who do not struggle with a mental health concern. An estimated 50% of Americans are diagnosed with a mental health condition at some point in their lifetime (CDC, 2018). Additionally, those suffering from chronic ailments, such as asthma, obesity, diabetes, and heart disease, are at a greater risk of developing depression and anxiety (CDC, 2016a). Without community resources that help support behaviors that lead to wellness, people will continue to remain at-risk for developing a debilitating physical and/or mental health issue. This study attempts to add to existing literature on disciplines that facilitate mental health and physical wellness. Specifically, karate practitioner's responses were investigated to determine if regular participation in karate improved participant's wellness, as defined by Hettler's wellness model.

Summary of Study

This quantitative study investigated the relationship between participation in karate and personal wellness for karate practitioners. The investigation utilized a preexisting unpublished data set that was obtained through the investigatory efforts of Delmonico and Kumpf (2013). The 67 karate practitioners in the sample were derived from a purposeful sampling process, recruiting from karate schools nationally and within the Pittsburgh area, as well as at national competitions across the country. The voluntary participants received and responded to a recruitment postcard or email that provided information regarding the study. Participants completed the *Holistic Wellness Survey*, which is a web-based instrument used to gather information in the following three areas:

demographics, training experience in karate, and karate's impact on individual's wellness. Data were collected over the course of eight months and were stored at a secure hosting facility with both physical and software-based security systems to protect it from being accessed by those other than the authorized user.

This study posed four research questions for examination. Pearson and Spearman correlation matrices were used to analyze research questions one and two. To address research questions three and four, a series of independent sample *t*-tests were used. Additionally, ancillary analyses were conducted to examine relationships of interest between variables that were not specifically addressed in the original research questions.

This chapter presents a review of the study results and develops conclusions from the data analyses. Limitations of the study, implications for practice, and recommendations for future research are also discussed.

Summary and Interpretation of Findings: Research Question 1

The first research question examined whether or not there exists a relationship between the length of time a practitioner has been training in karate and his or her personal wellness. Length of time in karate training was defined as the total estimated number of months a participant had been training. Hettler's Six Dimensions of Wellness model was used to define personal wellness. Hence, this research question examines six hypotheses, each corresponding to one of the following areas of wellness: H1: occupational, H2: physical, H3: social, H4: intellectual, H5: spiritual, and H6: emotional.

H1. The hypotheses all asserted that karate practitioners who have been practicing karate longer would have a significantly higher improvement rating score for perceived H1: occupational, H2: physical, H3: social, H4: intellectual, H5: spiritual, and

H6: emotional wellness. For hypothesis one, results of the Spearman correlation analysis indicated a significant negative correlation between length of time practicing in karate and physical wellness. This suggests that perceived physical wellness declined the longer a participant practiced karate. Despite the fact that these findings reject the null hypothesis, the results do not align with much of what the existing literature states about physical health and karate. In Messaoud's (2016) discussion about the perceptions of karate as a sport, he reported that martial arts are aimed at improving "the psychophysical personality of the human being" (p. 49, para. 1). Numerous studies suggest that karate and similar disciplines improve body strength, reaction rate, flexibility, balance, and precision of movement; all facets of physical wellness (Kamal, 2015; Witte et al., 2015; Zago et al., 2015). To date, however, there has been limited empirically based research examining the relationship between karate and physical healthiness. How then can this finding from the current study be explained? On one level, the results of this study are based on the collective, subjective perceptions of the participants as they relate to experiences like injury, age, and disposition. Schwartz, Takito, Vecchio, Antonietti, and Franchini (2015) found that karate is related to an increased rate of injury. Zetaruk, Violan, Zurakowski, and Micheli's (2005) comparative investigation discovered a 30% rate of injury for karate practitioners and that younger participants, which were identified as those younger than 18 years of age, were at lower risk of injury. The mean average age for subjects in this study was 43.55 years old. Although all research participants were required to be 18 years or older, only 18 of the 65 karate practitioners who reported their age were young adults (ages 18 to 35). Therefore, over half of the participants in this study were middle aged and older. A Pearson correlation analysis between age and

the six time improvement subscales indicated a significant negative correlation between age and physical wellness suggesting that as age increased, physical wellness decreased. Based on this finding and preexisting literature (Zetaruk et al., 2005), it is possible that most of the participants were within an age bracket that is more prone to injury than younger adults.

Extraneous variables may have also contributed to the results of this study concerning physical wellness and karate such as a lack of appropriate nutritional health; other health concerns not reported at the time of survey completion were body composition and how this may affect movement. Another extraneous variable to consider includes highly competitive practitioners who would be more inclined to push themselves as opposed to modifying their training as they age; as a result, they may experience a higher injury rate. Schwartz et al. (2015) suggested that karate practitioners who have greater success with improving their physical health through this discipline modify their practice to complement their body composition. Since, martial movements and balance are essential to the practice of karate, individuals may not be making the necessary modifications to account for their body composition. Additionally, as a practitioner ages it becomes more important to rely on refined technique as opposed to depending on an individual's physical prowess (K. B. Kumpf, personal communication, October 11, 2017). Modified movement to better support a practitioner's practice of karate would decrease the chance of injury and increase strength and endurance. However, understanding surrounding the necessity for modified training is contingent on instructors' awareness concerning this matter.

Another possibility surrounding the outcome of the findings in this study concerning physical wellness is participants' semantical interpretation of the language used to define the concept of physical wellness as it related to this study. Rea and Parker (2014) highlighted the importance of questionnaire clarity because without this, ambiguities exist which leads to respondent confusion. This may have led to erroneous interpretation from the participants regarding what was meant when asked about physical wellness. Semantical ambiguities may have also been one of the contributing factors concerning the reason why no significance was discovered with the remaining hypotheses in the first research question.

H2—H6. Hypotheses 2 through 6 stated that there would be a significant correlation between length of time in karate and improved emotional, intellectual, social, spiritual, and occupational wellness. However, the Spearman correlation analysis for each of these wellness dimensions revealed no significant relationship between them and duration of training. This study found no connection between the length of time training and improved wellness within the aforementioned wellness dimensions. This finding is not consistent with much of the preexisting literature, which supports a connection between karate and some of these areas of wellness. Although past empirically based research on karate and its effect on personal wellness remains scant and inconclusive, this research endeavor is focused on delineating the facets of karate and examining the wellness benefits of this discipline.

These research efforts to understand karate and what facets of this discipline facilitate personal wellness have resulted in findings, which suggest that karate does encourage wellness. In fact, each dimension of wellness cited in this study has been

examined through the lens of karate or some other form of martial arts. Although some of the study outcomes are inconclusive, an overwhelming majority of the findings report positive results for karate participants' personal wellness. For instance, karate has been shown to have positive outcomes in emotional and intellectual wellness for a range of ages. It has been reported to improve self-esteem and memory for children with epilepsy (Conant et al., 2008), aided in the management of anger in adolescents (Ziaee et al., 2012), shown to improve cognitive speed in older adults (Jansen & Dahmen-Zimmer, 2012), and shown to improve feelings of self-worth in the elderly (Rajan, 2015). In terms of social wellness, karate promotes positive social interactions and social awareness, and improves communication and collaboration with others (Messaoud, 2016). When examined through the lens of spiritual wellness, research endeavors have discovered that this dimension is rated one of the top three influential factors for students practicing karate (Tremlow, Lerma, & Tremlow, 1996). It has been shown to encourage the unification of mind and body and to achieve self-transcendence through meditative practices. Although less is known about karate's impact on occupational wellness, empirically based research on Tai Chi and its implementation in a workplace setting has revealed that it reduces work stress and helps to facilitate an increase in work productivity (Palumbo, Wu, Shaner-McRae, Rambur, & McIntosh, 2012; Steinberg, Bartimole, Habash, & Fristad, 2017).

Given the positive findings of the aforementioned research, how is it that this study's findings do not align with what the preexisting literature states about karate and personal wellness? One possibility is that there was an insufficient number of participants in this study. As such, there may have not been enough respondents to yield

statistically significant outcomes. Upon closer examination of participants' responses, most respondents reported either no change in wellness or a mild to moderate positive change in wellness. For instance, out of 67 participants 62 completed the emotional wellness section of the survey. Of the 62 respondents, only one reported a moderate decline in emotional wellness, whereas 27 subjects indicated no change, and 34 subjects reported mild to moderate positive change in emotional wellness. The 27 participants who reported no change rated their emotional wellness as having remained in *average*, *good*, or *excellent* condition throughout the duration of their karate training. Over half of the karate participants reported experiencing an increase in their emotional wellness. Of those responses, 18 participants indicated a mild improvement whereas 16 reported experiencing a moderate improvement in emotional wellness.

Similar to the findings on emotional wellness and time training in karate, a breakdown of the responses for intellectual, social, spiritual, and occupational wellness reveal that the majority of respondents experienced either no change or mild, moderate, or high improvement in a dimension of wellness. In intellectual wellness, 63 responded and only one reported a mild decrease in intellectual wellness. Thirty-eight of the respondents indicated that their intellectual wellness remained in *average*, *good*, or *excellent* condition throughout the duration of their karate. Whereas, 24 participants indicated improvement in intellectual wellness, of which 17 reported mild improvement and 7 indicated moderate improvement. The output for social wellness was similar to intellectual in that 63 of the 67 participants responded and only one participant reported a mild decline in this area of wellness. Whereas, 30 individuals reported no change, 28 indicated mild positive change, three reported moderate positive change, and one

reported high improvement in social awareness. Once again, over half of participants reported experiencing improvement in social awareness.

Continued review of this study's findings revealed that for spiritual wellness, 62 responded and only one indicated a decline in this dimension of wellness. Thirty-six participants reported no change, 19 reported mild improvement, five indicated moderate improvement, and one reported high improvement in spiritual awareness. Unlike spiritual wellness and the other four dimensions of wellness discussed thus far, the results of occupational wellness revealed that out of 63 responses, 28 reported no change, 27 indicted mild improvement, four reported high improvement, and four reported a mild decline in occupational wellness. Although the number of individuals who reported a decline in occupation wellness is low relative to the number of participants who experienced no change or improvement, it is the only wellness dimension where more than one individual reported a decline in their wellness.

Although the findings of this study regarding hypothesis 2, 3, 4, 5, and 6 yielded no significance, it cannot be assumed that karate does not have some influence in these dimensions of wellness. Perhaps, the findings are a byproduct of having an inadequate sample size. A larger sample size may have increased the likelihood of discovering statistical significance, which may have aligned with current literature on karate and personal wellness. Another aspect of this study's design that might have contributed to these findings was bias related to the sample of convenience used to compile the original data set. Delmonico and Kumpf (2013) used purposeful sampling and had intended on capturing a sample size of individuals who were actively training in some form of American, Japanese, Korean, or Okinawan karate. However, all participants who

responded to the survey identified as practicing Okinawan karate only. Therefore, the sample is not representative of practitioners from a range of karate styles. This not only prevents the generalizability of results to the practice of karate, it may be another reason for why this study's findings do not align with current literature. Pannucci and Wilkins (2010) indicated that bias in research can cause perceived associations of study outcomes to be directly opposite of the true association. The empirically based studies and review of literature that has been conducted by others regarding wellness and karate or other forms of martial arts strongly support that these disciplines promote personal wellness. So, it can be surmised that bias may have significantly contributed to the result of this study.

A similar bias includes the notion that many practitioners within the sample may have failed to modify their training over the course of time as is suggested by Duessel and Washabaugh (n.d.). Many of the practitioners may have received inadequate instruction which could have negatively impacted their ability to recognize the need to evolve over the course of time as their body changed, and as a result, their physical wellness declined. Additionally, high level practitioners who are competitors may have also been unwilling to modify their training routines because they feared that by doing so they would experience a decline in their proficiency level; however, these same practitioners may also experience a decline in wellness as a result of their inability to adapt to their ever-changing body as they age.

Another closely related point of consideration is the importance of developing modified movement in karate training to better support practitioners' aging body, body composition, and life circumstance (Schwartz et al., 2015). Without this, a karate

practitioner increases the likelihood of injury which may result in a person perceiving karate as having an adverse effect on one's physical, emotional, intellectual, social, spiritual, and occupational wellness. Therefore, modified training becomes essential to encouraging personal wellness for practitioners who remain actively involved in this discipline.

Kevin B. Kumpf (personal communication, October 11, 2017), a karate practitioner of 34 years and a seven-time world champion within the Isshinryu World Karate Association (IWKA), the governing regulatory organization for the Isshinryu karate system, recommends the following regarding modified movement: changing the frequency, intensity, and length of training sessions. These changes should be in accordance to a practitioner's age, physical conditioning, and professional and familial obligations. Additionally, as a karate practitioner evolves a greater emphasis is placed on one's technical proficiency as opposed to athleticism and strength. As a practitioner becomes more technically proficient they are able to practice in a more effortless fashion, which minimizes stress on the body, lessens the chances of physical injury, and increases personal wellness and longevity of their karate training. In addition, Duessel and Washabaugh (n.d.) stated that

When you are young, there is physical growth. But the laws of nature slow that growth. The true masters develop power as they become older; certainly, because they have acquired knowledge, but also because they lose their physical muscle strength and must rely on technique. (p. 16, para. 3)

Hence, the lack of modified karate training could have been another contributing factor to why participants in this study may have rated their wellness as declined or have shown no improvement.

Summary and Interpretation of Findings: Research Question 2

The second research question examined the frequency of training and whether or not there exists a relationship between this and participants' personal wellness. For the purpose of this study, frequency of karate training was defined as how often participants attended karate classes within the karate dojo and how often they practiced outside of the dojo. Hettler's Six Dimensions of Wellness model was used to define personal wellness. Hence, this research question examines six hypotheses, each corresponding to one of the following areas of wellness: H1: occupational, H2: physical, H3: social, H4: intellectual, H5: spiritual, and H6: emotional.

H1—H6: Formal Karate Training Classes and Outside of Formal Karate Training. The hypotheses all asserted that karate practitioners who practice more frequently in both formal karate training classes and outside of the karate dojo would have a significantly higher improvement rating score for perceived physical, emotional, intellectual, spiritual, social, and occupational wellness. The results of the Spearman correlation analysis indicated that there was no significant relationship between the frequency of practice outside of the karate dojo and any of the six dimensions of wellness. Similarly, no significance was discovered between frequency of participation in formal karate training classes and the following dimensions of wellness: physical, emotional, occupational, and social. However, the results did reveal a negative correlation between frequency of participation in formal karate training classes and the

following dimensions of wellness: spiritual and intellectual. This suggests that perceived spiritual and intellectual wellness declined the more frequent a participant engaged in formal karate training classes.

The findings of no significance for four of the wellness dimensions and the findings of a negative correlation with spiritual and intellectual wellness do not align with what the literature suggested regarding the relationship between karate and wellness. The current literature discusses the importance of consistent practice and how this is important in facilitating personal wellness. Studies that have examined the positive implications of karate on a person's wellness required subjects to be involved in training sessions, between once to three times per week (Jansen & Dahmen-Zimmer, 2012; Kamal, 2015; Ludivine et al., 2010; Witte et al., 2015). It was only through the participants' consistent participation in karate sessions that researchers could gain a more accurate sense of the effects this discipline has on an individual. Reportedly, time invested in training is one of the most valued aspects of karate practice. The amount of time allotted for practice and how it is spent is crucial to progress (K. B. Kumpf, personal communication, October 11, 2017). Unlike a seasonal sport, martial arts are practiced 12 months a year in a consistent manner. Inconsistency in training erodes a karate practitioner's skills and prevents them from reaching their full potential, and perhaps perceiving the development of increased wellness (Duessel & Washabaugh, n.d.; K. B. Kumpf, personal communication, October 11, 2017).

So, once again, the question of why did the findings of this study deviate so much from what the existing literature reports on the relationship between karate and wellness? As in research question 1, the results of the data analyses for this research question may

have been a byproduct of an inadequate sample size and a sample of convenience resulting in unintended bias. Another possible explanation might be that the sample participants failed to modify their karate training to account for their age, body composition, and life obligations, resulting in increased injury rates. A more detailed discussion of these potentially confounding issues is addressed in the limitations section of this chapter.

Summary and Interpretation of Findings: Research Question 3

The third research question examined whether or not there exists a statistically significant difference in the participants' perceptions of wellness between those who identify as having a mental health condition and those who did not. A series of independent *t*-tests were conducted between these groups for each dimension of wellness. Length of time in karate training was defined as the total estimated number of months a participant had been training. Hettler's Six Dimensions of Wellness model was used to define personal wellness. Hence, this research question examines six hypotheses, each corresponding to one of the following areas of wellness: H1: occupational, H2: physical, H3: social, H4: intellectual, H5: spiritual, and H6: emotional.

H1—H6. The hypotheses all asserted that karate practitioners who identified as having a mental health condition would report higher improvement rating score for perceived physical, emotional, intellectual, spiritual, social, and occupational wellness. The results of the independent sample *t*-tests indicated no statistically notable difference between the two groups for each dimension of wellness. This suggests that those who identified as having a mental health condition did not report higher improvement wellness ratings than participants who did not identify as having a mental health

condition. Upon closer examination of the data, only 35 respondents identified as having a mental health condition while the remaining 32 did not. This took an already small sample size and divided into even smaller groups. If the power analysis for the entire group of 67 participants was at 65%, which means there is a little over 50% chance for choosing the correct hypothesis, then creating groups half that size would even further lessen the chances of making a correct hypothetical conclusion. The author believes that this may have the most significant impediment to determining whether or not any significance could be found with research question 3.

Although the statistical outcome for question three in this study was not significant, literature does exist to suggest a link between improved mental health conditions and those who participate in karate or another form of martial arts (Duessel & Washabaugh, n.d.; Funakoshi, 2013; Oulanova, 2009; Pilates et al., 2012). However, there is no empirically based research that examines the practice of karate and its relationship to wellness for participants who report having a mental health issue. The author's purpose for proposing this research question was to begin examining whether or not there was any statistically discernable difference between those who identify as having a mental health condition and those who do not. Although, existing literature reports a positive link between increased mental wellness with those who practice a form of martial arts, the author wondered if a significant difference could be discovered between these two groups.

Observation. In over a decade of working as a psychotherapist with an array of client concerns, it was the author's observation that many who identify as having a mental health condition have, at some point, been engaged in a psychotherapeutic

process. In this process, individuals are actively exercising awareness about the facets of themselves and their life conditions that support or do not support acquiring and maintain wellness. In fact, Weiser et al. (1995) discussed the importance of bridging the practice of martial arts and psychotherapy stating that martial arts “is capable of enhancing the process of psychotherapy by providing active, physical routes for the discovery of expression of emotion” (p. 118, para. 1). In 1988, Fuller stated that the martial arts can be seen as a “formalized, refined systems of human potential training” that provides practical methods for psychological intervention (p. 318, para. 1). Yet to date, there is a limited amount of current empirically based research to support these early discussions concerning the bridging of psychotherapy and martial arts. Since, karate has numerous advantages and the link between it and mental health wellness continues to be explored (Messaoud, 2016), this research question is meant to add to the current literature.

Although, the results of this research question yielded no significant outcome, it would benefit future researchers to examine this further, which is discussed in greater detail in the Recommendations for Future Research section of this chapter.

Summary and Interpretation of Findings: Research Question 4

The fourth research question examined whether or not there exists a significant difference in participants’ perceptions of wellness between those who have earned a black belt and those who are practicing at the remaining lower belt ranks. Belt rank of participants is defined according to the current ranking system in modern Japanese martial arts. Hettler’s Six Dimensions of Wellness model was used to define personal wellness. Hence, this research question examines six hypotheses, each corresponding to

one of the following areas of wellness: H1: occupational, H2: physical, H3: social, H4: intellectual, H5: spiritual, and H6: emotional.

H1—H6. The hypotheses all asserted that karate practitioners who hold a black belt would have a significantly higher improvement rating score for perceived physical, emotional, intellectual, spiritual, social, and occupational wellness. The results of the independent sample *t*-tests indicated no statistically notable difference between participants who held a black belt and those who held a lower ranking belt. Further analyses of the data reveals that of the 67 who responded to the survey, 45 identified as having a black belt and 22 identified as having a lower ranking belt. The lack of statistical significance may be the result of the same reasons cited earlier in this chapter: too small of a sample size, sample of convenience bias, and the lack of appropriate modified karate training needed to promote wellness. Further discussion on how to account for these limitations is detailed in the Limitations section of this chapter.

In spite of the statistically insignificant outcome in research question 4, the literature does suggest that longevity within karate and the martial arts does equate with improvement of individuals' mind and body (Duessel & Washabaugh, n.d.; K. B. Kumpf, personal communication, October 11, 2017; Messaoud, 2016; Witte et al., 2015). For example, Witte et al. (2015) exemplified this point through a 10-month study, which examined the effects of karate on the cognitive and emotional functioning of older adults. The results of this study revealed that participants showed a significant improvement in their motor reactivity and stress tolerance after only 5 months of karate training and even more so for those who continued for another 5 months of training. As stated earlier in this chapter, the amount of time devoted to the appropriate practice of karate or other

forms of martial arts is crucial to practitioners' progress. Time in karate practice allows practitioners to become competent and proficient, which is meant to encourage the forming of a character structure that builds awareness around the mind-body connection (K. B. Kumpf, personal communication, October 11, 2017; Messaoud, 2016). "A poor awareness of one's body is the symptom of a deeper illness: physical, spiritual and even social" (Bolelli, 2008, p. 215).

Time and consistent training in karate not only enables the fortification of a sounder mind and body connection, but it is also a prerequisite for promotion to black belt. The acquisition of a black belt requires a certain degree of maturity in a person's knowledge of the practice, ability to proficiently execute the techniques, spiritual development, and ability to competently teach the discipline (Duessel & Washabaugh, n.d.; K. B. Kumpf, personal communication, October 11, 2017; Messaoud, 2016). Since a black belt practitioner is a mature karate practitioner who has invested substantial amount of time in karate training, it was surmised that they would have higher wellness ratings than participants holding lower ranks. The author believes that these results may have been influenced by the limitations of this study, identified earlier and discussed in the limitations section of this chapter, and that this question warrants further investigation.

Ancillary Statistical Analysis

The research questions were not intended to examine the correlational patterns between the six improvement wellness subscales. However, an ancillary analysis was conducted on the backend of the data analysis process. After running the Spearman correlation analysis for both research questions 1 and 2, several intercorrelational

significances were observed between wellness dimensions. Although the research questions did not examine the interplay between the wellness dimension, it is notable to report that several of the wellness dimensions revealed positive correlations. For instance, an intercorrelational significance was discovered in reviewing the statistical output for research question 1 in that as physical wellness improved so did occupational wellness. A more thorough breakdown of the intercorrelational significance can be viewed in Tables 2 and 3 of Chapter 4.

It is noteworthy to mention the intercorrelational significance seen in both research questions 1 and 2 because this finding supports the theoretical underpinning of Hettler's Six Dimensions of Wellness model. The Six Dimensions of Wellness is an interdependent model, which states that healthy living is acquired through the interconnectedness of each dimension (NWI, 2018). Therefore, it is assumed that an ongoing interplay among the wellness dimensions needs to occur for an individual to experience wellness. The findings of the ancillary analysis support this assumption thus offering support to the design of the Hettler model.

Limitations of the Study

This quantitative study investigated the relationship between karate and personal wellness for karate practitioners of any rank who actively trained in some form of American, Japanese, Korean, or Okinawan karate for at least six months. Initially, it was the intention of Delmonico and Kumpf (2013) to use purposeful sampling to obtain a large sample size that was representative of the aforementioned forms of karate for the purpose of enhancing the generalizability of the collected data and to increase the probability of producing statistically significant outcomes. However, despite the attempts

to recruit additional participants via email listserv and recruitment fliers that were distributed in various locations in Pittsburgh and at local, state, regional, and national competitions, only a small number of individuals completed the online wellness survey. The small sample size was a threat to internal validity. A sample size that is too small reduces the power of the study and increases the margin of error (Rea & Parker, 2005). The statistical power in this study was 65%, which means that there was a little more than a 50% chance of supporting the research hypothesis. The power of a study is its ability to detect an effect when there is one to be detected. However, a small sample size increases the change of a Type II error, which is when the results indicate a difference does not exist, when in fact a difference does exist but the analysis was not able to identify it. The small sample size, which led to a lower power analysis, may have been one of the reasons why the results yielded no significance and why the results of this study did not align with the findings in the available literature on personal wellness.

Sample bias was another limitation to this study. The purposeful sampling use in this study is a non-probability sampling technique used because of its convenient and efficient way of reaching potential respondents (Rea & Parker, 2005). However, this sampling method may not always guarantee that the subjects recruited are representative of the entire karate population. For example, the original data collection efforts resulted in a sample of predominantly Okinawan karate practitioners who responded to the survey. This bias may have resulted from Kumpf, who is a well-known Okinawan practitioner, using his network to inform schools and dojo instructors about the study.

Another threat to internal validity is selection, which is when the methods of gathering data limit the type of individuals that can participate in the study (Heppner et

al., 2008). Although this study utilized an extant dataset, the method by which the data were collected was via an online survey. A significant disadvantage to this technique is that it limits participation to those who have access to a computer, and those who are competent and comfortable with web-based technology (Rea & Parker, 2005). An additional problem with web-based surveys is the lack of direct researcher involvement. As a result, if any statements or questions are not clear to the respondent, they cannot be explained or clarified and respondents may not follow instructions or understand what is being asked of them (Rea & Parker, 2005). Therefore, the lack of control over administration of the survey may have increased the probability of erroneous interpretation of information on the part of the respondent.

Other limitations to this study were the confounding variables *history* and *disruption effect*. *History* refers to the events or circumstances that may have occurred at the time of survey administration that influence the participant's affective disposition and influenced his or her responses (Heppner et al., 2008). For example, participants who engage in activities other than karate or those who experienced other life-events like illness or a relationship breakup may have had a greater impact on their level of wellness than their participation in karate. Similarly, a *disruption effect* occurs when an individual is completing the survey and experiences a disruption during this process, such as a distraction or interruption, which interferes with his or her ability to accurately complete the survey.

A final limitation to this study is construct validity. The *Holistic Wellness Survey* is a web-based survey design by Delmonico and Kumpf (2013) to obtain descriptive, behavioral, and attitudinal information regarding the relationship between the practice of

karate and wellness. However, no pretest was conducted to ensure that the questions on the survey were consistent with the objective of the study. A pretest, or a small-scale administration of a draft version of the survey, which assess for questionnaire clarity, questionnaire comprehensiveness, and questionnaire acceptability was not completed (Rea & Parker, 2005). Therefore, it is uncertain as to whether or not the wellness survey measures what it claims to measure.

Implications for Practice

This study was designed and conducted to investigate the relationship between regular participation in karate and personal wellness. Although many of the findings in this study yielded statistical insignificance, or a negative correlation between the practice of karate and aspects of wellness, the literature that does exist reports more positive relationships between karate practice and personal wellness (Funakoshi, 2013). In addition, the American Counseling Association (ACA) and other professional counseling organizations stress the importance of promoting and encouraging holistic care for clients, as well as for professional counselors, and counseling supervisors (ACA, 2014; Ohrt, Prosek, Ener, & Lindo, 2015). If the mission of counselors, according to ACA (2014), is to enhance the quality of life for others, then it becomes an inherent obligation for professional counselors to be aware of the activities, practices, and community resources that support the gaining and sustaining of healthy living. Therefore, as a part of their ongoing professional development, it would behoove counseling professionals to continue to examine karate as an integrative discipline that promotes mind and body health.

According to the CDC (2016a), it has been projected that by the year 2020, depression will be the second leading cause of disability throughout the world. For this reason and because of the continued increase in physical ailments, such as diabetes, heart disease, and obesity, the CDC has recommended that physical and behavioral health professionals become informed about strategies and interventions that promote an integrative approach to wellness. Counselors have a professional responsibility to use karate as well as any other ancillary activities that might support their efforts to promote wellness for their clients.

One of the primary distinctions between counselors and other mental health professionals is the emphasis on holistic care (Barden et al., 2015; Mellin, Hunt, & Nichols, 2011). Barden et al. (2015) suggested that “counselors in general believed their professional identity to be grounded in wellness orientations” (p. 155, para. 3). Therefore, it is important that counselors build their arsenal of resources and interventions by identifying practices that align with a wellness orientation. Oulanova (2009) identified the therapeutic properties inherent in karate, drawing parallels between the counseling process and karate practice. For instance, components of karate practice resemble a counseling session wherein a client learns and practices a novel skill with the intent on developing awareness and addressing intrapersonal and interpersonal conflict. Another shared exercise between these two practices is that both the counselor and karate instructor select interventions based on the needs of the person receiving counseling or instruction. The overlap between the practice of counseling and karate provides additional support for why this martial arts discipline needs to be examined further as a supplemental and/or alternative counseling intervention.

The psychotherapeutic and health promoting aspects of karate and its alignment with the goals and practice of counseling have anecdotal support and provide encouragement for mental health professionals to investigate the incorporation of this martial arts discipline into their therapeutic practice where appropriate. For example, exploring the efficacy of kata practice and stance training with clients who present with impulse control issues may result in those clients developing a more refined ability to affectively regulate as well as to delay gratification when confronted with psychosocial stress. In addition, ACA (2014) advocated that counselors and counselor supervisors monitor their own self-care process and personal wellness to ensure that signs of impairment from physical, mental, or emotional concerns do not interfere with the practice of providing ethical care to clients. The Association for Counselor Education and Supervision (ACES, 2011) recognizes the importance of counseling supervisors to consistently assess themselves and supervisees for signs of un-wellness and impairment. Therefore, it becomes just as important for counselors and counselor educators to develop practices that emphasize the importance of holistic well-being.

Since karate is a multidimensional discipline that incorporates practices and traditions, which address both the mind and body, it would be remiss not to examine this branch of martial arts as a viable option for promoting self-care and personal wellness for clients, counselors, and counselor supervisors. As professional counselors become more well-informed on how karate can be used as a psychotherapeutic tool for clients, and a self-care intervention for counselors and supervisors to combat chronic physical and mental health conditions, additional opportunities to conduct research on the efficacy of karate as a wellness promotion auxiliary to therapy will present themselves.

Recommendations for Future Research

Several questions and recommendations for future research have emerged as a result of this study. One of the most notable concerns for the author was the sample size and power analysis results in this study. The sample size was inadequate and likely reduced the power of the study, which increases the margin of error (Rea & Parker, 2005). The results of this study were affected by the small sample size that increased the probability of producing a Type II error. This Type II error was likely the reason for this study's inability to identify any significant findings that aligned with the literature suggesting a positive relationship between karate and personal wellness. Future research should reproduce the design of this study but ensure the use of recruitment methods that increase the number of participants, and ensures a more representative sample of karate practitioners. Well-structured sample survey research allows for generalizability to the entire population (Rea & Parker, 2005). However, the successful acquisition of a survey sample is contingent on the means by which information is gathered. Future research that looks to examine the phenomena examined in this study may want to include additional methods of data collection. In addition to offering a web-based option, future sample recruitment and data collection processes should utilize mail, telephone, and in-person surveys. Utilizing multiple methods for acquiring participants and collecting data would likely increase sample size and decrease sample bias. Similarly, sample bias can also be addressed by having a neutral party involved with the recruitment process. Such a person would be an individual who has no affiliation to any surrounding karate dojos or maintains any type of celebrity status within the various karate organizations. To further reduce sample bias, researchers could use a sampling strategy or computer software to

randomize the list of contact information. Then various forms of collecting survey information would be utilized to ensure survey completion.

Aside from the concerns associated with sample size, it may be beneficial to consider other evidence-based wellness models, aside from Hettler's Six Dimensions of Wellness, when considering the relationship between karate and wellness. Specifically, the Indivisible Self Model of Wellness is a wellness model in counseling which can enhance clients' ability to assess the relationship between wellness, their choices, and their behavior as they relate across multiple wellness domains. More specifically, this model will allow researchers to examine the implications for a person's wellness when he or she makes a purposeful decision to isolate specific aspects of karate training such as kobudo, or kumite practice for the purpose of improving one's wellness.

Construct validity is another area of focus to address in future research. To ensure that the survey questions are consistent with the objective of the study, a researcher would need to follow specific steps to design an effective questionnaire. The initial stage would utilize preliminary information gathering techniques to determine how to define wellness, what components of the karate discipline are important to examine, what questions need to be asked that accurately reflect both the concept of wellness and the discipline of karate, and whether or not Hettler's Six Dimensions of Wellness model is the best structure to use in defining wellness. After the completion of a draft survey, researchers would conduct a pretest to evaluate for questionnaire clarity, comprehensiveness, and ethicalness. Additional revisions and pretest may need to occur to ensure the design of an effective questionnaire.

Another recommendation for future research would include exploring the difference in perceived wellness between karate practitioners with a mental illness and those who do not report a mental illness. More specifically, does a practitioner with a mental illness derive more wellness benefits from practicing karate than a practitioner who does not have a mental illness? This research would help to identify any potential relationship between karate and its impact on one's mental health specifically, as opposed to only focusing on a broad sense of wellness.

An additional question worthy of future research would be to examine whether there are any perceived differences in wellness between male and female practitioners. For example, are there specific differences that exist between the training methods of males and females, and if so, how do these differences impact the degree to which each experience an improved sense of wellness as a result of their karate training?

Another important research consideration would be to identify the key factors that could function as an impediment to practitioners experiencing an improved sense of wellness as a result of their karate training. A qualitative research analysis could prove profitable as a means to identify the appropriate phenomenological questions that could help to provide a rich description of the preceding impediments. Many of these impediments could be perceptually based for practitioners, and as a result, could prove to be difficult to capture via traditional quantitative analysis.

Furthermore, in order to develop the design implications further research should also explore whether a mixed method research design would be best used to consider the correlation between karate and wellness. Specifically, focusing on the lived experience of the karate practitioners from a phenomenological perspective would allow the

researcher to more accurately capture a rich description of the perceived wellness benefits that can be derived from karate training. On a related note, a qualitative design component may offer the researcher a more refined method for measuring difficult variables such as respect, honor, discipline, work ethic, as well as one's ability to focus or concentrate in a more refined manner.

Additional research is needed to explore the potential relationship between personal wellness, karate, and other forms of movement such as dance or yoga. If a relationship exists between these forms of movement, what is the specific nature of this relationship and how can karate be used to enhance the practice of these other forms of movement for the purpose of improving the wellness of its practitioners? For example, can the practice of karate enhance one's ability to practice yoga in a more efficient way, therefore allowing the individual to improve his or her wellness?

According to Terry (2015) more empirical evidence is needed for healthcare providers and the public to become aware of alternative methods for achieving health from a mind, body, and spirit perspective. Additional research, which focuses on kata practice specifically as an affective regulatory exercise from a body process perspective, could prove to be beneficial.

A final consideration would be for future research to include a range of age groups. Additional empirically based research is needed to substantiate karate as a discipline that is not only suitable for promoting wellness in adults but also for adolescents and children. Because there is such a rise in mental health issues and physical ailments, even within the pediatric population, and such an interest in prevention of these concerns it would be helpful for counselors and other health care professionals to

know of other interventions that can help address pediatric mood disorders and chronic diseases.

Summary

The purpose of this study was to investigate the impact of regular participation in karate on personal wellness for karate practitioners. This study used an existing data set that was collected through the quantitative investigation conducted by Delmonico and Kumpf (2013). The statistical analysis revealed the following significance: a negative correlation between duration of time practicing karate and physical wellness; a negative correlation between the frequency of participation in formal karate training classes and spiritual and intellectual wellness; and several intercorrelational significance between the dimensions of wellness. The statistical findings in this study do not align with the literature concerning wellness and karate or other forms of martial arts. Therefore, additional research initiatives and empirical studies on karate and personal wellness is needed to develop a comprehensive understanding of this phenomenon.

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APPENDIX A

WELLNESS SURVEY

Informed Consent

DUQUESNE UNIVERSITY
600 FORBES AVENUE
PITTSBURGH, PA 15282

CONSENT TO PARTICIPATE IN A RESEARCH STUDY

TITLE: Perceived Wellness Among Karate Students

INVESTIGATORS:

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PURPOSE: You are being asked to participate in a research study that investigates an individual's perception of their overall wellness (e.g., physical, spiritual, emotional, occupational, social, and intellectual) while actively participating in a Karate training program. You will be asked to complete a Holistic Wellness Survey online which will take no more than fifteen to twenty minutes of time for you to complete. The survey will ask about your overall health and wellness, as well as personal information about you and your Karate training (e.g., age, gender, number of years in training, previous health issues, etc.) These are the only requests that will be made of you.

RISKS AND BENEFITS: There are no risks associated with this study that are greater than those encountered in everyday life. Through your participation you may develop a refined understanding of the relationship between Karate and wellness.

COMPENSATION: You will not be compensated for your participation in this study. However, participation in the project will require no monetary cost to you.

CONFIDENTIALITY: Your name will never appear on any survey or research instruments. No identifiers will be collected during the online survey, and your Internet Protocol address will not be stored with your survey. All research materials (printed and electronic) will be stored in a locked file cabinet or on a password protected computer. Survey Monkey is the website through data will be collected. All data transmitted via Survey Monkey is done with SSL technology in order to safeguard your data. Other measures have been taken by Surveymonkey.com to guard your privacy (<https://www.surveymonkey.com/mp/policy/security/>). Your response will only appear in statistical data summaries. All materials will be destroyed five years after the completion of the research.

Informed Consent

RIGHT TO WITHDRAW: You are under no obligation to participate in this study. You are free to withdraw your consent to participate at any time.

SUMMARY OF RESULTS: A summary of the results of this research will be supplied to you, at no cost, upon request.

VOLUNTARY CONSENT: I have read the above statements and understand what is being requested of me. I also understand that my participation is voluntary and that I am free to withdraw my consent at any time, for any reason. On these terms, I certify that I am willing to participate in this research project.

I understand that should I have any further questions about my participation in this study, I may contact any of the investigators Dr. Kevin B. Kumpf at 412-889-2080, or Dr. David Delmonico at 412-396-4032. If I have questions about the use of human subjects in this research study, I may contact Dr. Linda Goodfellow, Chair of the Duquesne University Institutional Review Board at 412-396-6326.

By clicking the link below to participate, I am giving my voluntary informed consent to participate in this study.

Demographic Information

1. Current age in years:

2. Gender

- Male
 Female

3. Race/Ethnicity

- White/Caucasian
 African American
 Asian/Pacific Islander
 Native American
 Hispanic
 Other (please specify)

4. What is the highest level of school you have completed or the highest degree you have received?

- Less than high school degree
 High school degree or equivalent (e.g., GED)
 Some college but no degree
 Associate's degree
 Bachelor's degree
 Graduate level degree
 Other (please specify)

5. Religious/Spiritual Affiliation:

- Christian (Protestant/Catholic)
- Jewish
- Muslim
- Buddhist
- Agnostic
- Atheist
- Belief in a higher power
- Other (please specify)

6. What is your approximate average household income?

- \$0-\$24,999
- \$25,000-\$49,999
- \$50,000-\$74,999
- \$75,000-\$99,999
- \$100,000-\$124,999
- \$125,000-\$149,999
- \$150,000-\$174,999
- \$175,000-\$199,999
- \$200,000 and up

7. What is the total estimated number of months you have been training in Karate (please convert years to months)(if you just started put 1 month)

8. What is your longest total estimated number of uninterrupted months in Karate training? (This may be different than the previous question, since you may have taken breaks in your training).

9. How often do you participate in FORMAL Karate training classes?

- Once per week
- Twice per week
- Three times per week
- Other (please specify)

10. How often do you practice your Karate training outside of a formal class?

- Once per week
- Twice per week
- Three times per week
- Other (please specify)

11. What rank do you currently hold in Karate?

- 1. White Belt
- 2. Yellow Belt
- 3. Orange Belt
- 4. Green Belt
- 5. Purple Belt
- 6. Brown Belt
- 7. Black Belt
- Other (please specify)

12. If you have attained the rank of black belt please select your appropriate degree. In order to be selected, the titles of Renshi, Kyoshi, and Hanshi must have been conferred upon you by a recognized Karate association, otherwise please select the rank option without the corresponding title attached:

13. Are you a member of a Karate association?

- Yes
- No



14. Please indicate the name of the association or associations you belong to (please mark all that apply)

- 1. Isshinryu World Karate Association (IWKA)
- 2. Okinawa Isshinryu Karate Kobudo Association (OIKKA)
- 3. American Isshinryu Karate Association (AOKA)
- 4. Karate International Association of Isshinryu (KIAI)
- 5. International Isshinryu Karate Association (IIKA)
- 6. United States Isshinryu Karate Association (USIKA)
- Other (please specify)

15. Which of the categories best describes your employment status?

- Employed, working 40 or more hours per week
- Employed, working 1 to 39 hours per week
- Not employed, looking for work
- Retired
- Disabled, not able to work
- Other (please specify)

16. If you are currently employed, which of the following categories best describes your type of employment?

- Professional
- Industrial (Boilermaker, Ironworker, etc.)
- Professional Trade (Electrician, Contractor, Plumber, etc.)
- Law Enforcement/Community Based
- Self-Employed
- Other (please specify)

17. Please list your job title / occupation.

18. Please mark any of the disorders or issues that you have had in the past or are currently struggling with in your life today. (Check all that apply)

- None of these apply to me
- Anxiety
- Depression
- Eating Disorder
- Substance Abuse (e.g. alcohol, other drugs)
- Attention Deficit/Hyperactivity Disorder (ADD/ADHD)
- Chronic Pain
- Trauma Survivor
- Impulse Control Issues
- Sleep Disorder
- Unresolved Grief or Bereavement
- Autism Spectrum Disorder / Aspergers
- Other Addictions (e.g., gambling, shopping, sex, etc.)
- Other (please specify)

19. Please mark any of the disorders you indicated above that you believe Karate has helped improve in your your life. Please mark all that may apply.

- None of these apply to me
- Anxiety
- Depression
- Eating Disorder
- Substance Abuse (e.g. alcohol, other drugs)
- Attention Deficit/Hyperactivity Disorder (ADD/ADHD)
- Chronic Pain
- Trauma Survivor
- Impulse Control Issues
- Sleep Disorder
- Unresolved Grief or Bereavement
- Autism Spectrum Disorder / Aspergers
- Other Addictions (e.g., gambling, shopping, sex, etc.)
- Other (please specify)

20. Overall, I believe Karate has had a positive impact on my recovery from any mental/emotional struggles I have had in my life.

- Strongly Disagree
- Disagree
- Neither Agree or Disagree
- Agree
- Strongly Agree
- Not Applicable to Me

21. Briefly describe how you believe Karate has impacted any mental/emotional struggles you have had. (If this does not apply to you, please leave blank).

22. Overall, I believe my Karate training has positively impacted at least one aspect of my health and wellness (physical, spiritual, emotional, social, intellectual, or occupational)

- True
- False

Please consider the following definitions when responding to the next question:

Physical Wellness - achieving optimal physical health, including regular activity, weight, and overall physical self-care.

Intellectual Wellness - stimulation of one's creative activities and curiosity about the world.

Spiritual Wellness - satisfaction with our search for meaning and purpose in life.

Emotional Wellness - positive and enthusiastic about oneself and the ability to deal with negative situations.

Social Wellness - positive and healthy connections to others; sense of belonging to a community.

Occupational Wellness - feelings of satisfaction and enrichment related to one's life work.

* 23. Please divide 100 percent across the various areas of wellness, based on the percent you believe Karate has that particular area of wellness in your life.

The total between all areas of wellness MUST equal 100.

If you believe Karate did not affect a particular area of wellness, enter zero (0) for that area, keeping in mind that the total must still equal 100.

All answers must be whole number and please do not include the percentage sign (%) in your answer.

Physical Wellness	<input type="text"/>
Intellectual Wellness	<input type="text"/>
Spiritual Wellness	<input type="text"/>
Emotional Wellness	<input type="text"/>
Social Wellness	<input type="text"/>
Occupational Wellness	<input type="text"/>

Occupational Wellness

Please take a few moments to reflect on each question before responding. When you are ready, please select the option that best describes your response to each question.

Occupational wellness acknowledges personal satisfaction and enrichment in one's life through work. At the center of occupational wellness is the premise that there is a connection between one's occupational development and one's attitude about one's work (Hettler, 1976).

Occupational wellness follows these tenets:

A. It is better to choose a career which is consistent with our personal values, interests, and beliefs than to select one that is unrewarding for us.

B. It is better to develop functional, transferrable skills through structured involvement opportunities than to remain inactive and uninvolved.

Occupational Wellness

24. Prior to Karate training, my attitude toward work could best be described as:

Poor	Average	Good	Excellent
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

25. Currently I would rate my attitude toward work as:

Poor	Average	Good	Excellent
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

26. My participation in Karate training has improved my attitude toward work:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 27. My participation in Karate training has improved my ability to concentrate and focus at work:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 28. My training in Karate has helped me to develop transferrable work related skills that aid in my career development:

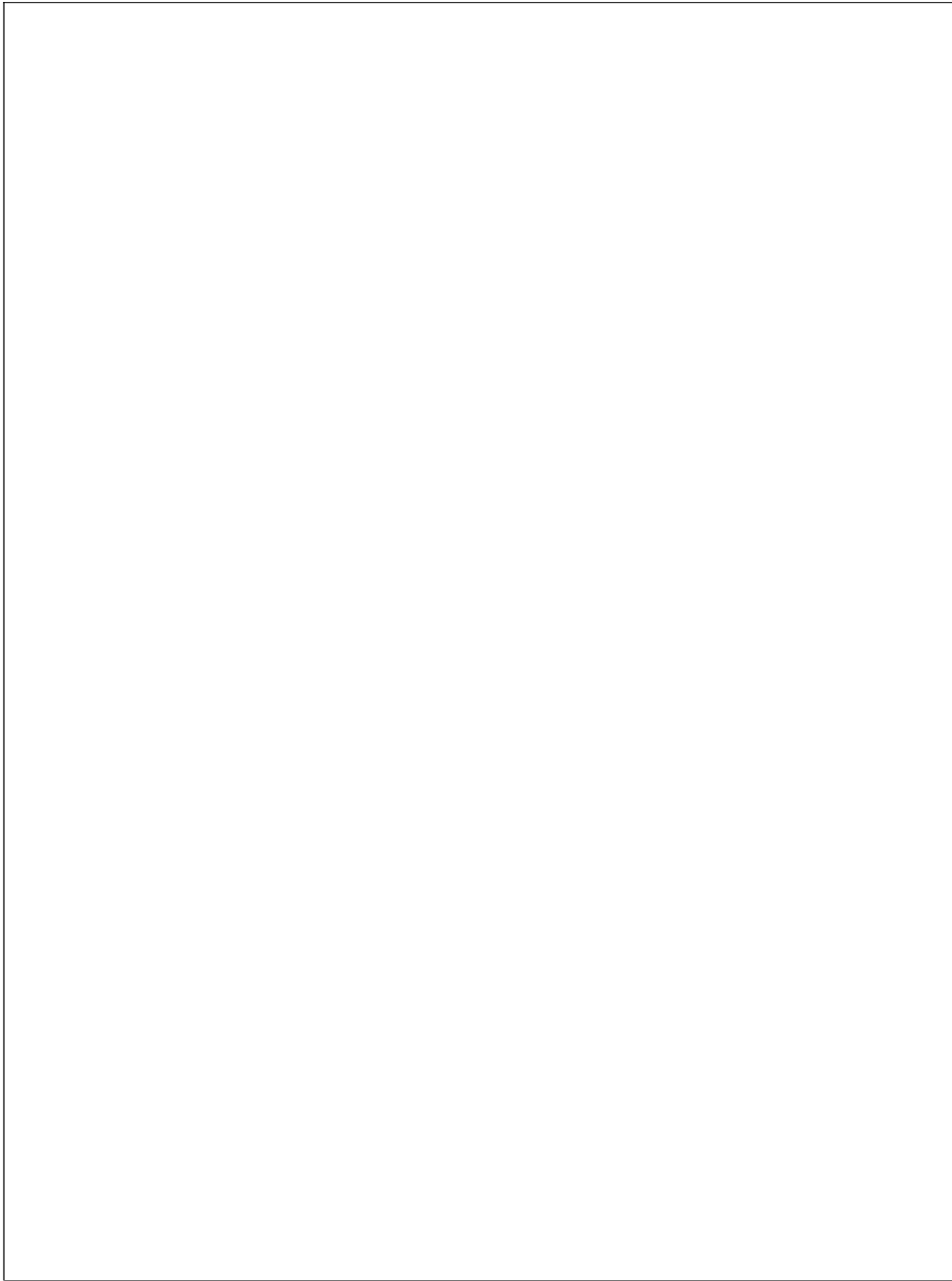
Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

29. My participation in Karate training has improved my ability to tolerate and respect the beliefs and individual differences of others:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

30. My participation in Karate training has improved my occupational wellness:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Physical Wellness

Physical wellness recognizes the need for regular physical activity; optimal physical wellness is met through the combination of appropriate exercise and good daily eating habits. The physical dimension of wellness requires personal responsibility and self-discipline for the purpose of developing appropriate self-care skills (Hettler, 1976).

Physical Wellness follows these tenets:

- A. It is better to consume foods and beverages that enhance good health rather than those which impair it.**
- B. It is better to be physically fit than to be out of shape.**

Physical Wellness

* 31. Prior to Karate training, my physical wellness could best be described as

Poor	Average	Good	Excellent
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 32. Currently I would rate my physical health as:

Poor	Average	Good	Excellent
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 33. My participation in Karate training has discouraged unhealthy behavior, including the use of tobacco, drugs, or alcohol:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 34. My participation in Karate training has helped me to manage a behavior that I previously had a difficult time controlling on my own:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 35. My participation in Karate training has improved my understanding of the relationship between sound nutrition and how my body performs:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 36. My participation in Karate training has helped me to develop physical strength, endurance, and flexibility, as well as appropriate self-care practices:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Argree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 37. My participation in Karate training has improved my physical wellness:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Social Wellness

Social wellness encourages contributing to one's environment and community by living harmoniously with ourselves and others. Social wellness strongly encourages a connection with nature along with other people (Hettler, 1976).

Social wellness follows these tenets:

A. It is better to contribute to the common welfare of our community than to think only of ourselves.

B. It is better to live in harmony with others and our environment than to live in conflict with them.

Social Wellness

* 38. Prior to Karate training, my social wellness could best be described as:

Poor	Average	Good	Excellent
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 39. Currently I would rate my social health as:

Poor	Average	Good	Excellent
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 40. My participation in Karate training has improved my relationships with others (e.g., friends, family, partner, colleagues, etc.):

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 41. My participation in Karate training has enabled me to respect and promote the welfare of others:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 42. My participation in Karate training has helped to improve my ability to communicate with others:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 43. My participation in Karate training has improved my social wellness:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Intellectual Wellness

Intellectual wellness highlights one's stimulating and creative activities. A well person enhances his or her knowledge and skills by discovering the potential for sharing his or her gifts with others (Hettler, 1976).

Intellectual wellness follows these tenets:

A. It is better to stretch and challenge our minds with intellectual and creative pursuits than to become self-satisfied and unproductive.

B. It is better to identify potential problems and choose appropriate courses of action based on available information than to wait, worry, and contend with major concerns later.

Intellectual Wellness

* 44. Prior to Karate training, my intellectual wellness could best be described as:

Poor	Average	Good	Excellent
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 45. Currently I would rate my intellectual wellness as:

Poor	Average	Good	Excellent
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 46. My participation in Karate training has helped to improve my appreciation for learning:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 47. My participation in Karate training has improved my ability to think creatively with regard to my personal interests:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 48. My participation in Karate training has improved my ability to identify, prioritize, and ultimately solve problems in an appropriate and efficient manner:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 49. My participation in Karate training has improved my intellectual wellness:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Spiritual Wellness

Spiritual wellness helps us to identify our search for meaning and purpose in human existence. It often includes an appreciation for life in all forms along with the natural forces that exist in the universe (Hettler, 1976).

Spiritual wellness follows these tenets:

A. It is better to ponder the meaning of life for ourselves and to be tolerant of the beliefs of others than to close our minds and become intolerant.

B. It is better to live each day in a way that is consistent with our values and beliefs than to do otherwise and feel untrue to ourselves.

Spiritual Wellness

* 50. Prior to Karate training, my spiritual wellness could best be described as:

Poor	Average	Good	Excellent
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 51. Currently I would rate my spiritual wellness as:

Poor	Average	Good	Excellent
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 52. My participation in Karate training has improved my ability to tolerate and respect the beliefs and individual differences of others:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 53. My participation in Karate training has improved the connection between my values and beliefs as they inform how I choose to live my daily life:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 54. My participation in Karate training has improved my spiritual wellness:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Emotional Wellness

Emotional wellness includes the degree to which one feels positive and enthusiastic about one's self and life. It often includes the capacity to manage one's feelings and related behaviors including the realistic assessment of one's limitations, through the development of autonomy, and one's ability to cope effectively with stress (Hettler, 1976).

Emotional wellness follows these tenets:

A. It is better to be aware of and accept our feelings than to deny them.

B. It is better to be optimistic in our approach to life than pessimistic.

Emotional Wellness

* 55. Prior to Karate training, my emotional wellness could best be described as:

Poor	Average	Good	Excellent
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 56. Currently I would rate my emotional wellness as:

Poor	Average	Good	Excellent
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 57. My participation in Karate training has helped me to develop an improved sense of the relationship that exists between my feelings and my behavior:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 58. My participation in Karate training has improved my ability to manage stressful situations effectively:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 59. My participation in Karate training has improved my ability to think optimistically with regard to life as opposed to pessimistically:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 60. My participation in Karate training has allowed me to recognize conflict as being potentially healthy, and to ultimately respond to it in a controlled and appropriate manner:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

* 61. My participation in Karate training has improved my emotional wellness:

Strongly Disagree	Disagree	Somewhat Disagree	Neither Agree or Disagree	Somewhat Agree	Agree	Strongly Agree
<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



Thank you for participating in our survey!